

THE ORPHAN CHRONICLES



RONALD G. ALBRIGHT, JR., M. D.



***T*HE **O**RPHAN
 CHRONICLES**

by

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How does one thank both his "families" for a completed project? My first family, my wife, Louise, and my children, Rhonda, Ronnie and Danny, tolerated my mental (if not physical) absence with a patience and understanding that can only be described as akin to Solomonism. Thank you, my dear ones, for allowing me to have a dream come true.

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When first conceived, I had no aspirations of having this material made available to a widespread audience. I, quite frankly, planned to publish it myself and give away 15 or 20 copies to some of my TI friends as presents. One of them was to be Craig Miller. Craig read the draft and decided that others may enjoy it and went out on the proverbial limb to make more copies available to others. For his confidence and support, I will be forever grateful. And to Sue Miller, who had the unenviable task of running the files through a spelling checker and formatting my ramblings, your efforts were Herculean and appreciated.

And to all the incredible enthusiasts of the Texas Instruments 99/4A Home Computer, who have made the story possible to tell, I hope we can write Volume II of the Chronicles two years hence. I am grateful for all this help; whatever errors there are in the text are mine.

The are no "good guys" or "villains" in this book. It is a nonfiction account of the facts as gathered by the author and based on his INTERPRETATION of these facts. An interpretation is an individual evaluation and should be accepted as such. Another writer, given the same facts and experiences, would almost certainly write a different book. The point is that the author made no attempt to portray anyone in this book in anything but an objective light. The author only presented the facts as he viewed them. If anyone in the book appears to any reader as a hero or a villain, that is entirely through their individual interpretations, as no distinction of that type was intended by the author. The material which appears in quotations is factual and concise. Any other material in the book, should be considered as an interpretation of the facts, and as such, may or may not be considered the truth. It is the truth only in the eyes of the author.

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INTRODUCTION

In a 10 page historical abstract of the history of personal computers appearing in Byte magazine (September, 1985), the authors used a single paragraph for the Texas Instruments 99/4A Home Computer. They wrote:

"June, 1979. Texas Instruments unveils the TI 99/4, which originally sold for \$1150 (which included a color monitor). The machine is slow (even though it uses TI's TMS 9900 16-bit processor), the button-style keyboard is oddly laid out, and TI discouraged third-party software. The revised TI 99/4A solved some of the problems, but TI finally discontinued the computer in late 1983; its close out price went as low as \$50."

In those few short sentences, the authors told the essence of the life of the TI Home Computer. But the story goes far beyond the mere essence. It is the story of corporate mistakes, marketing errors, price wars, personalities, and consumers. All that remains of that story are the last of the consumers. Texas Instruments, indeed abandoned the home computer marketplace in October of 1983. The owners of the TI 99/4A have yet to abandon the machine. While some have either given up on the fantasy that home computers would make their lives suddenly organized, smooth-running, and neat or accepted the predominant advertising hype that "newer is better" and bought a new machine, a large number of owners have clung tenaciously to their 99/4A's with almost cult-like loyalty. They have fought against the industry's odds that dictate once a machine has left production, it can no longer be supported by consumers or producer's for any extended period of time. And they remain. Despite their confinement to the "industry orphanage", they have learned certain survival techniques and have aided each other to keep their machines even more productive than they were when Texas Instruments was actively supporting them. It is a story worth far more than a single paragraph. And so it shall receive its due here.

Why the "Orphan Chronicles"? This book is named so after what has become a phenomenon occurring with increasing frequency in the still-fledgling computer business. Being "orphaned" means that, after buying a mass-marketed product of considerable cost and expected useful product life, the manufacturer leaves the market and produces neither the product or its support technology any longer. The firm may continue to support in warranty and maintenance, but they declare they will no longer produce the computer or peripherals or software and, thus, leave the consumer without the growth and enhancements which come to their computers when marketing is continued. They are "orphaned", abandoned and passed by in the industry mainstream.

In perhaps no other industry have so many consumers found themselves with an expensive purchase without support of the original manufacturer. It has been estimated that there are well over 4 million purchasers of Texas Instruments, Coleco, Mattel, and Timex-Sinclair home computers who have found themselves "abandoned" by their computer's "parent". The cold reality of being "orphaned" has even hit the owners of IBM products, as the much belittled "Peanut" was also brought out of production. It is likely to occur again as those who have, perhaps, overestimated the home computer market continue to face the shake-out period.

This book has been written with two goals in mind. First, to chronicle the survival technology developed by the hearty users of the TI 99/4A who, two years now after their computer's abandonment by its manufacturer, continue to be productive and even prosperous with their computers by mutual support and ingenuity. It is a tribute to these users that this book is written. Secondly, the book may serve to point to ways others already in the "orphanage" or who will join in the future, may survive and flourish in the difficult, but definitely not fatal computer orphanage.

CHAPTER 1 - ONE COMPUTER'S SAD STORY

Texas Instruments is a huge semiconductor producer which had risen to corporate success by marketing its products to other companies (see Appendix 7 for a current publicity sheet from TI itself). The Dallas-based giant had already made major contributions to the "history of computers". In 1954, TI was the first company to make silicon transistors. Jack Kilby had made another major coup there in 1958 when he made the first integrated circuit (IC). And they are even credited with building the first IC-based computer (for the Air Force, in 1961). They assumed prominence in the modern computer industry by making and successfully selling the TMS 1000 chip, a 4-bit microprocessor that rapidly became a best seller in hand-held calculators and games, with estimates of more than 100 million being sold. Through research and development, they were able to follow the 1000 with a second generation chip, the TMS 9900, which was not the expected multiple of 4-bits. Instead of just keeping pace with the industry standards, they leap frogged 8-bits straight to 16-bits with the 9900. Unlike the 1000, the 9900 was a marketing failure. The other manufacturers were not ready to advance so far so fast and opted instead to build their new computers on 8-bit technology. The computers being marketed at that time (1976-1977), all went with 8-bit chips, leaving Texas Instruments with a "chip in search of a computer", and a huge research and development expenditure to make up.

But TI had always been the pace setter in the industry and refused to back down from advanced technology and build what the industry wanted. They did not build an 8-bit chip. What they chose to do was typical TI. They would build a product within the corporate family to use the 9900, "sell the chip to itself", thus covering the research and development costs, and end up selling a new product to boot. Certainly, they expected to turn profit in the process, but one gets the impression that showing their advanced chip was the right choice was the main goal; to save corporate "face", if an oriental metaphor can be used for a Texas electronics firm.

TI chose the consumer-products group, recently moved to Lubbock, which sold the almost successful watches and the successful pocket calculators, to make up the R and D losses. They were tasked with designing a home computer which would feature the TMS 9900 chip, and be sold to the consumer market, proving the industry leaders were wrong about the 16-bit processor. Corporate pride, at least at Texas Instruments, is a powerful force indeed.

While there were already several computers on the market, TI was going to direct their new computer at a new market: the home user. Apple and Tandy were selling computers, but expensive ones, geared primarily for business applications; Commodore was selling the PET, but only with major success in Europe. TI felt it was time to open up the home to computer technology and, to do so, would have to build a less expensive model. A "computer for the masses" was the goal. Applying the same philosophy that they had used to sell millions of watches and calculators, getting the volume up and the price down, they planned on building and selling the first "home computer".

As put forth in "Megatrends" (John Naisbitt, Warner Books; 1982), new technology advances, in its first stages, in the "direction of least resistance". TI predated that premiss. Their home computer would be directed to least resistance. Rather than trying to sell a computer as a replacement for the home typewriter, or the account sheets, they would sell their new computer as a means to educate the children. Certainly, it would play games (an absolute MUST in the early days and also a less threatening advance). The "advanced" home applications (word processing, spreadsheets) were surely planned but, first, one had to make the computer attractive to an entirely new market and education became TI's marketing cornerstone.

They had projected a \$400 machine. After getting the expanded touch of an over enthusiastic engineering department, they had put together a \$1000 machine. (Of course, since TI was making its own chips, the price could have been much lower, but they sold "to themselves" at retail and expected the consumers to finance the 9900

developmental costs.) Having little idea what would be involved in building a new computer and having difficulty enticing experienced computer engineers to leave northern California for Lubbock, in-house engineers grossly exceeded marketing cost projections. Further, being novices in the computer market, they made a fatal error in their new machine. It was the keyboard. Unlike serious computer keyboards of the time, the TI keyboard was no better than the awkward keyboards used on their pocket calculators. Two-thirds the size of a full keyboard and 40 small "chicklet" keys protruding through a plastic membrane marked the fatal flaws of the 99/4 computer. It was awful. Further, there were no "lower-case" keys; only capitals (thus impossible for word processing). No ALPHA-LOCK (not needed, obviously) and lack of function keys were minor in the face of the other dreadful imperfections. On the plus side (if there was one) was a built in "calculator function" which placed two "windows" on the screen; one could place an equation generated in the lower window into the top window, then, pick values for any variable in the equation and watch the values for the other variables change in the top window. Similar to a one-cell spreadsheet. A nice function but even further cementing the 99/4 connections to the calculator machines. Even the timing for introduction went askew and portended ill; engineering bugs forced the 99/4 into early 1980, missing the 1979 Christmas debut (and sales) that had been projected. If corporations believed in omens, the 99/4 was a walking voodoo doll.

The reviews of the machine were entirely negative. One after the other, Byte, Creative Computing and the major journals wrote the 99/4 off a merely a toy. Not only for that ridiculous keyboard but for the flaws in the BASIC language burned into the computer's ROM chips. It had no "peeks", no "pokes" (the computer hobbyist's favorite way of changing the way a machine runs) and, worst of all, no Assembly Language capability. Thus, the press said that the 99/4 was not only not a good home computer for word processing, but it was equally bad for the hobbyists who couldn't Peek 'n Poke at the BASIC language. The only positive comments made were that its size was "manageable" and that its lines were "almost stylish". Otherwise, the message was clear: consumers look elsewhere.

And the consumers did so. After millions in research and development, TI's entry computer was a consumer flop. Peter Bonfield thought it was due to the uniqueness of the 9900 microprocessor. He set out to redesign the machine around a more standard Z-80 chip, an 8-bit chip. The project was not popular with CEO Mark Shepperd and Chief Operating Officer Fred Bucy. The decision was, again, based on in-house pride and the behest of Don Bynum, a supervising engineer assigned to TI's Corporate Engineering Center in Dallas.

Bynum was the "problem-solver" of the engineering branch. Educated at the University of Texas, he had joined Texas Instruments in 1968. He had spent successful tours in the Advanced Systems Design Group (working with the design of large TI mainframe computers), the Semiconductor Group and the last two years in the Corporate Development Group in the Dallas offices. When he saw Bonfield's new computer design, he began asking questions. What was TI trying to sell? The answer was a home computer. What would it be used for? Education, home productivity, and entertainment (probably in that order). What educational software was available to run on the Z80 chip (basically, CP/M software)? Answer: none. Which chip is easier to write educational applications for? Bynum thought the 9900. Bynum, then, began investigating price. What was the price of the Z80 chip to TI? About \$6. And the 9900 (would have to be bought from TI's Semiconductor Group themselves)? About \$17. What about the true cost to TI to produce the 9900 chip? \$2.25. Once the facts and figures were gathered by Bynum and presented to the TI corporate hierarchy, the choice was clear. To build a Z80-based machine was, simply, too expensive to TI for their proposed marketing plan. It would be, roughly, two and one-half times more expensive than a 9900-based machine. Bynum and his engineers then set out to build an alternative to Bonfield's Z80 machine. The "Ranger" (as in Texas Ranger) it was called. The machine kept the 9900 microprocessor but that was it's major selling point to TI (it was, clearly, more profitable). The keyboard and price were not really addressed. But that was all Bucy and Sheppard needed to hear - remaining profitable and keeping the 9900. The best of both worlds. The

corporate heads loved the new design (it did, in fairness, successfully address the problem of attaching peripherals to the console), promptly moved Bynum into Bonfield's job and set him off on saving the 9900 project. Bynum later stated his "charter was to kill it or pull it out of the ditch".

The RANGER never left the TI engineering department. It still was too expensive, had a lousy keyboard and had no software. But it served a purpose. It showed the corporate heads that the if Texas Instruments was to pursue the home computer market, the most profitable avenue was with the in-house TMS 9900 chip.

So, the course was set. The 9900 chip would be used in the redesigned computer. The keyboard problem was corrected. The /4A as it was called, even Bynum doesn't know why /4A, would still be only two-thirds size, but it had a standard configured 48-key typewriter keyboard. An ALPHA-LOCK and lower-case were added. There were function keys and an auto-repeat on all keys and a BASIC that would accept upper or lower case, and long variable names could be used (for ease of programming). The expansion port for adding peripherals was modified and, at the Summer Consumer Electronics Show (Chicago), the 99 4/A was released. Price was halved to the consumer (down to \$550). At the same show and, unfortunately somewhat lost sight of, TI also showed TI LOGO (the first licensed version of LOGO released) and their own computer specific section on The SOURCE telecommunications network (McLean, Virginia) which would feature TI graphics and music and would have downloadable programs for subscribers. These were two major innovations that TI never received adequate public notice for pioneering.

But problems remained. The biggest problem was not with the machine itself. It was with the whole concept of the "home computer". TI found themselves against a media problem which has not been solved even today. How does one convince the public that they "need" a home computer? What do they need it for? What will it make easier? How will it improve the quality of the user's life? Despite all the predictions (each of the past 2 years, 1984 and 1985, have

been called the "year of the home computer", only to be let down by consumer lack of interest). TI was not known for their understanding of the consumer market and, now, they were faced with a product that required expert handling in that aspect. They couldn't handle it from within the corporation. They had to, reluctantly, recruit from without. They did and hired William (Bill) Turner from Digital Electronics Corporation.

Bill Turner was not an engineer; he was a salesman. He had been selling computers for some time and brought a new insights into the computer market. He had a knack for making sales projections and was ever the optimist. He also was unshakable in his ideas about marketing a "home computer". According to Joseph Nocera in his article "Death of a Computer" (Texas Monthly, April, 1984), Turner had two tenets upon which he based the entire marketing strategy for the 99/4A:

[1] You don't sell home computers in "computer stores". Computer stores are for computer knowledgeable buyers; those who have computers or exposure to them at work. They want full-powered, full-featured machines and are going to spend more. Turner's theory was simple: if the mass consumer sees the home computer in enough sales outlets (achieving "market visibility"), they will begin to think that the neighbor has one, his work competitor has one, his son's school mate has one, and, by God, he's not going to miss out! He may not know what he will be doing with one but middle America is quite famous for "keeping up with the Jones" and anyone else that might get ahead of them. TI really struck at the "home education" aspect: "you may not need to know what a computer does; but little Johnny or Sally sure better". We'll touch more on this advertising ploy later.

[2] Turner's second tenet was that the price of the 99/4A had to be much lower. People didn't know or care that the TI was the only 16-bit home computer available; that it offered the most

advanced speech capabilities of ANY computer; that it was built well and to last. People who buy a computer at J.C. Penny's or Sears will look at price and buy, usually, on a lark. (Remember now, we are talking about 1981-1982; people are much more sophisticated about home computers now).

At the first task (achieving market visibility) he succeeded. Turner got the TI computer on the shelves of all major retail general merchandising outlets; Sears, J.C. Penny's, Montgomery Wards, Toys 'R Us, and even Kmart carried the computer (Nocera's article states that even 7-Eleven stores were almost signed just before TI left the market; imagine "I'll have a Slurpee and a TI to go!"). The sales were aided by the signing of one of America's most trusted and popular entertainers, Bill Cosby, as the company's standard bearer (at a mere \$1 million per year). The price of the machine was dropped from \$550 to \$350 by June 1982 and sales were sky-rocketing. Cost reduction was done at the expense of design cutting (chips were eliminated from the machine) and the profit margin remained at 40%. Things looked great. The engineers and Bynum were not particularly enthralled with Turner's cutting down "their" machine, but who could argue with Turner's charts and "projected sales" graphs. Production (note I use the term PRODUCTION and not sales) of the TI was up from slightly less than 10000 machines per month to about the same number per week. Turner, in the jaundiced eyes of the TI corporate hierarchy, was a genius.

Another of Turner's ideas was the single handed, most fatal decision made in marketing the 99/4A. Turner knew enough about computer sales to know that the real profits centering around computer production was in the software sales. He knew if they were to cut the cost of their computer to the bone in order to sell to the mass consumer, profit margins could be buoyed by software sales. Thus, on Turner's insistence and against the strong argument of Bynum (who argued against the move all the way to Mark Sheppard's office), TI would not only make software for the machine but TI would be the only ones to do it. TI elected to produce a machine with a "closed architecture". That is, again going

against computer industry standards (Apple and, later, IBM had pushed open systems and had more software for their machines than they could have ever produced themselves), TI would not make the inner workings and design available to the software producers. To do so would mean TI would lose profits. Instead, TI would keep the operating system in-house and, to the point of legal threats, discourage so-called "third party" software developers from writing programs for the 99/4A. And, it succeeded. No one wrote new or adapted old software to run on the new machine. TI did contract with a few select companies to produce cartridge based software, but, for the most part, the software was trivial and poor. The games were clones of existing ones ("MUNCHMAN" looked an awful lot like "PACMAN", "TI INVADERS" a lot like "SPACE INVADERS"). The software produced by TI varied in quality immensely; some were state of the art, others were terribly limited. Virtually all were cartridge based (see Appendix 4 for a list of the marketed program titles). As TI was to learn, a computer is only as good as the software that supports it. It was a painful lesson, never realized by TI until much too late. (Don Bynum was to state, after leaving TI, "An open software policy would have actually reduced our costs. Instead of having to spend \$20 million a year developing application programs, I probably could have spent \$2 million a year helping third parties get their jobs done and maybe licensed the GROM technology to them and maybe gotten an extra 50 cents from them for every cartridge sold by them, not by us. I candidly think we would have been overwhelmed. No vendor can pick the best software; the consumer does that. TI thought, apparently, they could dictate to the consumer what products they could buy and it didn't work.")

Before long, the competition began to rear its head. While Atari had beaten TI to the "home computer" marketplace with the Atari 400 (also a 16 kilobyte machine, but 8-bit based), it sold for much more than the TI and didn't, in Turner's eyes, pose a threat to the /4A. So, at the start (1980-1981), TI felt alone and the only problem they had to deal with was convincing the public to buy their machine. But then, 9 months after the 99/4A hit the shelves, Turner and TI faced the challenge that was to be their downfall.

Commodore marketed the first home computer for under \$300 - the VIC (for Video Interface Chip, the new chip that enabled the use of color television for a monitor) 20 for \$299. After virtually cornering the entire European home computer market with its PET computer, Commodore came home to do battle.

Turner and TI became increasingly greedy for their market share as their success increased. They, following tenet 1 above, went after the VIC 20 with price reductions. TI based their strategy on an assumed naivety of the computer consumer. Right or wrong, they thought that the buyer would only look at price when choosing a beginning home computer. The clear fact that the 99/4A was a much better computer in design, quality and capability was moot. Side by side, the consumer would buy the cheaper machine. This was another major mistake in the strategy of selling the TI home computer.

A failure almost as glaring as the final pull out from the market, was TI's failure to sell the 99/4A as, truly, a remarkable machine. It was a well made, solid, powerful, fast machine, much more computer for the dollar than the VIC 20. TI failed to go after this advantage. They either didn't think they could convince the buyers of the fact or thought it wouldn't matter at the cash register. In either case, they failed to promote the machine as being better than the VIC 20 and attempted to address that competition only on the basis of cost. At that level, they couldn't compete. The VIC 20 had 20 less chips and only 4K memory and an 8-bit processor. The TI had 4 times the RAM and a 16-bit processor. Perhaps, TI was correct in thinking the consumer was not knowledgeable enough at that time (1982-1983) to make this sort of comparison; today it looks foolish to avoid that level of comparison. Even if they were right about the computer literacy of the computer marketplace, they could not manufacture the 99/4A at the cost of the VIC 20. (Commodore and their executives were vividly aware of this fact even if TI wasn't). But, with Turner calling the shots, TI would give it a try!

In the spring of 1982, the situation was this: The 99/4A was selling at \$300, the 16K Atari 400 was \$349, and the Radio Shack Color Computer was \$379. Commodore shortly after reduced the price of the VIC 20 to \$199 and the C64 to \$499. TI announced that with the purchase of every 99/4A, the buyer would receive a certificate worth 5 hours of training at one of the 200 or so TI-staffed "Computer Advantage Clubs". Useful IF you lived in one of the 100 major metropolitan markets served. Otherwise, you could get a cassette tape tutorial.

In early August, 1982, Turner fired the first shot in the "home computer wars". With the VIC 20 selling for \$100 less than the 99/4A, TI announced a rebate of \$100. The computer had already been cut close to the bone to get the price down from \$550, so, with the rebate, the profit margin was halved by the rebate. Turner (recently promoted to Head, Consumer Products Division) skirted about that issue with the familiar argument that "the profits on 100 units with a margin of 20% is more than the profits on 40 units with a margin of 40%". In other words, volume will make up for lowered profit per item. But Turner and TI didn't bank on Jack Tramiel and Commodore. TI had beaten Commodore with a similar price war in the calculator arena and quite nearly drove Commodore and Jack Tramiel into bankruptcy. Tramiel and other Commodore veterans of those mid-1970's "Calculator Wars" learned a number of painful but valuable lessons from that conflict. How to build cheap and use in-house integration were two of the lessons. Shortly after those early battles were over, Tramiel sold stock in his company to obtain MOS Technology of Valley Forge, Pennsylvania. This firm developed the 6502 chip that was used in the Commodore computer line. Thus, Commodore had cheap access to essential computer components. Further, Tramiel relied heavily on Japanese assembly lines to cut production costs. This time, Tramiel was well prepared for the fray to follow. He was not about to let history repeat itself. The same day TI announced the rebate, Tramiel and Commodore announced a \$40 price cut on the VIC 20 making the prices effectively equal. Tramiel was in a great position. The margin of profit on VIC 20 production was extremely high and he and CBM had a lot of room to maneuver. In October, Tandy cut

the price of the Color Computer \$70, Atari offered a free 16K upgrade for the 400. One month later, the CoCo is dropped another \$100, and Atari drops the 400 to \$200. The home computer price wars had begun. And Tramiel had a smile on his face.

Despite the error laden path that would return to haunt him in the near future, the Christmas selling season of 1982 would portray Bill Turner as a genius. Production of the TI 99/4A sky-rocketed. The retail network was well over 12000 stores. The 99/4A outsold the VIC 20 three to one. A small (by TI standards) corporate "sideline" had become a \$200 million business. The TI 99/4A, at that time, was the leading seller in the home computer market.

At TI, it appears, success fathers greed. Turner was not content with just the middle level home computer market. The TIMEX-SINCLAIR, comparatively a toy computer selling for \$100 was enjoying a modicum of success in the "first-buyer" market. Turner decide to go after that with a new machine. Further, he wanted a piece of the upper level market and set Bynum off to build a larger machine . Development of a fourth machine, a portable computer, the CC-40, was begun at the same time. Just as it was evident TI wanted all of the software market for their machine by keeping it "closed" and prohibiting third-party software production, they appeared to want all of the computer market as well.

The Winter CES of 1983 (Las Vegas) showed TI in the glitter typical of Vegas fantasy. The TI exhibit on Aisle 700 featured a sleek, shiny-black tower over two stories high that had to be transported to the show on six 18-wheel diesel trucks. Prototypes of the 99/2 and the Compact Computer (CC-40) were on display. The "voice-recognition" game expander (MBX) produced exclusively for TI by Milton-Bradley which featured software and a microphone to allow game playing through voice commands was also previewed. (MB contracted with TI to delay their introduction of the ATARI compatible MBX for a full year after TI's release; a major TI coup. But the MBX was never fully marketed by TI and ATARI reneged on its contract with MB before the unit was completed. MB lost on both ends

despite producing an excellent product. Again the fortunes of the computer wars). And PLATO software was shown from Control Data, another TI tour de force. Though CDC would market the PLATO to Atari and Apple, TI had a separate agreement which gave them exclusive rights to 500 PLATO programs organized into 108 software packages. If it were completed, it would give TI a body of computer assisted instruction more comprehensive than any other home computer. The tinsel-town lights shown bright on TI those 4 days. A joke went around the CES that TI was losing money on every computer they sold, but was making it up in volume. Even Bill Cosby, the TI spokesman, joked about the rebates then in effect pointing out how easy it was to get people to buy a computer if you paid them \$100 to do it. These were laughable, but not for long.

The Lights began to dim for TI almost immediately after the show. Just as the decision to keep software development closed would ultimately be disastrous (it was already showing up as a bad decision - the VIC 20 with an open architecture had already passed the TI in software availability), their attempt to go with a "three-computer strategy" was doomed to failure. While the upper level computer was an excellent direction to pursue, the "TIMEX-level" machine was an uninformed one. The same month as the CES fantasy, Commodore announced the price of the VIC 20 was to be \$139 and the C64, \$400. Again, rather than sticking to their guns, pursuing a consumer education campaign to push the products' differences, Turner and TI elected to drop the 99/4A price to the same level. At that price, TI lost all profit margin; they were at the break even price. About the same time, the computer's transformer failed a Canadian safety test. TI pulled in all the old transformers (at a cost of \$50 million) for replacement or fix. They didn't have to do it with the U.S. models but did. This single event effectively wiped out all profits from the previous quarter.

A "smoke screen" still showed TI computer production up in the first quarter. Why a "smoke-screen"? While actual SALES of the 99/4A were stabilized, the shipping of computers to more and more retail outlets keep production

up. The computers were not selling at the same level, but the shelves were full! It was a mirage, a smoke-screen. Rather than cutting back production at this point, they continued at record levels. The grave site was being dug.

Commodore then dropped the price of the VIC 20 to \$99 and, reportedly, leaked a rumor that they would drop the Commodore 64 to \$99 by June [in short order, Commodore also announced a "rebate" of their own on their new Commodore 64 - they offered a \$100 rebate on the C64 if their buyer sent in "any video game machine or computer, even if it doesn't work".

Few 99/4A's were sent in under this deal, but a lot of Timex-Sinclair's were bought at \$50 and sent new to CBM for the \$100 rebate - and a lot of C64's were sold]. The industry insiders had projected that the actual cost of making a VIC 20 was less than \$60 and, while the Commodore 64 was introduced at \$595, it could be sold profitably for \$99. At \$99, the VIC-20 was sold for less than the cost to build and market a /4A. At that price, it usurped the TIMEX-SINCLAIR market in one fell swoop (T/S did try to fight by dropping the price on the ZX81 to \$49, but failed dismally and stopped production shortly thereafter). Expensive R and D on the 99/2 (the lower level machine) and the "HEX-BUS" peripheral systems (which would allow use of compact printers, RS232 interfaces and high-speed wafer-tape storage with the 99/4A as well as the 99/2) were canceled. The development of the 99/2, and its peripherals, was actually completed and marketing begun when the decision was made. With rising losses, production of the upper level 99/8 was also slowed.

In "The Home Computer Wars" (COMPUTE! Publications, Inc., 1984), Michael Tomczyk, former assistance to Commodore's Jack Tramiel, clearly alludes to the ironic if not poetic nature of the final result of the, predominantly, Texas Instruments versus Commodore "wars". He recalled the damage TI had done to Commodore and Tramiel in the "calculator wars" of the 1970's when, through price cuts, TI bankrupted many companies and almost fatally damaged Commodore. Now, in the "computer wars", the tables were

turned. Tomczyk states "Texas Instruments had driven quite a few companies out of the business during the Calculator Wars...Now, less than 10 years later, Jack had turned the tables and was using TI's own techniques to defeat them - vertical integration, aggressive cost reductions, matching price cuts and more. TI insisted on cutting prices although they knew Commodore could match or beat them on cost." The adage "what goes around, comes around" was never more apt a phrase.

In the second quarter of 1983, the smoke screen cleared and the view was not a pretty one. Virtually ALL home computer war participants were losing money (they totaled one-half BILLION dollars; \$183 million TI, \$310 million Atari, and \$24 million Mattel). TI disclosed it expected second quarter losses and sent its stock into a tailspin in which it lost more than \$40 per share. TI's net income fell to \$7.1 million (30 cents per share) compared to \$27.7 million (\$1.17 per share) in 1982. TI's picture was increasingly ugly. Machines from the thousands of retail outlets were showing up on their Lubbock doorstep returned and unsold. Turner had put the machines on the shelves "on consignment"...if they were unsold, they were returnable. The jig was up! The bar charts Turner kept influencing Bucy and Shepperd with had to be redrawn; specifically, the "SALES" bars had to be markedly lowered.

The Summer CES was a disaster. The much awaited "99/8" was not shown publicly (it was not a well kept secret and it was conspicuous by its absence; Turner had leaked those plans to "Home Furnishings Daily" in January) and, TI would not comment on why it failed to show the machine. TI further alienated the software industry by publishing a full-page ad in the June 4 (first day) CES trade paper which warned software producers of possible legal actions if they produced "unlicensed" module software for the 99/4A (see Appendix 1). (It should be noted the unique composition of the TI Solid-State Software[tm]. While other manufacturers used plug-in cartridge programs, TI's cartridges were different. The usual module contained ROM - "read only memory" - chips and the program was simply dumped into existing memory locations in the computers memory chips.

Once in the computer's memory, it could be rather easily saved back out to disk or cassette, making copying, often for illegal distribution, a simple task. TI used both ROM and a new chip called GROM - "graphics read only memory" - which actually provided the computer with new memory banks, unaccessible and uncopyable. While the method was effective against potential illegal copying, it was an expensive method of making cartridges and made TI software relatively expensive. It was this GROM-based system that TI claimed as being copyright protected.) But the threat was taken as empty. ATARI demonstrated Pac-Man, Defender, Donkey Kong, Centipede, and Dig-Dug at their booth and promised 4 additional titles (Shamus, Protector, Picnic Paranoia and Slime) under a licensing agreement with Synapse. Thorn EMI announced three planned cartridge games for the /4A (River Rescue, Submarine Commander, and War Games). Parker Brothers were also rumored to be planning a release for the machine. And in a true act of defiance, Michael Brouthers, President of FUNWARE (a small Texas Software house later acquired by Creative Software of California) walked up to the new TI machine, supposedly modified to detect non-licensed software (the version 2.2 OS) plugged in one of his cartridges and smiled as the game (Ambulance) ran perfectly. The press TI received in trade journals for its announced threats of legal action was entirely negative and, at times, hostile. Further, for a small firm like FUNWARE to be so blatant in its challenge to TI in the home computer software marketplace was a clear symbol that TI's power and status had slipped to a new low. And as if all that were not bad enough, Commodore cut the dealer price of the C64 to \$200 (not the rumored \$99), announced 70 new software programs for their machines (exhibited on a 300 foot boat anchored alongside a pier a short distance from McCormack Place, the CES site...gaudy but very effective) and also announced they were cutting software priced in half on virtually all their existing programs. It was not a good show at all.

After the Chicago show, the new (factual) figures were presented to corporate headquarters, and the ax fell swiftly. Bynum had already been replaced in May supposedly in a "its Bynum or me" ultimatum from Turner. Their

disagreements had become legend in Lubbock. Bynum didn't agree with the software greed of TI and said he lost the battle with Bill Turner who he fought over that issue. Bynum said "Bill Turner is absolutely the best salesman I have ever dealt with and he sold that batch of snake oil to the Board". The final straw according to Bynum had occurred when Turner recommended dropping the price of the 99/4A to match the \$99 VIC 20 price tag in early 1983 and Bynum said "The management of the Consumer Products Group and I parted ways in a fairly violent fashion. Because they said 'Jesus, we gotta get down to 99 dollars right now' and I said 'there is no way in hell you are going to get a 99/4A down to \$99. Its more machine than the 20 and costs more to build.' But that didn't stick; TI wouldn't let Commodore have their fire sale." Bynum was "promoted" back to the Corporate Research and Development Division in Dallas; he left TI, quite bitter in November. He later stated "I left because I didn't like the direction they were headed in. Needless to say, TI flew their business into the ground." (Further, he admits that he had been "functionally parked" in a personally lucrative but dead end job in Dallas and was "wasting the company's money. I had seen others treated like this and promised myself that, if it ever happened to me, I would quit". And he did). Herb Shanzer, former head of TI's calculator and Portable Computer program was Bynum's replacement. Then, Turner, the last survivor, was replaced and subsequently left TI to take a position with Automated Data Processing in New Jersey. Jerry Junkins, an executive vice-president (and head of the Data Systems Group which developed and marketed the TI Professional Computer) headed the consumer products division. His job, clearly, was to minimize losses and get out of the market as gracefully as possible. It had become an economic disaster and a corporate embarrassment. TI moved the administrative wing of the Consumer Products Division back from Lubbock to Dallas to maintain a closer hand on the reins, and, in turn, President Fred Bucy established an office at the Lubbock facility of the Consumer Products Group.

Junkins made the smart choices. Bill Cosby was replaced as the media figurehead (after all, how could Cosby compete with Commodore's William Shatner, of Captain Kirk/Starship

Enterprise fame?), hired a Hollywood advertising firm (Rogers and Cowan's Corporate Division which already handled Ford, R. J. Reynolds and Guicci) to direct marketing, and toned down advertisements showed kids learning at home with the parents (a direction Commodore had taken quite successfully). Rogers and Cowan targeted the "Matt Houston" series for TI ads which were planned to appear in every episode. He dropped the price to \$99 (matching the VIC 20) to clear back inventory. He shut down production drastically. Further cost cutbacks were made (the black and silver metal casing was replaced with a beige plastic case, reportedly based on consumer preference) to try to re-achieve a profit margin at \$100 retail sale. He bundled the peripherals and dropped their prices (previously, the Peripheral Expansion Box, Disk Controller card, Disk Drive, and Memory Expansion card had a suggested retail price of \$1200; it was cut to \$550 as a bundled buy; even free software was thrown in, the choice of a work processor, spreadsheet or Logo). Other popular software dropped substantially in suggested retail price. The big third-party software producers were brought under contract (Sierra-On-Line with "Jawbreaker", SPINNAKER with "Facemaker" and "Story Machine", SEGA with "Congo Bongo", "Star Trek", "Buck Rogers:Planet of Zoom", IMAGIC with "Demon Attack", "Microsurgeon", "Fathom", "Wing War", and "Moonsweeper"). One bizarre move from Lubbock was to announce that the Consumer Group "would be represented at 15 state fairs countrywide" that summer and fall with "exhibits featuring the TI 99/4A Home Computer". TI stated in the news release (and probably quite correctly) that "TI is believed to be the first home computer manufacturer to participate in state fairs on a national level". The planned fairs ranged from Los Angeles to New York, from Wisconsin to Louisiana. Any port in a storm...

Though based on sound marketing logic, Junkins' efforts were too late. With the market place moving ahead to larger, and more powerful machines (the Commodore 64, Atari, and others), the sales of the VIC 20 and 99/4A alike were dismal. That market was drying up. Industry surveys began to show that "new start" computer buyers were dropping; "second buyers" were on the upswing and you did not buy a

99/4A or a VIC 20 as a second or upgrade computer! In the second quarter of 1983, TI had corporate losses of \$119 million. The Wall Street Journal of June 13 reflected: "Texas Instruments' tailspin could be an early sign that home computer makers have begun to glut the lower end of the market and that price cutting has begun to take its toll." On August 26, it was announced that Peter Field would become the new President of TI's Consumer Group, Dallas. Field was a marketing specialist with Proctor and Gamble and headed their coffee division. He was, obviously brought in for his sales expertise, but the milk had long since been spilled and had even soured by this time.

A still unexplainable option was never pursued. The 99/8 would probably have had a good chance to survive. First, it would have been a compatible upgrade for the 99/4a owners, and, second, as a solid machine, could have drawn in users on its own. But, faced with the Commodore 64's already solid foothold, the introduction of the Coleco ADAM with bundled peripherals (unpredictably ill-fated at the time), the rumors of Apple and even IBM venturing into the upper level home computer market, Bucy backed down on introducing the 99/8. Once bitten, twice shy holds truth in Texas. The torrid affair of TI and home computers was over.

CHAPTER 2 - WHEN THE SMOKE CLEARED

Gary Kaplan, the often controversial Publisher of the Home Computer Magazine, spoke of the TI pull out poetically:

"It was the worst of times for Texas Instruments to exit the consumer computer marketplace: Their home Computer was, at last, positioned correctly; an extremely visible, no nonsense TV campaign presaged strong holiday sales; dozens of the industries finest software titles had been "cherry-picked." converted, and scheduled for pre Christmas release; and a new generation of powerful, upwardly compatible hardware was about to be launched. Ironically, it was the best of times that is, the best of times for hundreds of thousands of holiday shoppers looking for quality, affordable gifts or virtually no risk tickets to the intriguing world of home computing." [Home Computer Magazine, Volume 4:1, p. 5]

Many TI owners remember where and when they got the news of the "pull out". It is akin to remembering similar circumstances surrounding major events of national importance. I recall watching TV with the kids about ten o'clock and getting a call from a local user group member. He asked if I had heard THE news. After asking "what news?", my stomach assumed a equal measure of nausea and cramps. I had just sunk close to a \$1000 into my system for the PEB and cards and printer TI had marked down to bargain prices (now we all knew why!). After regaining ability to speak, I told the caller "I have to go!" and hung up. I frantically called my local dealer, half believing he know what was coming 2 months ago when I spent all that money. After all, he WAS a TI dealer! Line busy... and stayed busy for the next hour or so. I thought the worse; the line was off the hook because the dealer had skipped town. Then I got through. The dealer said, "No sweat. We'll stick with this machine and its product for a long time. But, "he added, "if you want any software, you better buy it now. I am swamped with customers and they are buying me out!". He

quickly hung up. I tried to think. What programs do I really need? None came to mind, but I better get down there just to look them over again. Before I left the house, I went to my computer and tentatively turned it on, fearing that diabolical TI had implanted a self-destruct device in the computer set to go off at their command. And Now was that time! (You get the same feeling when the warranty runs out on any expensive piece of equipment; at least I do). The machine powered up fine and I loaded a program or two (would they destruct all the software instead... going up in smoke like the files from MISSION IMPOSSIBLE?). The cartridges and disks ran flawlessly. Then I jumped in the car and headed to the dealer.

There is something about the human animal that seeks the company of fellow sufferers in time of fear and anxiety. The dealer's shop was a mass of familiar faces. All TI owners and all with a peculiar sick feeling on their faces. They were grabbing up , at least appearing in a haphazard fashion, every cartridge they could see and lay hands on. They were not reduced much in price from the day before, but today these buyers "needed" the software. Did they really need them, or even want them? Of course not. They were feeding their free floating anxiety about the TI announcement with something to reaffirm their hope that the machine would continue to function and be productive. In the far reaches of their mind, they all knew that the same software would be available months (years?) from that day at MUCH cheaper prices, but it didn't matter. That day, they needed security. The dealer loved that day (2 weeks later, he had marked down the same products more than half). He was assured that a TI market still existed; the consumers were reassured there were still products available in quantity for their machines; and I was reassured that I was not alone in my anxiety attack!

The president of one of the largest 99/4A Users Groups, the Washington D.C. group, Jim Horn, recalls colorfully his "Black Friday":

"It is easy for me to recollect where I was when the announcement occurred. I was standing in

a twelve by fourteen foot booth with a twelve foot, iridescent sign, proudly printed in "computer style" letters, saying TEXAS INSTRUMENTS COMPUTER USER GROUP. It had taken considerable effort to get there, along with those who were with me. We had found a computer show promoter, who in this case was promoting the Mid-Atlantic Computer Show, in Washington D.C. The promoter offered us discounted space, since we were a non profit group."

"The announcement, given on a Friday afternoon in late October after the stock market had closed, instantly transformed what had been a triumph for our group into a wake. One felt like we were standing with a collective sign draped around our neck, which proclaimed "sucker!". The announcement, made late in the afternoon, was not picked up by the general press until the computer show was closing for the night. Nevertheless, all the officers in the computer club were flooded by calls into the early morning asking for more information, for reassurance. Information we had none. Several months earlier, in an effort to spike rumors of TI closing out the 99/4A option, a personal letter was mailed to every known TI user group, pledging that TI had a long term commitment to the home computer, or so it seemed. The letter was signed by the TI "User Group Coordinator," who, we learned within a few days, had already lost his job by the time the announcement to abandon the home computer market was made."

"One of the first things I did, upon reaching home that night, was to grab for a copy of that letter. Oddly enough, on rereading the letter, I could find no direct promise from TI to do ANYTHING, much less support the 99/4a. Allusions were made to commitments. References were drawn. Rhetorical questions, such as "would we pull out, when we just..." were asked of the reader. The answers, if they were printed at all in the letter, were far from straightforward."

Listening to other owners recall their "day afters" confirms similar scenes across the country. The PANIC had begun.

TI magnanimously stood by the owners at this critical time. It was almost as if they had a large burden lifted off their shoulders when they finally threw in the towel. In interviews and press releases, their principle spokesman, Jon Campbell (Manager, Press Relations) stated " We would like to exit this portion of the business as rapidly as we can and still maintain a high degree of credibility among our over 2 million 99/4A owners", further that TI would continue to support the 99/4A "on an indefinite basis". He cited TI's exemplary service policies regarding other discontinued items, such as watches and calculators. Indeed, TI continued to manufacture consoles into early 1984 to fulfill "contractual arrangements" and to have a stock available for the service and exchange centers. They manned the TI toll free information number (appropriately 1-800-TI-CARES) with additional personnel to handle the massive influx of calls. It even appeared that TI wanted to assure the owners that there would be continued software available for their machines. On January 9, 1984 Texas Instruments announced the signing of Walt Disney, Sierra-On-Line, and Imagic to produce their existing software for the 99/4A. Dale Osborne of TI stated that the agreement was "part of our plan to provide alternative sources of quality software for owners of the TI 99/4A Home Computers. This is part of TI's commitment to its consumers to take steps to provide continued support...". TI also announced that it would issue licenses for its auto-incrementing GROM chips to third-party producers. Obviously, a total reversal of the policy pursued at the previous summer's CES.

At this point of the game TI stood upright and performed well in maintaining consumer contact and reassuring a rather irritated mob of owners.

And a lot of reassurance was needed. After the initial anger of being "dumped" wore off, and the cursing abated, fear set in. It was a reasonable emotion. Looking at it in

perspective, TI's withdrawal was of more impact than the withdrawal of other computer manufacturers. Why? With TI's closed machine architecture, TI had successfully cornered the entire market for software and particularly hardware for their computer. It was a monopoly of complete control. Other computer manufacturer's with the open architecture approach (the only logical one) had third-party manufacturers producing both hardware and software for the machines almost coincident with their market entry. Consumers of these machines can pick and choose their peripherals from many choices and if "orphaned", will still have standing support from other producers to curb their anxieties. With the TI owners, there was virtually no other support. The September 1983 issue of the (then) 99er Home Computer Magazine had a supplement called "99er Directory" which listed all the available software and peripherals. It was an impressive 21 pages long and listed some 160 or so producers. But when analyzed more closely, it is less impressive. The vast majority of the software was cassette based and in slow BASIC or at best, EXTENDED BASIC. Virtually NO machine language code existed in the third-party sector; the limited architectural information available from secretive TI made full and efficient utilization of the speed of machine code near impossible outside TI. For instance, of the 19 "word-processor" listing only one was actually in Assembly Language (the closest thing to machine code and essentially as fast). Of the myriad games, fully less than 10 per cent were in assembly language. That is not to say the others were not good; it is to say that they were much slower than TI's arcade games. In hardware, there were two manufacturers at least advertising 32 kilobyte memory expansion cards for the Peripheral Expansion Box (Foundation in California and ULTRACOMP in Illinois), and another company producing "stand alone" memory expansion modules which did not use the PEB and just plugged into the console itself (Doryt Systems of New York). One manufacturer was fighting TI's threat against companies producing cartridge based software for the 99/4A and put out several well done games (ROMOX), but that was all there was beyond TI.

The point remains that the TI user was in a very dependent position with Texas Instruments. Sure, they had a few scattered hardware producers, none very successful, and myriad software producers of rather simplistic code. But when it came to truly useful and fast games and productivity software and hardware, TI was it. This simple fact added amplitude to the anxiety of abandonment. With TI's announcement, the initial feelings of doom and gloom were certainly understandable.

The TI owners were abruptly faced with a major decision. They had to decide whether to consider their purchase a mistake, minimize their losses, and sell their equipment for what they could get and, if they really needed a computer, take advantage of the upcoming Christmas sales and buy a new machine OR stick with their purchase of the TI 99/4A as a good machine, pray for future supporting product development, and buy TI for the holidays. It was, at best, a difficult decision to make. Most TI enthusiasts stuck with the machine, banking with the faith that third-party producers would step in and take advantage of the estimated 3 million machines sold. Some even thought that this was merely a marketing ploy by TI to clear inventory prior to release of the 99/8 upgrade computer. After the 99/4A was sold out, even at a moderate loss, they would have massively increased their installed user base, set the hook for more in the market for an upgrade, and, then, in the slickest move since John Connely "became a Republican", they would return to the scene with the 64K machine and sell millions more. (This thought was shared by several industry analysts who believed that the corporation's "cautious" exit from the market indicated a desire to slip back in later. They noted the protective handling of TI's distribution network, and even continued support sales of the discontinued 99/4A through the Christmas season with at least half of the company's pre-purchased TV ad time). Whatever the reason, the vast majority of TI owners chose to stay with that market after the crash, and the buying and selling began.

The panic buying, fueled by the fear of not getting any more decent soft and hardware, was accompanied by a full measure of "panic-selling". Here we had buyers willing to

buy most anything remotely TI, whether they needed or not, and we had dealers and retail chain stores trying to wash their storerooms of TI stock as fast as they could for the upcoming Christmas selling season. The sellers didn't want to take up valuable holiday shelf space with a no longer manufactured machine. They wanted to stock the Commodore's and Atari's which would be the big item in computers that year. So prices fell out the bottom.

The sellouts were a sight to behold. Rivalled only for the crunch to buy Cabbage Patch dolls the following year, when a J.C. Penny's or Sears or Montgomery Wards sold out TI, the buyers were lined up before the doors opened. While no physical violence was reported, it was a scurry for the consoles (going for as low as \$50) and other peripherals. Some stores had to set limits on the number of computers sold per customer. Needless to say, stocks were easily sold out. Quickly and efficiently.

It has been estimated that 150,000 99/4A Home Computers were sold in the last two months of 1983 alone. Retailers sent orders to Dallas for at least 200,000 machines the Monday after its pullout announcement. The cut-rate prices outweighed the prospect of no future manufacturer support and to these new buyers TI's misfortune was an ideal way to enter the home computer movement at almost no financial risk. The smart buyers felt they could spend \$50 on a TI and, after using the computer for a time, if they were comfortable with computers, they could buy another supported machine and move on. It was really the first time buyers had the chance to see if these modern marvels were for them without spending a lot of money for a "trial run". The virtual no risk opportunity was, apparently very attractive for many holiday buyers.

But all were not first time buyers. There were those who were convinced that their TI 99/4A was at purchase AND post abandonment a wise purchase. After all, it was the only 16-bit machine in the home computer market, its educational software was excellent (particularly, the solid-state cartridge design of the modules made it easy for young children to use the computer), its speech capabilities were

the industry's leader, it had capability to be programmed in virtually all available languages (though never released commercially, the /4A had been demo'ed running PILOT and FORTH as well as sold LOGO, UCSD Pascal, BASIC, Extended BASIC, Assembly Language, and CP/M - the last from a third-party firm), and it was a well built, reliable machine. Further, TI was a major innovator in home telecommunications; they with Source Telecomputing Corporation organized a special section of The Source strictly for 99/4A owners called TEXNET. The TEXNET sub-network supports the unique sound/graphics/speech capability of the 99/4A computer and its emulator software. A program library of free programs was also maintained specifically for the TI user. In addition to that, a certain pride exists with computer owners. They will never allow another machine is better than their's. It is as true now as it was then. The TI owners were not about to give up the ship. They went out and stocked up for the coming drought. Second (and third, and forth...) computers were whisked up with a smile. Repeat /4A purchases were probably as prevalent as first time sales. Like gathering fire wood for the seasonal chill, the abandonment brought out the pack rat in all 99'ers. They knew they had to stockpile, and they did. For them, it would be a frigid winter.

The massive sellouts and associated expansion of the 99/4A owner base was both a temptation and a frustration to third-party hardware and software producers. On the one hand, here was a consumer market estimated to be 2-3 million strong, industry abandoned and eager to spend dollars to maintain their purchase's utility. On the other, mass retailing outlets were liquidating their TI stocks and would, in all likelihood, no longer carry 99/4A-related software and peripherals. Thus, the buyer base was there but how to market was the problem. The solution could only be mail-order and mass advertising. A few would be successful in the transition. Many others would not.

On December 20, 1983, Texas Instruments announced a preliminary agreement with March Direct Marketing (MDM), a wholly owned subsidiary of McCann-Erickson, to provide access to TI's list of 99/4A Home Computer owners to third

parties interested in this user base. This was to make available a way for TI to liquidate their remaining stocks while following legal guidelines restricting them from selling the soft and hardware out of TI themselves. Also, superficially, it would make available the mailing list to third party product developers, though the sheer cost of the list in the final tally proved much too expensive for anyone but the largest distributors to obtain.

On March 28, 1984, TI stated they were finally completely out of the business of selling their remaining stock of 99/4A materials. Due to agreements with the Federal Government, TI received certain tax incentives after leaving the market on the condition that they cease direct sales of their software and hardware. With their grace period running out and in the face of building pressure from the Securities and Exchange Commission to clearly and with finality, stop the production and sales of 99/4A materials, the remaining stock had to be turned over to an independent seller for final disposal. Remaining programs and equipment were to cleared through an "organization separate from Texas Instruments". The company would be Triton of San Francisco, a "well established direct response/mail order firm" which, according to Triton spokesman Terry Miller had experience in marketing business products and software, but had never been associated with TI. The transition would take effect effective March 31. Triton would be the sole source for clearing remaining 99/4A inventories (save those the commercial distributors had in stock) and would publish quarterly catalogs which would carry TI and third-party materials for the 99/4A machine. The first catalog from Triton appeared in early May. It was a well done, color catalog with the creative work coming from March Direct Marketing. In the announcement of the turnover to Triton, TI mailed to users groups a list of the third-party hardware producers for the /4A and the mail-order distributors. The curtain came down with authority. No more hardware and no more software were to be produced or distributed for the 99/4A by Texas Instruments. They would retain on hand only those materials they would require to support their warranty and repair services to the sold machines. They continued to operate the "TI Cares" phonelines, but this was more a

commitment to the purchasers of active, production equipment than for Home Computer owners. It was, truly, a goodbye from TI to the users of the Home Computer.

Several questions remained as the door closed in Dallas: why the October announcement? One month into the final quarter preceding, surely, the most intense computer buying season in history and TI bails-out. Why not after the season? Say it was not successful and then quit? Egil Juliusssen, chairman of the prestigious marketing firm Future Computing, Inc., stated "my feeling is that they would have had a good Christmas season [if they had stayed in home computers]". One must give the Texas Instrument hierarchy their due. They did not want to mislead the Christmas buyer into believing that TI would be around. They did not sit pat and draw unsuspecting new buyers into the market. They laid their cards on the table. Of course, they would get the "curious" and the repeat buyers with fire sale prices after the abandonment, but they also showed corporate class by announcing when they did. With that knowledge, buyers entered the season with a clear view of where they stood and were the 99/4A stood. It was a difficult decision to make and Texas Instruments made the right one. An article in Business Week magazine (November 14, 1983) quoted a philosophical Bucy as saying "Our 99/4A business did pick up, but not at a sufficient rate. It was a bitter pill to swallow. But how much blood can you lose?" Bucy went on to state the bottom line: "this is the best time to move inventory - not after year end."

Did TI make a mistake by moving the production of the computer from the Dallas home base to Lubbock? Fortune magazine in their November 28, 1983 issue cited, from a "former TI executive", the move as one of a number of "poor management decisions" that brought about the computer failure. Fortune observed that it was difficult to attract young "hotshots" to the Texas Panhandle city, and some transferred engineers refused to move from Dallas. No one admits to the responsibility for the decision (it is suspected that Fred Bucy, from that area may have been the one) but another former TI executive (there are a lot of these running around) explained it this way: "Texas

Instruments had always had a history of locating manufacturing in agrarian economic areas. They believed workers recruited from that type of local work environment work harder and are more dedicated. But in Lubbock it sure made recruiting tough. Invariably, you could predict a heavy dust storm whenever a hot, new recruit arrived for a tour. It was a genuine problem." What effect the move had on the quality of engineer support for new product development must remain speculative, but the failure to develop innovative peripherals and software failed to entice enough first time buyers in the TI market.

Fortune magazine further noted, in a bit of irony, that one of TI's failures was over compensating to resolve a past fault. They stated that "the company misjudged demand. In the past, TI has been chided for not listening to customers - especially about consumer products. This time, top managers were so determined to listen that they took as gospel their dealers' too-rosy forecasts. The result: a disastrous build up in inventories." TI was certainly not alone in over estimating. The entire span of forecasts from virtually all camps on the home computer market have proven to be grossly inaccurate.

Two final footnotes . Once TI dumped the home computer market, they certainly didn't take long to again become a profitable corporation. Wall Street responded to TI's abandonment of the home computer marketplace on the first day after the October 28 announcement by boosting TI stock an astounding 22.75 points, from \$22.75 to \$124.50. The company announced first quarter profits for 1984 of \$79.8 million. For the same period in 1983, profits were \$7.1 million. Profits yielded a \$3.32 per share compared to only 34 cents in 1983. Sales were up from \$1.17 billion in first quarter 1983 to \$1.34 billion for the same period in 1984. A major part of the profits were 41 cents per share from the write off of of home computer stocks.

Second, a feature from News American Syndicate (which gives Future Computing as the source), and seen in the Phoenix Sun newspaper in August of 1985, showed a graphic of the "existing home computers in 1985" as percent of total

owned. The leader was Commodore with 30%; second was Texas Instruments at 22%, ahead of Apple, Atari, Tandy, and IBM. Nearly two years after they were out of production, the 99/4A remained a major force in the installed home computer user base. How have these users survived? There lies the most interesting part of the story.

CHAPTER 3 - COMMERCIAL USERS GROUPS

In the first issue of Texas Instruments' User's Newsletter, which listed their "recognized" users groups was the first news of a group called the "99/4 Home Computer Users-Group" organized by one Charles LaFara. The tale of Charles LaFara and his "users' group" is certainly one of the most embroidered chapters in the history of the 99/4 and /4a Home Computers and their users. The organization was never a "users group" in the sense that there were meetings and local assistance. It was a for profit business. The distinction was never clearly made by TI or Charles LaFara until the confusion of what a user group was supposed to be was strongly ingrained in the minds of the 99/4A owners. That confusion exists even today.

Charles LaFara was a well traveled man, married and with children who was President of the Southwest Meat Company in Oklahoma City, Oklahoma. He bought his first 99/4 in March, 1980. Being one of the first owners of the 99/4 he faced a shortage of programs and sought a way to remedy the problem. He tells the story thus:

"Faced with either abandoning a product which had cost me over \$1000 (console and monitor) or taking the initiative and doing something about it, I chose the latter. As an outside individual it was extremely difficult to interface with a company the size of Texas Instruments Incorporated. Disgruntled and frustrated, I almost gave up until I met a gentleman in Baltimore, MD, Joe Nichols, who suggested that together, we form some type of Users Organization for owners of the 99/4 Home Computer. [Joe Nichols later died, reportedly, of a heat attack in 1982]

After many months of conversation with Texas Instruments' legal department and corporate executives, we were finally granted permission to do a mailing announcing our intentions of forming a Users-Group to 1,492 known owners of the 99/4. In

the beginning, it was our intention to conduct this as a very informal group, sharing information and our own programs among ourselves. In order to limit any personal liability, we incorporated in the state of Oklahoma in September, 1980."

The initial plan, according to LaFara, was that he would do the "marketing" of the idea, and Nichols would provide "the seeds" for the library by writing and translating programs for distribution. LaFara admits that he was "no programmer". Nichols, in fact, did provide the Home Computer Users-Group with its first 8-10 programs. The basis of the software library, thus formed, it was time for LaFara to begin his "marketing".

The gregarious and persuasive (and if there IS a descriptive term for Mr. LaFara, it is persuasive) LaFara through persistence did "interface" himself with TI and became well publicized by them. The mail out described in the above passage was from TI's own mailing list. The response by users who received the announcement was totally positive; of the 1,492 flyers mailed out, over 900 responses were received. In the previously mentioned issue of the User's Newsletter from TI, the LaFara founded 99/4 Home Computer Users-Group received a half front page announcement. The announcement did mention that the Users-Group was "not affiliated with Texas Instruments". TI's announcement spoke of LaFara's operation in almost pioneer, sacrificing terms:

"The 99/4 Users-Groups has become a family hobby for the LaFaras. Family members share answering the phone, replying to letters, copying programs on cassette and diskette, and evaluating new user programs. The living room of the LaFara home is outfitted with two TI-99/4 computers and monitors, one 80-column printer, four disk drives, three cassette recorders, an RS232 interface, a SOLID STATE SPEECH Synthesizer, modem, and joysticks."

The TI article also mentioned that "no dues are charged". That changed soon after. Effective May 1, 1982, payment of \$12 for annual dues was charged. Those dues entitled the members to a bimonthly newsletter, discounted prices on TI products, and access to a "software exchange library". The software library was an interesting concept LaFara put forth. It operated like this. You could get "public-domain" programs from the library through one of two means. By submitting a program you wrote that was acceptable to the library (virtually ALL submitted were accepted), you were entitled to get 4 programs of your choice from the Users-Group catalog. If you were not a programmer, you could purchase a program (minimum of 4/order) for \$3 each. Here is where the problems started. In the entire other worlds of Home Computers, very few had tried such a thing, that is, selling public-domain programs piecemeal. Those who did try, were generally shunned and boycotted. "The rules, though unwritten, were generally accepted to be that it was legitimate to distribute public-domain software for a copying fee per diskfull or by size (for example, a fee for each 100 kilobytes of program space)." But the "rules" strictly forbid putting a price on individual programs NO MATTER HOW LOW THAT PRICE MAY APPEAR. To do so would negate the very principle of Public Domain. You can find ads for various disks full of CP/M software, etc., but virtually none to buy single Public-Domain programs. Charlie dared to go against the grain and succeeded simply because of the generally new-to-the-computer-world TI user. It is a strange legacy left to us in that even non profit local users group across the country today STILL request a fee PER PROGRAM in distributing Public-Domain software to their memberships. Certainly, they generate monies for newsletter expenses and not officer's salaries, but the traces of commercialism remain.

The controversy continues when one read the IUG catalog's "COPY RIGHT STATEMENT" (Appendix 3). The statement was one of the most convoluted legal statements of record. What it said was, in essence, that the International 99/4 Users-Group (the name change was first used in the October 23, 1981, Volume 1, Number 7 newsletter from the Users-Group) or IUG did not hold copyright

THEMSELVES on any of the "public-domain" programs and, thus, had no liability for the workability or quality of the programs. The IUG would not touch the source code of any program. On the other hand, no one else may copy or sell these programs without the written consent of the author of the programs. These authors, almost universally, were not interested in copyrighting their programs but, whether they liked it or not, submission to the IUG library MADE them copyrighted. One copyright attorney rendered an opinion of IUG's document. He stated that it is not legally possible for any third-party to "impose" a copyright on an author. Only the author may claim it. Further, turning a copy of a program over to someone for distribution does not of itself constitute the release of ownership of the program to another unless there is a specific release made in a written contract or statement. Thus, placing a program or work in the public domain does not cause the author to lose his creative authorship copyright. It causes him to lose ownership and control of that program's distribution and use. Consequently, the author retains the copyright which cannot be acted upon (in a legal sense) and loses all ownership of it. Thus, LaFara was incapable of claiming any exclusivity with programs because he claimed that he was protecting the rights of the author although, in fact, he was trying to protect his profits from the use by others of the programs. The bottom line appears to be that the submission agreement, quite simply, a legal smoke screen that IUG would use to its detriment in the end.

No dues were charged but expansion and expenses were incurred as the operation grew. Income was generated from several sources, primarily as a mail-order order house for TI products and from sales of public-domain software submitted to the users-group. One neat money raiser was a contest held by the IUG in early 1981. Winners were declared in the 3 pre-designated contest categories and the winners got a new Extended Basic module as the prize. Then, the IUG (still Home Computer Users-Group) sold a cassette tape of the best programs for \$20 each. Office space was acquired in Oklahoma City in March, 1981 and two full-time employees were announced (it should be noted that one close former IUG-insider states, adamantly, that the two

"employees" were LaFara's wife and their son, and the announcement was made to make the appearance of growing importance and strength). According to the User-Groups estimates, they were shipping 4000 program requests per month. LaFara, with his almost monthly pilgrimages to Lubbock, Texas, had secured the support of Texas Instruments and, particularly, Don Bynum. When TI formulated plans for the innovative TEXNET database on The Source, LaFara was given the job of supplying the program library for free downloading to subscribers. He made a living.

Another point demands to be made. The policies and commercialism of the International Users Group forced, in the eyes of one close industry observer, the coinage of the term "commercial users group". Based on previous standards, it was an "unintentional oxymoron", a gross conflict of terms. It appears that in literature that refers to support of the TI 99/4A, you will find the term mentioned almost exclusively in that community. While commonplace in the 99/4a support world, "commercial users groups" are rare if found at all in the other computer's literature. LaFara had created a new entity that was so simplistic and profitable that it was very appealing to other entrepreneurs (as LaFara likes to be called). "Commercial users groups", if they continue to exist, can be traced almost directly to LaFara and the IUG. Copy cat companies began to spring up all over the country. One of which, would have to be dealt with later legally by the IUG.

The IUG grew rapidly in size and influence. In October of 1981, the IUG newsletter declared 7000 members in 19 countries. The user-written software library had swelled to 500 programs. Perhaps because of the general naivete of the home computer market, the transition from a users-group to a business was virtually unnoticed by the members. The starting of dues never reached the IUG newsletter, but in a "membership information" flyer, dues were \$12 annually. For \$50, you could get a "PRESIDENTS CLUB" membership which entitled you to additional discounts on purchases through the club. LaFara even took a poll as to whether the membership "wanted" the users-group to "serve as a supplier" for TI products. According to his reports, the response was

overwhelmingly in favor of the users-group selling products. The die was cast. What had started as a users-group had become big business.

LaFara was noted by some to play an interesting "triangle" affair between his commercial organization, the 99/4 user and Texas Instruments. By interfacing himself between the two, he served his own purposes by generating an air of artificial "self importance". He would make frequent visits to Lubbock, and talk his way into the inner circle there, making deals for TI information and, often, equipment. Then, he would go back to Oklahoma and write in his newsletter about his inside information by printing "according to our sources within Texas Instruments..." or "representatives at TI have informed the Users-Group..." etc. It was a simple gambit but effective. By standing as an inside source for TI information, he would generate increased membership. Then, by displaying the membership numbers at Lubbock, he would appear quite formative in the consumer sector and, thus, appearing to be a major "free advertising" source for TI products. And the circle went on. No better statement of this ploy is evident than a comment appearing in the IUG newsletter of February 10, 1982 (Volume II, Number 1). The rhetoric went like this:

"...Our policy has been to report the facts to the 99/4 owner as quickly and as factual as possible. We have reported both the good and bad sides of products and services and have seen several changes made on behalf of the the consumer due to our efforts. Many of these changes have resulted in better overall products being offered for the 99/4 and added to the enjoyment of personal computing for all 99/4 owners. "

Nothing sinister in the statement certainly. But there is the "Look what we can do for you" power showing through. That is how the game was played. And IUG played it extremely well. They MADE themselves important by APPEARING important. They did receive early product release information from TI. They did beta test proposed TI software. And, with importance, came sales. Both of TI

products and their "public-domain" programs.

Perhaps the biggest fault with the IUG operation was the clouding of the definition of "public-domain" programs. Public-domain software are programs written and freely given to anyone who wants the program. There are no strings, no copyrights, no protection to prevent copying. Certainly, paying a service to cover distribution and reproduction costs is not unheard of. IUG charged for these services and that is perfectly understandable. Where IUG lost credibility with many users is the artificially imposed copyright scheme alluded to earlier. They IMPOSED a copyright on the software when it was submitted to the IUG library. They appointed themselves the enforcers of the implied copyright and, thus, confused the 99/4 computer user as to what the term public-domain meant. It was clear to the informed that IUG could legally charge fees ONLY for the service of getting programs out to the members who sent for them. NOT for the program themselves. But IUG pursued a line that the programs themselves were what they were selling and not the distribution costs. That is where the issue was distorted and, even today, the TI Home Computer users are generally unsure about what actually is public-domain software. IUG aggressively pursued this point with threats of legal action and, eventually, it was their own policy that led to their loss of credibility in the 99/4 community and brought about their demise as a company.

It began after TI left the home computer marketplace. Stripped of his "inside track" to manufacturer information, LaFara was left with one major money producing asset: the IUG's library of nearly 2000 owner written programs. He became intensely protective of this remaining holding. In an article by LaFara in the September, 1983 Enthusiast magazine (Volume 1, No. 3), he made light of how aggressive he was to pursue the "copyright protection" of the IUG "public-domain" software library. He wrote:

"Can software piracy be stopped? Probably not. One of the newest methods to curb software piracy of copyrighted material is the placement of of an invisible code between line numbers which cannot be

seen by the user when the program is either listed to the screen or to a printer. This method has been put into practice by many software developers and is currently in use here at the International 99/4 Users-Group on all programs in the Software Exchange Library. Although the practice does not assure protection from unauthorized duplication of program, it does enable the manufacturer or copyright holder the ability to prove the program's origination."

There are many who are quite sure that IUG NEVER used such a protection scheme. Regardless of whether the "invisible codes" were instituted or not, the comments were the first salvo in LaFara's onslaught to guard his tenuous hold on public-domain software and its distribution rights.

The IUG filed suit against the "99/4A Program Exchange" of Torrance, California. This company undercut the IUG in several ways; they sold their programs for \$2.00 each (\$3.00 for IUG) and offered a five-for-one exchange for submitted programs (IUG offered 4 for 1). They also put out a newsletter. They were not the big operation that LaFara had, but they began to cut into the increasingly meager IUG revenues. LaFara describes the "Program Exchange" as being run by a "17 year old kid who was a former IUG member. We refused to accept a couple of his programs for the [IUG] Software Library, so he started his own company to get back at us." IUG was successful in it's suit, LaFara admits, not on the grounds that this company was selling public-domain software. That was not a legal point. Public-domain was not copyright protected. The suit was won because the IUG proved, rightly, that the California company was using IUG printed catalogs and program descriptions in mail distribution and advertising. Additionally, the Torrance company was guilty of using a company logo which was almost identical to the registered trademark of the IUG. Clearly, IUG was on solid legal grounds and correct in pursuing the case. Where IUG was wrong was in depicting the case as one of successfully suing and winning on the grounds of infringement and sale of copyrighted programs. The distinction was obviously not made in LaFara's statement

when the suit was announced in ENTHUSIAST '99, a publication of LaPUBCO (LaFara's publication company) in its March, 1984 issue (Volume 2, Number 2) Charlie LaFara, IUG president, said:

"....after consultation with our attorneys, we feel very strongly that our rights have been violated. Unauthorized use of programs and descriptions in our Software Exchange Libraries as well as infringement of our corporate logo must be dealt with."

What IUG appeared to project to others is that there were suing for sale of programs. What they really sued for and, rightly so, won an out-of-court settlement for was use by the Torrance company of copyrightable printed IUG catalogs and program descriptions. NOT for the sale of the programs themselves which, quite clearly, could not be sued for. It was a tactic to prevent others from distributing "their" programs. Successful once, LaFara made a fatal mistake when he sent a letter to a large, non profit users group in Atlanta, Georgia threatening legal action against that users group if they continued to distribute public-domain programs from the IUG library. It was the resulting backlash of unfavorable response by other local users groups that severely cut into IUG membership roles, program requests and equipment sales. LaFara's position was that the Atlanta users-group was distributing in their non profit library CERTAIN programs whose copyrights WERE held by employees of the IUG; thus, the programs in question were in the IUG Software Catalog, they were not the usual owner submitted programs. HE stated "These WERE copyrighted programs and IUG held copyrights on several programs in our library." When chastised in the newsletter of the large and influential Los Angeles Users Group Newsletter, LaFara responded with the a letter which contained the following statement:

"Regarding your "sister group", the Atlanta 99/4A Users Group, we indeed have informed them that pending legal action against the group and its officers will be taken provided they do not respect

products to which the IUG or employees hold legal copyrights." (Letter dated August 28, 1984)

LaFara still dismisses the notion that the bad publicity his organization received from the threatened legal action against non profit users-groups. He recalls, "the feedback we received from the vast majority of other users-groups was that they understood our position and supported us." He admitted, that actually pursuing a legal course was "fought by me completely", and that IUG used the legal language to "get results, which we did."

For the first year after TI's pullout, IUG did relatively well. Infused with new, uninformed buyers from the '83 "fire sales", they remained profitable. But then things suddenly changed. An attempt to work with Texas Instruments in moving their new TI Professional Computer at bargain basement prices (with the requirement that the buyers submit 5 user-written programs to IUG over the ensuing 2 years) failed. Letters were sent out by Texas Instruments' Software Development Program section included a letter on IUG stationary and signed by Charles LaFara announcing the offer. It fell apart, according to LaFara, because TI did not deliver a promised conversion program to make 99/4 Home Computer programs runnable on the TI "PRO". That program would have made IUG's huge Software Library marketable for a successful upgrade computer. But it was not to be. Threatened and defensive, the IUG became increasingly isolated from both their former advocate, TI, and their consumers. In the end, IUG had alienated the 99/4 user and was losing money rapidly. \$2000 per day became \$200 per day. Finally, as LaFara puts it, "the faucet just turned off in November, 1984." The decline continued and, in early 1985, the announcement was made that IUG was filing for bankruptcy (see Appendix 2). From a company which, at one time, had 24 employees and 10,000 square feet of office space and, from LaFara himself, "had some \$2000 income days", IUG was bankrupt. At the time of this writing, Charles LaFara, himself, was contemplating filing personal Chapter 7 proceedings. He and IUG are being sued by a former employee for, most ironically, "copyright infringement" to the tune of \$1.5 million dollars. There

are rumors of several complaints being lodged for everything from mail fraud to fraudulent business practices. It is not a pretty picture. LaFara is stoic in his response to the final outcome of his corporation. He commented, "we knew it was one of the risks you take when you become an entrepreneur." He is presently doing "consultant work" for a group of physicians. His biggest mistake? "Staying with it [the IUG] too long."

Started on a noble premiss, IUG suffered mainly from grandiose ideations. They, early on, provided a valuable service to the rather sparse and isolated 99/4 computer owner. They were so few in number that, in all but the larger cities, local users groups were virtually impossible to locate. The IUG served as a central clearing house of programs and information for these early TI Home computer users. But as the owner base became increasingly large and local users groups more accessible, their importance began to wane. They, even then, offered two major resources local groups couldn't provide: first, an informed source of information about Texas Instruments and, two, a huge program library. Then, the first asset vanished in October, 1983. Attempts by IUG to strike a deal with TI to, among other things, run TI's busy TI-CARES assistance line, were turned down. Then, after the pullout were ill-advised legal threats by, now, a company against legitimate, non profit local users groups, further accelerating their financial failure long before its time. Local users groups had usurped the IUG position in directing the 99/4 owners. Even LaFara admitted that "we knew all along that local users groups would become more important to users as time went on."

CHAPTER 4 - THE REAL USERS GROUPS

User groups have always been the primary force in the home computer "movement". They first arose when computers came in kit form and, unless you were an electrical engineer (or, at least, very smooth with a soldering iron), those really wanting a computer needed help getting one together. Soon after Micro Instrumentation Telemetry Systems (much better know as "MITS") began selling the first popular computer kit (Ed Roberts' ALTAIR) in 1975, the first computer clubs ("HOMEBREW" in San Francisco, SCCS in Los Angeles, and ACGNJ in New Jersey) sprung up. (It should be observed that in Alfred Glossbrenner's book "How To Get Free Software", he quotes Sol Libes [professor of electronics at Union County College in New Jersey and computer pioneer] who recalls "The first computer club was founded in 1965. It was a national organization called the American Computer Society, and it had as many as 250 members." But this was not a local-level group with frequent meetings.) Even though computers no longer come in kits, the lack of technical information about hardware and software has grown even larger (probably BECAUSE computers no longer come in kit form, people have even less of an idea of the inner workings of their machines much less how to repair or interface them). Users Groups have been popular since the beginning and have served as an indispensable information source for the computer owner, filling a gap the industry itself had neither the resources nor (understandably) the inclination to deal with.

The industry has always known this also. Ed Roberts knew it in 1976 when he filled a motor home - "The Blue Goose" - with MITS employees and sent it roving about the nation. The road show (which included Bill Gates, then a young Harvard undergraduate and a software designer at MITS) stopped from city to city and talked with both owners and potential owners as well. The computer manufacturers have encouraged user groups since. They, in turn, have brought more new owners to the fold than any advertising scheme. Equally important, by solving the technical problems of owners, they have KEPT computer owners using and expanding

their machines rather than abandoning them in frustration. The often uncanny expertise of user group members has brought the home computer movement farther than any other single development. Alfred Glossbrenner, highly published author of several books on personal computers, estimates that there are over 1000 users groups in the country, ranging in size from 2 or 3 members the behemoths of memberships over 10,000.

Texas Instruments knew the importance of user groups too. Early in 1980, the corporation set up a position in the Consumer Products Division in Lubbock titled Users' Group Coordinator. They began publishing a bi monthly flyer for all registered TI computer owners called the User's Newsletter. There was a note that stated "TI is interested in assisting users who wish to form new users' groups in other areas of the country."

Almost ironic, the same issue of the TI Users Newsletter that introduced LaFara's national organization (Feb/Mar 1981) also published the first listing of local, non profit users groups. Ten listings (Cincinnati, Denver, Eugene [Oregon], Houston, Los Angeles [2], Pittsburg, San Diego, San Francisco, and Washington, D.C.). From this meager list, local users groups were to grow in number to over 300 groups across the country. From the large cities to small towns, as the TI Home Computer was sold in increasing numbers, the users groups naturally followed.

Virtually all of the Users Newsletters had sections for new user groups being formed. TI quickly appointed a user group coordinator (Ed Weist) to handle correspondence and information for this growing clan of potential customers. TI even developed an official, recognized list of users groups and laid out specific guidelines on how to become "official". You had to have 15 members and then contact the users' group coordinator in Lubbock. He would, in turn, send you a "Starting Kit" which consisted of a suggested constitution (with a large an explicit explanation on how groups should handle copyrighted programs), bylaws, preliminary organizational guidelines, agendas for the first three meetings, committee responsibilities, steps in setting

up a newsletter, and a listing of the recognized local groups. After a group met three times and verified same to TI, they became "certified". TI obviously took users groups quite seriously. Other than the Starting Kit, you received little else from TI save an occasional letter from the coordinator with a product announcement or such and, perhaps, an occasional disk of public-domain software, but these were few and far between. There was one offer by TI that was a major concession from the Texas firm. An early offer was the Notice Mail out Program. This amounted to a one time offer to a "recognized" TI 99/4A user group to have TI use its massive mailing list of owners to mail out, free of charge, a meeting announcement for the group to all users on TI's mailing list in that group's area. In mid-1983, TI announced it was dropping the notice mail out offer (due to "many factors") and initiating an offer to provide recognized users groups with up \$200.00 of local advertising monies for meeting dates and public visibility. The groups sent a copy of the proposed ad for approval prior to submitting to the media. Once TI approved the ad and it was run, the group forwarded an actual copy of the ad along with the bill. TI, then, would pay for the cost up to the \$200 ceiling. The restriction was that the ad could only announce meetings not sell products. It was a one time offer to individual groups but a good way to get publicity. If the group had used its notice mail out program, they ineligible for the ad reimbursement. User groups flocked to become official.

From 10 in February, 1981 to 24 in November, 1981 to international groups in January, 1982 (Germany, Australia, and England being announced) to 35 in June, 1982, the list rapidly grew. The October, 1981 issue of the Users' Newsletter had a long report of TI using one its largest groups as a launching pad for several new products. The Pittsburg group was visited by TI representatives and saw demonstrations of coming products. LOGO, TEXNET telecommunications network, the EDITOR/ASSEMBLER software and several unreleased games were shown. The August 19, 1983 list contained over 175 groups with 20 being in either Australia, Belgium, Columbia, England, or Germany.

The users groups were a great source of free advertising for TI. The newsletters with product reviews and group demonstrations sold a lot of software for TI. In return, they were, in the end, misled.

The letter from Texas Instruments' Ed Weist, Users Group Coordinator, referred to by Jim Horn in Chapter 2 is the proof. The letter, dated July 27, 1983 first, announced TI's \$100 million after tax losses for the second quarter of 1983 and an actual net loss of \$119.2 million and then alluded to the speculation by "some people" about the possibility of "TI getting out of the home computer business". The remainder of the letter went like this:

"The question most often asked: 'Is TI getting out of the Home Computer business?'. That question was answered in the same news release mentioned above which states, 'TI will continue aggressive cost reduction measures, development of new hardware, vigorous software expansion, and emphasis on merchandising and dealer support for the approximately 20,000 retail outlets around the world now carrying 99/4A Home Computers, software and peripherals'.

Even though TI is remaining in the home computer business, our commitment to that market is being questioned. Some people, who own the 99/4A, feel that although they now have an excellent computer, TI will not be committed to the business and thus, service and software support for the 99/4A will collapse. This concern was also addressed in the press release of July 22 quoted here:

'To support our worldwide network of retail outlets, we are emphasizing increased marketing programs that will highlight the capability and value of our home computers. We are continuing aggressive development of new cartridge software and have recently signed contracts with major software firms including Imagic, Broderbund,

Spinnaker, and Sega Enterprises. In-house, we are continuing cost reduction efforts.

In the longer term, we believe that the continually decreasing costs of semiconductor logic and memory will result in a stream of high performance computing and other electronic products in the under \$1000 category. Increasing volumes of these products will move through mass distribution channels that TI has pioneered with its home computer.'

As you can see, we are solidly in and committed to the home computer business. Furthermore, we care about you. This is evident through our support of your users group. By the way, the TI network of users groups now contain over 170 groups. So, as a TI Home Computer owner you are not alone, but are part of a very large community that is growing everyday."

A large smoke screen is apparent. As Mr. Horn pointed out in his earlier remarks, many questions were asked in the letter, no solid answers were apparent. There was no clear statement as to whether, indeed, TI was going to stay in the 99/4A "business". References to solutions to the huge second quarter 1983 losses are made, but no guarantees are in print. Support for retail outlets are quoted, and it is stated that TI does support users group. The "reassurances" at the time were effective. In retrospect, we see their ambiguity.

The last user group communication before the October withdrawal was dated September 6, 1983. Again from Ed Weist, it was completely benign. No hints, no warnings of the future. On the contrary, Weist enclosed his September/October schedule of user group visits which extended up to a October 2 meeting of the Milwaukee Area Users Group. The information from TI to their biggest supporters, the users groups, was that "all was well".

After the news did hit and the shock and panic had subsided, it has been the users groups who have kept the machine and its individual users productive. With the fire-sales and sellouts, many of the new owners were actively recruited and absorbed by the groups. Their membership roles swelled and their jobs grew enormous. They, almost overnight, became the sole source suppliers of technical and programming information for the novice 99/4A users. Later, they became a major source of compatible hardware as the TI retail base vanished quickly. They were able to buy in bulk and sell at cost to the members. The ties between groups were strong and sharing of hardware, software, and sources of commercial products was widespread. When IUG began to wither and die, the local user group's public domain libraries became almost a sole source supplier of software for the members. It serves as a tribute to the value of the user groups that they remain the focal point of the 99/4A community even now, two years after their machines were abandoned. Certainly, the membership roles have diminished, but the enthusiasm has not. And the majority of the groups remain today. Some of the strongest were formed after the October debacle, when new owners without a local group found each other and forged ahead with their machines. They were assisted by the older groups and, now, are successful and serve their memberships well.

TI made some final offerings to users groups in late 1984. They released to public-domain the commercially developed (but never released to the market) TI FORTH, a powerful and popular language for the 99/4A. It was released through the users groups and each of the recognized groups were sent the system disk and manual. It was a major concession. Further, the popular word processor TI Writer and spreadsheet, Multiplan (Microsoft) in initial commercial release, had several minor flaws in the programs. TI released to the users groups new versions which corrected these flaws. Crumbs after the feast, certainly, but concessions that didn't have to be made. Cries from the users groups to get another language, PILOT, known to be developed, released to public-domain, were not successful.

Some of the larger groups across the country became focal points for major areas of interest. For example the Northwest Ohio 99'ers (actually two groups, New Horizons and OH-MI-TI) have been an amazingly productive and influential group. They, through the work of hardware genius Ron Gries and software wizards John Clulow, Dave Romer have produced software and schematics to build the hardware for an inexpensive Bulletin Board System. They have also built a battery backed 8K cartridge, added 32K ("kilobits") of memory expansion directly into the console "mother-board" (negating the need for the hard to find peripheral expansion boxes) and, most recently, hardware and software to build an inexpensive "RAM disk" (which allows rapid storage and retrieval of data to and from a set of soldered chips). This kind of "homebrew" work, which characterized the early days of personal computers, has been all but lost in today's modern, prepackaged and "bundled" ("all you have to do is plug it in") world of home computers. Being orphaned brings back the necessity. But you sense it's not just out of necessity; it is also for the sheer fun of it. To take a machine that the commercial world has given up on and make it do something new and wondrous brings a satisfaction that is unmatched in computerdom. And nobody does it better than the Northwest Ohio Users Groups.

Software is another way a user group can distinguish itself. Here, there are numerous examples. From the small group in Muscle Shoals, Alabama (where members have Danny Michael and John Taylor have produced and made available numerous useful utilities) to the huge (and possibly first TI users group) Houston, Texas group where Stephen Foster, Bill Knecht and Bill Rister have combined to release over 50 separate pieces of "computer music" (software that, when run, creates music played through the computer's sound chip), from jazz to hymnals.

Information is a way all the users groups have contributed to keeping the 99/4A viable. Through newsletters, varying in quality from typed and xeroxed to typeset and printed and size from 2 pages to over 20 pages per month, the groups mail out to their members (as part of membership dues) as well as other user groups to keep the

grapevine of information flowing. By exchanging regional information, the individual groups stay abreast of nationwide products and reviews, share program listings and soft and hardware tips. Filling the gap left by lack of glossy magazine coverage, these newsletter exchanges provide essential information sources even more up to date (and often more factual, due to lack of advertiser's pressures) than commercial publications.

One of the most unique and successful ventures carried out by a users group has been the yearly Chicago Users Group's "TI Faire". First scheduled totally innocent of the implications of the timing, just two weeks after the October, 1983 withdrawal of Texas Instruments, the group was overwhelmed with the response. That 1983 Faire drew over 1000 visitors and prompted an incredible buying spree from displaying vendors. The second annual Faire was held a year later (November 10, 1984) and drew even more visitors - estimated at some 1500 users. Don Bynum, the former engineer from Texas Instruments and now 99/4A entrepreneur, was the guest speaker. His talk was videotaped and made available to other users groups as another information service. Twenty-one commercial vendors of support products for the 99/4A set up booths.

Seminars were given throughout the day on programming. The Chicago group plans a Third Annual Faire for November 2, 1985 at the traditional Triton College in River Grove, Illinois. (see appendix 11 for a profile of this "Super Group")

The large, commercial groups are all gone. Not only was there IUG (which was the largest and most influential), but also the "99/4 Users of America" (Flint, Michigan) and "International Home Computer Users' Association" (Rancho Santa Fe, California). The local groups remain and will for some time because they stuck to their goals and their "amateur" status and because they shared (see Appendix 9 for a list of TI users groups). Realistically, there are still several commercial ventures which market public-domain software, but they do not assume the guise of a "users

group". The oldest now existing is the Torrance Program Exchange and the latest is the "99/4A National Assistance Group" (Ft. Lauderdale, Florida). Again, neither are "users groups", but for profit dealerships. The users are finally understanding the distinction. There is definitely a place for these clearing houses, as long as deception is not one of the product offerings.

CHAPTER 5 - TELECOMMUNICATIONS

One of the most intuitive services Texas Instruments provided to the owners of their Home Computer was to introduce them early to the marvels of telecommunications. With the release of the Terminal Emulator I cartridge software in 1980 and the availability of TI-produced communication interface hardware, access to telecommunication was quite simple for even a relatively inexpensive 99/4A system. Further, the cooperative effort of Texas Instruments and Source Telecommunication Corporation (a subsidiary of Reader's Digest Association, Inc.) and their electronic information system, The Source was a first for the home computer industry and opened the door for 99/4A users that has yet to close.

Announced in mid-1981, the establishment of a computer specific section of The Source, the largest commercial telecommunications network, made available a vast arena for the exchange of information between users of the 99/4A computer. It was entirely 99/4A-specific, you had to inform the Source's subscription service that you were using a TI computer and be assigned a "TI" prefix to your identification number to have access to the system. Users with the TI prefix could still use the other Source services - TEXNET, a TI servicemark, as the new subsystem was called, was an additional service to /4A users. As described in the December, 1980 issue of "Sourceworld", monthly publication of The Source, TI would work with STC to develop features to use the color and sound capabilities of the 99/4A computer. The TEXNET system was debuted at the summer, 1980 CES and went on-line in late 1981. The International Users Group was contracted to maintain the program library which would allow acquisition of selected free software from IUG's huge program library electronically. For the widely dispersed owners, it was an opportunity to get comparatively rare public domain 99/4A software for the price of the connect time on The Source. But TEXNET offered much more. TI Chat allowed speech through the 99/4A's optional Speech Synthesizer; the Graphics Library allowed the display of unique color graphics on the computer monitor; Music and

Sound both played and allowed downloading of musical scores; lists of TI users groups and service centers were also maintained by the service. It's unique features centered around the remarkable characteristics of the software offered by Texas Instruments - Terminal Emulator I and, later, TE II.

Texas Instruments had been a pioneer in computerized speech. Their early Speak and Spell and Speak and Math educational games were popular because of the use of the speech element to teach small children. A stroke of software genius at the Consumer Products Group was to place the terminal emulator software necessary for telecommunication in the same module that contained unlimited speech reproduction capability. With the Speech Synthesizer peripheral plugged into the computer and the TE II cartridge in the module slot, the 99/4A was capable of unlimited speech. Unlike the speech capabilities of other computers of the same time period, the 99/4A was truly capable of unlimited, modifiable (for pitch and slope of sound; one could simulate, for example a male or female speech). TI touted "true text to speech" as an important development, particularly for educational uses. Further, it proved to be a major selling point above all for the visually handicapped seeking computer literacy. The blind could have program lines spoken after they are typed in to see if they were correctly entered. Today, the 99/4A remains a major computer for the use and instruction of the visually handicapped for that simple reason.

By tying the speech capabilities to the terminal emulator software, TI, by logical association, made it possible for the first time in home computers, to have information obtained from another remote source, spoken at the receiving terminal. Thus, a "voice chat" could be initiated remotely and carried on through electronic means. For clarity, while on The Texnet system, and a "chat" (where one user hails another user on-line, typing messages back and forth at each's terminal and transmitted via phone lines to and from The Source) is initiated, with the text to speech facility of the TE II software, one can have the incoming messages spoken through your terminal. Of course,

it would not be in the sender's voice, but the novelty was enough to sell a great deal of software. At the time, it was the pinnacle of telecommunication technology. Of little practical use, except for the blind, but intriguing to most. Intriguing enough to, at one time, have Texnet solidly as the highest use area of the whole of The Source.

Users also, through the TE II software, had the availability of close to 300 public-domain programs to be downloaded to disk remotely at no cost except that of the time actually connected to The Source (\$6.00/hour). The programs were almost entirely from the huge libraries of the International Users' Group. Also, users had the capability and, indeed, were encouraged to upload their own programs to the "TI Exchange" to be accessed by other users. So, the library grew (and Charlie LaFara's organization had access to more programs from the investment). The transfer protocols of the TE II software were tediously slow (about 1 kilobyte/90 seconds), but there was true error checking and retry capabilities. The early users of Texnet, being "software starved", were eager to participate and the downloading was immensely popular.

After the initial peak usage was reached (those users who already had the necessary equipment as the system went operational), TI made a move to lure more users into the system. In their first "free" give away, they announced on May 15, 1982, a free subscription to The Source (usual cost, \$100 for a lifetime membership) for the purchasers or either an acoustic phone modem or a RS232 interface (both required equipment to telecommunicate) and a Terminal Emulator II cartridge. So, by coat tailing the popularity of Texnet with a hardware/software deal, TI sold a great deal of material. It was one of the shrewder marketing moves Texas Instruments had ever made. The deal continued until October 16, 1982, and during that time, hundreds of people were introduced to the exciting world of electronic communication.

Despite lack of maintenance, a frustratingly slow response time on-line, and absolutely no turnover of the program exchange selections (most remained in place for

about 3 years and were far behind current program expertise at that time), Texnet survived and continued to be one of the most active areas of The Source. Some estimates as late as January, 1985, set it as the third most active area of The Source (behind IBM and Apple computer owners). In the face of such staleness of facilities, that is an amazing tribute to the owners of the 99/4A and their early love affair with telecommunications.

More recently, Texnet has undergone a complete face lift. The Source saw a gradual exodus of TI users due to the unchanged and dated Texnet materials and sought someone to revamp the system to make it, once again, attractive to TI users. It is one of the ironies of the 99/4A community that the man chose for the job of rescuing Texnet was none other than Don Bynum, former chief engineer for the Consumer Products Group that built the 99/4A Home Computer. Bynum had left TI in November of 1983 and had, since that time, stayed active in the world he knew best, the /4A users. He had marketed, through Softmail, Inc., a disk based terminal emulator called TE1200, and, through Texas Peripherals, Inc. and a music card that incorporated 4 sound chips to produce 12 voice music driven by FORTH based software (called the FORTI music system; this system, itself is a story worth telling. Developed by TI employed engineers and proudly playing "Chariots of Fire" at the the massive TI display Winter, 1983 Consumer Electronics Show in Las Vegas, TI decided not to buy the rights for this product from the developers. They did not own the product outright and would have to buy the rights from their own employees as it was built as part of a employees incentive program where TI encouraged their own employees to develop products for the 99/4A on their own initiative. Then, TI would buy the products if they desired and felt they were marketable. The same program brought about the production of a game that TI did market for their computer called "Hopper". After leaving TI, Bynum bought the marketing rights to the hardware and software). Softmail, Inc. (which is run by Bynum and his father, Doyle Bynum) was contracted by The Source in 1984 to begin the arduous process of rebuilding Texnet into a viable entity.

Announced at the TI Faire sponsored by the Chicago Users Group in November, 1984, Bynum pointed out some new features of the new Texnet. Faster response time of the system to users on-line, new programs to replace the tired listings in the TI-Exchange and several new features. First, a "TI News", which would feature product reviews and tutorials uploaded by users themselves. Secondly, a on-line commercial "store" in which one could buy modestly priced software for the TI. Once you have entered the store electronically, you shop through the program descriptions, and, when you find something you want, you will be asked for a billing credit card number and, then, you would be able to download via the TE II software, directly to your disk, the program you just bought. Fast and efficient. Users were encouraged to upload for consideration any program they had written that they thought was commercial quality. If accepted by Bynum's company, Softmail, Inc. (which ran the TI Store), the program would be added to the store's selections. The author would then receive a 20 per cent royalty for the purchases of that program. It was a unique way to market good software for programmers who ordinarily could not afford the production costs (see Chapter 8 for a discussion of the problems of software development for the 99/4A computer).

The "new" Texnet went on-line in early 1985 and has been a success. It's improvements over the older system which was poorly run and maintained, were immense. The system remains today, one of the most active sections of the entire Source network. In fact, it has been estimated that a "TI" account prefix makes up 14% of all the users of the Source system. An astounding fact in light of the time the computer has been out of production. Unlike his predecessors (no one really knew who ran the old Texnet; IUG certainly supplied the programs but it is unclear if there was a "systems operator" in charge), both Bynum's are active on the system and the excellence of the capabilities reflect their interest and attention.

Another unique feature of the Source has recently been utilized by one enterprising 99/4A enthusiast. "User publishing" offers individuals an opportunity to publish

articles, poems, commentary, and other pieces they have written. Everything from full length novels to poetry are there. The Source pays the subscriber who uploads and maintains these file areas a royalty (10 per cent or more) for the amount of time other users spend accessing these file areas. Taking the lead from "electronic magazines" on-line for other computers (notably "Real Times" for the IBM and "S.A.U.G. Magazine" for the Apple users), Mike Amundsen, of Bowling Green, Ohio, began "Subfile 99" in 1984. It has been incredibly popular on the Source and, has even been brought to CompuServe by user request. The files are a tribute to Amundsen's programming and writing talents and 6 issues have been "published".

While Texnet was certainly the first national telecommunication system for the 99/4A, perhaps the most active of all is the TI Forum special interest group of CompuServe. CompuServe, a national information network established in Columbus, Ohio in 1979 is today, with over 150,000 subscribers, the largest interactive videotext system in the world. While the Source has been of primary interest to business and professionals, CompuServe has always had more of a hobbyist computer orientation. It is rapidly expanding even now as the popularity of telecommunications continues to grow. One of the most active areas of CompuServe are the "special interest groups" (or "SIG's" for short); these are machine specific subsections where users with the same interest exchange information, programming help, hardware and software reviews, and, in general, the good times and the bad times of using their temperamental machines. The SIG's are the lifeblood of CompuServe and their ease of use, speed and flexibility have made CompuServe, perhaps, the most popular system in the world.

As opposed to The Source, TI struck no deals with CompuServe, since it was merely in its infancy in 1981. In fact, the users of the TI 99/4A had no SIG of their own until March of 1984. That's correct; 1984 was, indeed, after Texas Instruments had abandoned the machine. For the previous few years, owners of the 99/4A used the CEMSIG special interest group area (Computers Electronics Magazine

SIG). This nonspecific SIG was frequented by users of other computers with smaller installed bases, too small to support their own SIG's (for example, the Atari owners used this SIG until Ron Luks started the Atari-specific SIG when the user-base became large enough), and the orphaned computer owners, such as the Timex-Sinclair users. After the withdrawal of TI, the users realized the necessity of seeking others nationally for hardware and software expertise (now that manufacturer support was gone) and 99/4A users of the CEMSIG increased dramatically. Increased to the point that their message activity began to dominate the SIG such that it became obvious that the TI owners needed their own area.

The head systems operator of CEMSIG was Stan Veit, then also an editor for the Computers and Electronics Magazine (and now editor-in-chief of "Computer Shopper" magazine; Computers and Electronics went out of publication in early 1985). He recognized the activity of TI users on his SIG and looked around for someone to help those users. One of the systems operators he recruited from the ranks of CEMSIG users themselves was Jim Horn, a TI 99/4A user and President of the large Washington, D.C. Users Group. He became an assistant sysop for CEMSIG. In early 1984, Horn was approached by Comuserve to make suggestions for starting a TI-specific SIG on the system. He submitted a proposal to Comuserve that the users of the TI 99/4A be given their own SIG in the system. They agreed and Jim Horn was made the sysop. Horn was joined by Randy Holcomb, also a sysop on the CEMSIG and also a TI user, and the TI SIG was formed and online in early 1984. Again, a touch of irony is that the TI users got their own area of the database after the production of the /4A was stopped. The decision of Comuserve to start a new SIG for a computer that just went out of production must have been a difficult one. But, as history tells us, was a brilliant one.

When the electronic doors of the "TI SIG" were opened at 8:46 on 29 February, 1984, users slowly flocked to its open message bases, its data libraries (which were to store everything from computer hardware schematics to program listings), and its member-to-member assistance for computer

problems. While Texnet had as its major feature program downloading, the TI SIG featured an incredibly active message base as its most valuable asset. A 99/4A owner with a problem could connect with CompuServe, move to the TI SIG and leave a message to the users there with the problem's specifics. With the active and frequent users, the owner could expect a solution by the time he signed back on the next night. It was a haven for the novices to get veteran assistance and the old-timers to learn a few new tricks as well. The information exchange of the TI SIG was rapid and voluminous.

Through the efforts of Randy Holcomb, a programmer/analyst at First Federal of Michigan in Detroit and one of the sysops who moved from CEMSIG to the TI SIG, CompuServe developed a special protocol for downloading programs to the 99/4A computer using the non standard TE II format. It was accessible not in the TI SIG itself but could be utilized in the Public Access section (where each user of CompuServe had their own file space for storage). A user could upload a program to Public Access and the other users could, in a rather awkward fashion, download it to their own system using the terminal emulator software from TI. It was not nearly as refined as the capabilities of Texnet, but, then, the TI SIG didn't have Texas Instruments to get it started. Despite its relatively complex sequence and its slow transfer method, it was a major step forward for the users of CompuServe.

Since there were no TI compatible transfer protocols within the TI SIG itself (TE II transfers could be used in Public Access only, which was outside the SIG), in the early stages, it was only through the sweat and determination of the members that programs were exchanged back and forth between users. The TI SIG and its data libraries were able to accommodate text files (called "ASCII" files), which would appear just like this printed text, easily. For example, you could send a text file which consisted of a program listing to one of the data libraries and others could read it and "capture" it to their disk quite easily with just the TE II module software. Problem was, to get the listing into a workable program, the user would have to

retype the entire listing at his computer terminal and then re-save it to disk in "program image" (as opposed to "ASCII image") format to run it in their machines. On Texnet, the transfer supported the non standard TE II protocols and what you downloaded to your disk was a working, "program image" file; ready to run, no retyping required. An analogy might clarify the problem. The ASCII text-files that were available can be thought of as the same as getting a program listing from a magazine; you have to type the program in just as you would from a magazine listing. The "program image" files, which weren't available within the TI SIG would be similar to buying the program on cassette or disk; it is ready to run the minute you get it. No typing is required. The TI SIG members retyped many a program before the ingenuity of the users took over to change things.

One of the early and knowledgeable users was a forestry agent living in the small town of Phenix City, Alabama, named Curt Purdy. After retyping a few long program listings taking sometimes hours to do, Purdy decided there just had to be an easier way. He set out to write a "conversion program" which would take the standard ASCII text-file and convert it to a program file that could be run, avoiding the tedious retyping of the program lines which already existed in the text file. He did just that; users could then download from the SIG's data libraries a text file (ASCII) to their disk, then run Purdy's program which could then convert the file to a usable program (it required a few minor keyboard gyrations to actually run the program, but the idea was the same: why redo something that already existed). The program, later enhanced by another TI SIG veteran (and, currently, assistant sysop) Barry Traver, ran slowly, but, again, it was a major gift to the users of the TI SIG.

With the development of the "text-to-program" conversions, the interchange on the TI SIG area even more active. Emulators with improved features over the effective but limited TE II software began to mushroom in numbers and features. Major improvements included increases in the size of the emulator's "buffer space" (the amount of space in the computer's memory that could be filled with information

before one had to save it to a disk system) and the ability to utilize the newer, faster 1200 baud modems (TE II was limited to 300 baud; the difference in speed being, as one one expect, about a 4 fold increase in the amount of data one could transfer at 1200 as opposed to 300 baud). The new emulator software fueled the communications explosion that was going on in the 99/4A community in 1984 and 1985. Somehow, an unfinished disk-based emulator called "TE 3" leaked out from Texas Instruments to the users (how one can only speculate) and was, obviously, pegged for commercial release by TI as a replacement for the TE II software but died on the programmer's bench when the production of the /4A stopped. It didn't die once it reached the users. The gauntlet was picked up by a SIG user named Joe Freeman, a computer science student at the University of Florida, who quickly refined the program and improved on it. It remained "public-domain" (free for all) and Texas Instruments, if they knew about it, never sought to suppress its use or modification. Commercial emulators quickly followed and sold well. One of the first was written by Earle Thompson and was sold by Don Bynum's Softmail, Inc. It was called "TE-1200". Perhaps the most popular of all was one called "Pterm"; written by Richard Bryant in Florida, it was a model of simplicity to use and was cheap to buy.

However, all the new emulators were capable of only text file transfers; none allowed for any universally standard transfer protocols via telecommunication systems. A few later incorporated TE II-type protocols, but this transfer mechanism was only supported by Texnet (nationally) and a few public bulletin board systems specific for the TI 99/4A. Users of the TI SIG of Compuserve and other systems were limited, still, to text-files and conversions. This awkward situation was remedied in May, 1985, when a bright teenager and computer science major at the elite and prestigious Rensselaer Polytechnic Institute of Troy, N.Y. named Paul Charlton, developed an emulator for the 99/4A that incorporated the Xmodem transfer protocols. This protocol, originally developed by Ward Christianson for his own CP/M based BBS in Chicago and, since it was public domain, widely recognized as one of the industry standards for telecommunication was fully supported in all the SIG's of

Compuserve and other systems across the country, both commercial and public. Thus, for the first time, telecommunications for the TI users entered the mainstream of the computer world. For the TI SIG on Compuserve, for the first time, users were able to transfer true program-image files directly to and from the SIG's data libraries at at least twice the speed available from TE II. What is more amazing about Charlton's program was that it was released to "fairware", virtually a cross between public-domain (free to all) and commercial (buy before you use). Under the "fairware" approach, users could send a disk to Charlton with return postage and mailer, and he would send a copy of the program to you. After you had used the program and decided whether or not you found it useful, you would, by fairware contract, either send a small payment back to the author or pass the program on to someone else to evaluate and, possibly, buy. (Chapter 8 is devoted to an in-depth discussion of fairware and its effects on the TI owner-base). The "Fast-Term" emulator program with its Xmodem protocol capability made an enormous impact on TI telecommunications in general, and the TI SIG of Compuserve, specifically.

A feature article in the June, 1985 ONLINE TODAY magazine, the monthly publication sent by Compuserve to its subscribers, was "The Online Answer: Computer Specific Forums". Prominent in the article was a section on "support for the obsolete" which stressed the importance of electronic information sources to owners of "out of production" computers. The section featured the Texas Instruments Forum and observed that "Just because the computer is out of production, though, it hardly means it is out of use. Many purchasers need a ready source of information, which the marketplace no longer provides...when the marketplace failed, TI owners used the forum to band together and fulfill their common needs"

Two additional assistant sysops, Steve Davis, who works exclusively with the "TI Professional" (an IBM-compatible computer that Texas Instruments still produces) owner-base which also frequents the Forum, and Jonathan Zittrain (an incredibly precocious and bright 15 year old and long time

Forum veteran living in Pittsburg, Pennsylvania) were added in 1984. In June, 1985, the name for TI SIG was changed to the TI Forum. The message base counter topped the 50,000 mark on 12 August. Its activity continues to grow even today. Randy Holcomb, one of the pioneering systems operators of the SIG/FORUM left Compuserve in early 1985 and was replaced by Mack McCormick, a 32 year old Captain and logistician in the U.S. Army, expert in programming and hardware design for the 99/4A. Holcomb left to start still another TI-specific section of a national commercial telecommunications system, the Delphi system located in Cambridge, Massachusetts. That section is in its infancy but, with the expertise of Holcomb, surely has the potential to be a third national database supporting the owners of the 99/4A. Thus, on the national scale, what TI started with Texnet has continued and grown today to now include all of the national telecommunication systems. In late 1985 Barry Traver was added as a sysop on the TI Forum. Traver has long been recognized both on the Forum and in the TI programming community in general as one of the most knowledgeable in the country in both BASIC and Extended BASIC. As mentioned, he was instrumental in getting the first "text-to-program" conversion program up and running. He also has started his version of the "paperless periodical" for the 99/4A with the launching on October 22, 1985, of his TRAVeLER periodical (see Chapter 7).

Perhaps even more important to the users of the 99/4A computer than the commercial database systems, have been the proliferation of local, public bulletin board systems, or BBS's. Alfred Glossbrenner in his book "How to Get Free Software" (St. Martin's Press, New York, 1984) discusses their general importance by stating:

"There is probably no better example of microcomputer technology in the service of people than the network of personal computer bulletin board systems that is rapidly spreading across the North American continent and around the world. These systems, each a mini-database and message exchange, have the potential to add a new and exciting dimension to human communication."

It is generally acknowledged that the first public BBS was set up by Ward Christensen and Randy Suess in Chicago on a Northstar computer on February 16, 1978. According to Glossbrenner's book, Suess and Christensen had been sending programs back and forth through phone lines to each others computers. They decided to make a system available to other members of their local computer club (Chicago Area Computer Hobbyist Exchange, CACHE) to leave messages and exchange programs. Their CP/M system was developed. They called it "CBBS #1" ("computer bulletin board systems") and it remains in operation even today and has logged over 100,000 callers. (Ironically, it was Ward Christensen who wrote and implemented the XMODEM transfer protocol and, through its early use on his CBBS #1, became an industry standard. The file transfer option is no longer used on CBBS #1 to conserve disk space. The CBBS software is still available commercially and CBBS has been trademarked).

Over and above their revolutionary nature for human information exchange, they are also examples of the ultimate benevolence. Usually (though there are some commercially sponsored systems), a user sets up, at his own expense, a complete system including a special type of costly phone modem (which can detect and answer a call into the computer), and, often, buys a special program to run the system automatically (called "bulletin board software") or, if knowledgable, writes his own program. In addition, the system operator must install and pay monthly charges on a second telephone line (if they plan to run the system 24 hours and have other incoming personal "voice" calls). Then, in a figurative sense, "opens the doors" to the use of his system by any caller with a modem (which, by the way, stands for "MODulator/DEModualtor"; the electronic device that converts data to sound signals the phone lines can carry, and then back to data at the other end). All the electricity, equipment wear-and-tear, phone charges, and sheer time involved in system upkeep is given away by these sysops to give the users a place to exchange information, and acquire programs and files from the main system through "downloading" to their computers. It is, truly, an unselfish act by these unique individuals.

It is even more difficult to understand and admirable when one considers the amount of abuse both the computer systems and the operators must bear. First, the users, who often fail to consider the extent of the sacrifice the operators are making, sometimes become abusive in their complaints about the contents of the system (its files and programs) and restrictions which have to be enforced in the messages (thinking or not, one would be surprised at the language some users feel they have to use and expose other users to). The complaints generally outnumber the thanks, but these operators forge on. Secondly, the systems themselves are constantly under "attack" from "hackers" (a term used to describe a subset of user whose main thrust is gain access to the system and do varying degrees of electronic damage; the damage ranges from leaving obscene messages to deleting files and messages and to the extremes of erasing the system's operating program itself). A great deal of publicity has been given this small segment of computer users in the press, mainly from the view of their true crime aspects (breaking into banking computers to transfer funds and get credit card account numbers), but, on a smaller scale, their impact on the small, public telecommunication systems is no less destructive. While the computers and ancillary equipment themselves (called "hardware") are generally invulnerable, the program and the files' contents (called "software") are accessible and damageable. And damage can be time consuming for the operators for they must use another copy of the program, attempt to find out how the system was "crashed" (read damaged), and find a remedy for the "hole" should someone try to access it again. Further, the legitimate users who are usually kept listed in a disk file with their identification and access information (usually a number and a "password") must reidentify themselves with the system which is often a lengthy process. If you are calling through a long-distance call to access the system, it means money wasted. So everyone is hurt by the vandalism of the hacker. Thus, the threat is constantly there, the rewards to the operators are few, yet they continue and that makes them exceptional people.

These sysops are certainly not unprecedented among other computer owners, but their impact on the users of the 99/4A has been as great or greater than in most others. One reason for their importance is that none of the major national computer publications carry any information about the 99/4A computer. While program listing and hardware modifications are published in well-circulated magazines for the other major (truthfully meaning "still being sold") computer brands, the 99/4A is not covered. (We will go into the reasons behind this in a later chapter). The result is a relative information shortage for the computers owners. The bulletin boards bridge the information gap. A second reason for their importance to the TI owners is providing unbiased product reviews of products for the home computer. Since commercial ventures supporting the TI are usually small and low-budget, high-cost advertising campaigns are not feasible. Users are unaware of new products or, if they have heard about a new product, have no information about their performance. Again, the magazines rarely review TI software of hardware. From the bulletin boards, they can read of other's experiences with a product and, also, they can get the latest on new product releases which may be well known regionally, but not on a national scale. Thirdly, users can find hard-to-get TI-compatible equipment from users either selling out or no longer in need. As a result of these factors, relatively exclusive to an out-of-production computer, public telecommunications have played a major role in the continued productivity of the 99/4A owners.

But Texas Instruments never produced a bulletin board software to run a telecommunication system. When a user in Kennesaw, Georgia called TI to ask for information on how to write a BBS program ("bulletin board system"), he received no information and was, according to some sources, told it could not be done. Undaunted, Ralph Fowler wrote the first BBS program for the TI computer (though the Chicago Users Group would disagree - see Appendix 11). Ironically, the project was finished and went online in Atlanta, Georgia just 2 months before TI withdrew from the marketplace, August, 1983. Fowler, in his late 20's and a school board energy coordinator, marketed the program, "TIBBS" (yes, it stands for "TI-Bulletin Board System") which has become the

most famous of the 99/4A telecommunication systems. It is also the most widely used of systems, with boards up and running from Portland, Maine to Gresham, Oregon and from Dartmouth, Nova Scotia to Tampa, Florida. Since its initial development, Fowler has continued to work at the program, improving and adding features along the way. One of the features that is a real suit of armor for the sysops is the famous "jerk trap". According to an article in MICROpendium, Fowler said "'The Jerk Trap' scans for, and screens out, certain profanities and prevents users from logging on and using the operators name. Thus, it isn't possible to leave a message saying that TIBBS is closing down for good, and signing it Ralph Fowler." The program can also be enabled to block known trouble makers from accessing the system once their names have been added to the "Jerk Trap" list. It is not perfect, but it certainly helps save the sysop a lot of work. The original "TIBBS #1" in Atlanta remains up and active today and receives about 20,000 calls per year, 60-70% long distance. The Atlanta board is so popular locally that Fowler has recently had to initiate a procedure to "read" what type of computer is used when accessing the system for the first time. If it is not a 99/4A computer, he will no longer accept you as a new user on the system. Not being snobby, but that's the only way he can free up the system for the TI users trying to get on.

Almost simultaneously developed (some would say even before TIBBS) on the other side of the country was the CALTEX bulletin board system. Written by Frank Continolo and sold by, who else, CALTEX Software, the system is totally different from TIBBS. Whereas TIBBS featured program downloads, CALTEX emphasizes a diverse and multiple message base with several topic areas to be read and added to. This system is also widespread, but the majority are on the west coast.

There are at least 2 other commercial systems available for the /4A computer (TI-WEST systems, and ZILOG) and, interestingly, over the past year, three public domain systems have been released. The first was a innovative combination of software and hardware brought out and released for free to others by John Clulow and Ron Gries of

Ohio. Clulow's software genius and Gries' technical expertise produced a system that, with a few inexpensive modifications (mostly using a soldering iron and wire cables) removed the major cost of starting a new BBS, that is, the special "auto-answer, auto-dial" modem. With their schematics, available for a stamped envelope, and a little work, the user was able to take a \$70 "dumb" modem (one that could only receive signals when switches were flipped manually; unattended use impossible) and make it equivalent to a \$300 "smart" modem (one suitable for BBS use). It was a boon. Not as fancy and as full-featured as the commercial systems, it served to allow benevolent but low-budget enthusiasts to start a system with minimal expenditure. Its appeal was mainly to users' groups who wanted to share local information but did not have the club budget to buy the necessary software and hardware. These groups usually had someone in them with the technical expertise to do the wiring and, once that was done, just started being sysops. It reflected to all that a computer was only as limited as the user's imagination. Two other systems were released free also, but required the standard "smart" modem. Monty Schmidt (Madison, Wisconsin) released the TECHIE BBS, featuring, for the first time, both TE II and XMODEM program transfers, and the PRO-99er BBS from Mark Hoogendoorne (Burlington, Massachusetts), which fully utilized the marvelous features of the TE II software to be able to transmit music and color graphics from modem to modem.

The continuous amazement of the telecommunications spectacle in the 99/4A microsphere is that it actually appears to be continuously growing. New boards are announced in new locations regularly (see Appendix 5 for a list of bulletin board systems in support of the TI Home Computer). The newer systems are even featuring hard disk drives (capable of huge amounts of program storage for users to up or download) and real-time "chatting" (ability for two users to type messages back and forth through the bulletin board to each other), and other marvels unheard of when TI was "in the game". Pushing the machine to its limits seems to be the watchword of the BBS authors and sysops, and they have proven, time after time, that the electronic age is the most efficient and productive means of information dissemination

- for orphans as well as others.

CHAPTER 6 - SUPPORT? FROM WHERE?

Stan Veit, veteran of the computer industry and Editor in Chief of the "Computer Shopper" magazine, lamented in a September, 1985 editorial in his magazine the plight of owners of orphaned computers. He wrote:

"We notice that most manufacturers are changing their operating system as fast as they can. This is not bad since the new 16-bit and 32-bit CPUs open the way to more memory, more storage, multi-user and multi-tasking facilities. The level of graphics and sound made available by the larger memory and faster operation were not even thought possible a few short years ago. What bothers us is the rate of abandonment of existing users.

It's bad enough when TI dumps the 99/4A, or Adam folds, or Timex goes back to watches, but when Apple seems to be about to turn their back on "Apple II Forever," Tandy appears to be leaving TRSDOS in the past...its time to find out if this is really happening.

The thousands of computer owners who brought their systems because they were told that this is the latest and the greatest, deserve something better. There are still thousands of CP/M-80 users out there perfectly happy with their systems but frightened that they are being left out of new developments...thousands of Apple II Plus owners and Apple IIe owners see no reason to change to MACs...The individual manufacturers may try to keep the oldies going but it will be too much a job for even the largest of them. What is needed is some far sighted third party software publishers to realize that the established markets can continue to provide a steady income for years to come. Why rush off to find the pot of gold at the end of the rainbow? Who needs another MSDOS integrated system, or spreadsheet. If I never see another new

MSDOS Word Processor I will not cry. There is a current top 40 hit called "Everybody Wants To Rule The World," boy does that apply to software companies! They all want to be the next Lotus Development or Microsoft! Forget it! The real business is in supplying excellent software to existing markets of 'presently owned computers.'

Mr. Veit, as usually is the case, speaks the truth. The days of meteoric success stories in the computer industry are over. Now, ventures must be content on making steady diets, rather than feasts. And the way to do that is to support the installed user bases of computers already in existence. That reality, unfortunately, was not well known in late 1983 when Texas Instruments' made their hasty exit from the marketplace. There were few to pick up the pieces and provide the needed products available, simply because TI had dominated so thoroughly the support for the 99/4A through its closed architecture policy that, even if someone had the capital to start up, they had difficulty getting the technical information necessary to build for the machine. But there were a few.

One was a small, closed and privately owned corporation in Anaheim, California called Corcomp. Formed by a small group of business enthusiasts (the group included Dana Webb, Don Schofield, John Weis and Joe Rouso, "Corcomp" came from "Corner Computer", the name of Dana Webb's business at the time), they were set on the idea that a third-party company should be able to build hardware for the computer, even if Texas Instruments was not willing to assist. They were founded in August, 1983 and little did they know that their timing was to be so impeccable. With the aid of Carl Gifford, an engineer, they first produced a competing 32K memory expansion card and, soon after, a RS232 card. But they burst on the scene with their announcement of a replacement computer for the abandoned 99/4A.

The computer was dubbed the "Phoenix" by Webb and, like the mythical bird rising from the ashes of doom, would be the resurrection of the 99/4A community. The features listed by Dana Webb, then the company's public relations

spokesman, were absolutely awe inspiring and would have made Steve Wozniak or IBM green with envy. It would, according to the product announcement in January, 1984, have choices of three keyboards, built in disk drive controller capable of controlling up to 4 double-sided, quad-density drives, built in RS232 port, 2 cartridge slots for TI cartridges, a processor slot for an "add-on" second processor (to make the machine run Apple or IBM software, depending on which chip you put in the slot), and 2 separate game ports, one for Atari game cartridges, the other, for Apple software. Those were just a few of the "dream machine's" features. Anyone in their right mind (at least with the benefit of today's hindsight) would realize the virtual impossibility of a machine with such a complex design. But the desperate TI users were willing to believe anything. And the name Corcomp was, suddenly, famous.

But the Phoenix never flew. In fact, according to Jackie Sagouspe, current President of Corcomp, the computer never made it past the design phase. When asked if there ever was a working model she replied "As far as having a TI-compatible concept, a working prototype, no, it never got that far." It was killed as a project when the company experienced such hyper-growth that the founding fathers couldn't deal with the economics of the immense project. Sagouspe, in the course of less than a year, rose from outside marketing consultant to Corcomp marketing director to company president - such is the life in the computer industry. In fact, the company filed Chapter 11 reorganization in September, 1984. Despite being under court supervision (Chapter 11 is filed to allow court supervised and protected reorganization to meet excessive debts without going so far as filing pure Chapter 7, or bankruptcy), Corcomp has gone on to produce the first disk drive controller card for the TI 99/4A to allow "double-density" disk formatting (effectively doubling the amount of storage space on a disk), a replacement for the peripheral expansion box (about a tenth the size of the Texas Instruments-produced monster), and, most recently a clock card. The company presently employs 10 people and continues to be involved in new product development. They have had shaky public-relations at times and some problems

with quality control, but, on the whole, have stepped into a hardware void left by TI's departure and filled in quite well. Despite the premature and poorly planned announcement of the replacement computer for the 99/4A, and regardless of whether it was merely a advertising ploy to get the name Corcomp in the forefront of compatible hardware producers (as some have suggested), the rumors of the Phoenix mentally and emotionally sustained the disheartened TI owners at a time when any news was good news. Corcomp benefited from a lot of free "hype" and the owners benefited from news that all was not lost. It was "vaporware" (a computer term that has come to mean products announced that never come to market) at its ultimate but, psychologically, it didn't matter.

Another supporting firm had less of a "splashy" entry into the marketplace but has been equally productive. Navarone Industries, Inc. was founded by Chuck Humphries and an "unnamed" partner in April, 1983. At that time, Humphries had been employed as an independent developer by Romox, a major third-party producer of cartridge software for several computers. He programmed two "clones" of games for the TI 99/4A for Romox (called "Hen Penpecked" and "Topper" which Humphries describes as "commercial duds") and was interested in the 99/4A as a hobbyist. He and his partner started Navarone as a part-time enterprise and their first product was a 3 slot cartridge expander board (which allowed 3 cartridges to plugged into the board which could then be plugged into the TI console's slot; the cartridges could be changed by a flip of the switch on the board without having to pull the cartridge out of the console and plug another in, thus, saving wear and tear on the fragile cartridge port) called the "Widget". The product was a booming success as it was practical and eminently useful. This hardware product was followed almost immediately with a software product that was also novel and much needed a disk editor program called "Disk Fixer". With this program, the TI owners were able to take disks that had been accidentally erased or damaged and recover data stored on the disk. It was also a tool of great value to "pirates" (a term used to denote users who make illegal copies of software programs and either distribute for free or profit) who could use the

program to remove program protection for copying, it is of some interest that the original version of "Disk Fixer" was on disk and protected, but through use of itself, the protection of the program was broken and it became widely and illegally distributed; the next version was marketed as a cartridge which could not so easily be copied.

Navarone has stuck to software support of the TI 99/4A since and has utilized predominantly cartridge based software (undoubtedly to minimize "pirating") and have been the only continuing producers of such software for the TI since the pullout. Humphries and his mystery partner have been able to work full-time for Navarone since they incorporated in January, 1984. The 43 year old Humphries who had been involved in computers for over 20 years has produced 6 additional cartridge based programs for the TI ranging from a disk copying program to a word processor to a database program among others. He has modified Navarone's original product, the "Widget", to work on the Commodore 64 and, while declining to give a dollar figure, admits that the in production Commodore market expansion has been a success.

Recently, the Navarone has begun an aggressive marketing approach for new products by going directly to users group supporting the TI 99/4A. Brain child of Humphries and his marketing director, William Hadley, the "HYWAY" ("Have it your way") will send copies of new program releases to users groups for evaluation and preview. All that is requested in return is a completed evaluation form. The product can then be disposed of (for example, sold or raffled to raise funds for the treasury) as the participating users group sees fit. Humphries stated the original idea was to recruit users groups to function in Navarone's commercial distribution chain, but he states that "users groups aren't profit motivated". He says the program has been well received by TI users groups and that Navarone plans to continue it.

Humphries has remained encouraged by reports from distributors that, even two years after Texas Instruments stopped production of the 99/4A, hardware and software continue to be sold in strong numbers which, to him, shows

"no decline" in the commercial market. He has one "gripe" about doing business in the 99/4A market. He elaborates: "TI owners are too picky. They pay \$29 for a program and expect it to be DBASEII [a \$500 database program for the IBM computer]. They pay Volkswagon prices and expect Cadillac performance." But, despite the complaint, Navarone will continue to produce new products for the 99/4A. Humphries and his eight employees, despite recent failure to reach agreement to co-market several programs with another software producer, DataBioTics, which state they have made their livings from the orphaned machine for 18 months and plan to continue.

Perhaps the best know name in the Texas Instruments support industry is Millers Graphics. But, unlike the previously mentioned firms, Millers Graphics is a true "cottage industry". Its sole operating facility is the Miller's 2-bedroom condominium. Craig Miller and his wife are the "operating staff". Yet their prolific product line has featured some of the highest quality software available for the 99/4A.

After running, first, his own camera store and, then beginning Millers Graphics, (originally as a commercial photography and lithograph shop), Miller's involvement with the TI Home Computer began in 1979. For some time, he had wanted a home computer ("I had looked at the Commodore PET but they were asking \$4000 or so...out of my budget") and, when he saw one of the early TI 99/4's ("without the'A") at a local J.C. Penny's in late 1979, he bought the machine for \$1500. It was then he got his first exposure to computers and "found out how dumb they really are". He soon decided that he would have to learn how to program to get the machine to do all the magical things he had imagined it would. Despite having no previous computer training, he found he had a penchant for programming and released the third program he wrote, "Battle Over Titan" (a game) through Millers Graphics. Other games soon followed and Miller took out an ad in the, then, 99'er Magazine. He recalls he "spent more on the ads than I made". The real break for Millers Graphics occurred when Miller saw flyers for the International Users Group and, later, 99'er Magazine in the

TI distributed "User's Newsletter". He wrote TI and made arrangements to have a flyer for Millers Graphics in one of the TI newsletters. He provided the brochures, and TI mailed them out in the newsletter. The exposure to 1000's of 99/4A owners was what Miller needed to get things rolling and become a real business.

Following their game software, Miller released a small book called "Smart Programming Guide for Sprites" (1983), which was to become a standard programming tool for the 99/4A programmer. He put out a short newsletter for advertising purposes in late 1983 called the "Smart Programmer". Shortly after the October TI announcement, Miller announced the start of a subscription-based Smart Programmer as a monthly 16 page newsletter. It was to become a classic set of pages for the true TI hacker. Revealing heretofore unknown "secrets" of TI 9900 chip architecture, the issues were to be much awaited for the information. Unfortunately, it has taken Miller over 2 years to fulfill his first year's subscription commitments (the September 1984 issue was mailed in September, 1985). He plans to finish out the subscription obligations and then drop the monthly project in favor of quarterly, larger booklets. The time demands for a regular publication were too much to handle. Considering the quality of the software Millers Graphics has made available, few subscribers have complained, though good natured ribbing has been the rule. Soon after putting out the first few issues of Smart Programmer, Miller was contacted by some extraordinarily talented programmers. Steve Mildon, Doug Warren, and Mike McCue formed a cadre which were to produce some software classics. Steve Mildon's "Advanced Diagnostics" (a utility to read and append directly to disks) was the first. Then, "Explorer" from Doug Warren (another utility to allow the "hacker" to dig deeper into the TI computers architecture) followed and Miller and McCue collaborated on a combination game and tutorial with their latest release "Night Mission". He has added new programmers of late, such as Tom Freeman, and also has plans to move into hardware production for the 99/4A. The first of these hardware ventures is to be "Gram Kracker", a module that will plug into the TI console's game slot and allow storage of several cartridges into one. It

is due to be released in December, 1985. Miller is taking one project at a time. If the Gram Kracker is successful (and it will be Millers Graphics' most ambitious and expensive product to date at \$175 or so), he promises additional releases. The ideas are there, it is just a question of time and capital. Miller has lost Mildon to "the land of the [IBM] PC", but has found no shortage of programming or hardware talent. He plans to continue support for the 99/4A indefinitely.

Myarc is a firm owned and run by former TI employee, Lou Phillips. The 34 year old Phillips went to work for Texas Instruments in 1973 after earning a masters degree in electrical engineering from Cornell University. The Chicago native worked 2 years at TI, and, then earned his Masters in Business Administration from Cornell while working part-time for the Texas firm. During his tenure in Dallas, though never directly working on the 99/4A design phase, Phillips gained more than a modicum of knowledge of hardware and software. After garnering his MBA, he wanted to "try his financial wings" and left TI and worked for, first the Chemical Bank of New York, and, then, the Chase-Manhattan Bank. After a successful term there as an electronic banking consultant, Phillips decided it was time to return to his first love, computers. The firm began in 1982 (the name MYARC came from "Microcomputer Architects"; Phillips wanted to use the "y" instead of a "i" so he could do fancy things with the "y" in his logo. Unfortunately, his lawyer copyrighted the name in all capital letters, so the "Y" became useless) as the only producer of Winchester hard disk capabilities for the TI and, according to Phillips, sold many of these units to overseas buyers, particularly TI South America. He worked closely with Texas Instruments and there were even overtones that Myarc would be purchased by TI, but, with the "crash of '83", nothing further came of the association. Then, in 1984, after striking a deal with the new distributor of TI products, Triton, the firm developed and released (in three short months) a replacement of the TI Peripheral Expansion Box. The Myarc replacement was called the MPES-50. That system didn't sell well, inasmuch as there remained a good supply of the TI-produced original. So, Myarc turned, in 1985, to making cards for the

TI expansion system. A RS232 card and a disk controller card which, like the Corcomp card before it, allowed increased disk capacity over the TI model. The latest and, potentially most popular Myarc product, is their 128-kilobyte (which expands the 99/4A computers memory "size" by some 8 times) expansion card. The card, which is further expandable to a whopping 512 kilobytes, allows the TI user to do increasingly sophisticated programming feats with the 99/4A computer and opens the door to potentially more powerful application software. Additionally, they have developed a new, more-powerful (both in terms of execution speed and graphics capabilities) version of Extended BASIC.

Though there was no formal announcement from Myarc or Lou Phillips, there have been strong rumblings in the TI community of a new, 99/4A compatible computer to be manufactured and sold by Myarc. Leaks, presumably, within Myarc have rivaled the times of Watergate in their wild speculations and variability. The capabilities attributed to the machine from such sources as "Ryte Data" (a Canadian-based concern which offered subscriptions to a newsletter reportedly to inform users on the coming machine; the subscriptions by some reports, were a scam. Phillips denies having any connection, past or present, with this venture.) were awe-inspiring. First, according to some reports, the machine would be debuted at the Summer, 1985 CES. It wasn't. Finally, amid continued rumors and speculation, Lou Phillips was invited to the Chicago TI Faire held November 2, 1985. It was, at least, a semi-success. Yes, there was a "new computer" on display. But, no, it couldn't run because of technical problems with the software required to demonstrate it. Phillips gave an elaborate and informed description of what the new computer would be able to do (including, eventually, emulate an IBM PC with additional hardware). Further, he vowed the machine would be deliverable in first quarter, 1986. Certainly, Phillips and his coworkers (some of the brightest programming minds in the TI user base, and including such programming geniuses as Mack McCormick, John Brown, and Paul Charlton) have the capabilities to make the machine. According to Phillips, the operating system for the new machine is "95 per cent" completed at the time of this

writing. While, understandably, disappointed with the unveiling ceremonies at Chicago, many in the TI user base continue to look with anticipation and faith to Myarc to provide a compatible upgrade for their present machine. Others, more skeptical, question Myarc's ability to financially support such an expensive and speculative undertaking. Only time will tell which faction is correct.

CHAPTER 7 - PUBLICATIONS

Don Bynum recalls his first exposure to Gary Kaplan with a glimmer of humor and a spark of true admiration:

"My first exposure to Gary Kaplan was at the first Consumer Electronics Show I ever attended as a member of the home computer market. At that January, 1981 show in Las Vegas, as I was trying to decide what I was supposed to be doing at such a show, a gentleman wandered up to the Texas Instruments booth, looking forlorned and confused. He was carrying a box of pieces of paper and paraphernalia. He told me 'I love this computer and its 16-bit processor. I am going to publish a magazine for it, but I need your help to get started. Not money, just information.' I thought to myself 'this guy is absolutely bereft of any intelligence and he hasn't got a chance', but I assigned one of the TI people working with users groups to help him named Brian Gratz. I told Brian 'Help him get started; spend no money. But if information or early product releases will help him, do it'. Later, when Brian brought me a copy of the first issue of '99er Magazine', I was very impressed. I really thought this guy did a hell of a job". Bynum still subscribers to the magazine even today.

Thus, after that unimpressive meeting of one Gary Kaplan with Texas Instruments, a new magazine was formed. While not new to the publication industry, having authored a book on the "business of information" and circulated newsletters, Kaplan admits starting a national magazine was "much more complicated than first thought." Trained as an engineer and having had exposure to computers previously, he was able to call on contacts for information. As the president of the Eugene, Oregon user group, he also had access to recruit "friends, friends of friends" and other TI enthusiasts from his user group connections to be his technical writers. Texas Instruments accepted a flyer from Kaplan to be

included in their newsletter mail out (Kaplan states they wanted to do the mail out themselves rather than just give Kaplan their mailing list because they were very protective of the information about how many computers they had actually sold. He stated they accepted the flyer as written except for a simple fix for the "missing key" on the 99/4 keyboard. It was dubbed in the flyer as the " T.E.R.Key" - "typing error reductions key"; TI didn't like the acronym, being already somewhat sensitive about the flaws in the 99/4's keyboard, and insisted he delete the reference to T.E.R.Key - for obvious reasons - which he did). After the flyer was accepted, Kaplan waited. One day he went to the post office box he had rented and saw it full of letters with \$15 subscription checks. He went home and told his wife, "I guess we are in the magazine business." The TI mail out was very successful in getting the name 99'er Magazine to the user base. Kaplan put out the first issue of "99'er Magazine" in May, 1981, and personally gave out issues at the summer CES at Chicago. It was begun as a bimonthly. In November, 1982, the magazine went monthly. In February, 1983, the magazine was renamed - "99'er Home Computer Magazine". Kaplan explains the name change as "an attempt to gain increased newsstand visibility, as we were just getting started in that area. '99'er Magazine' was just too plain. By using 'Home Computer' in our name, we also gained a valuable trademark." Interestingly, there was absolutely no mention of the name change in either Kaplan's "On Screen" editorial in that issue or any other section of the magazine. It was as though the editor didn't want any attention to the name change which was preparing the way for later content changes in the magazine. When asked if the name change were paving the way to expand coverage to other computer brands, Kaplan admits: "We were always worried that we might be banking too much on one manufacturer. Even one as financially sound as Texas Instruments." Almost prophetically, the September, 1983 issue, the next to last as a purely TI 99-4A supporting, contained an invaluable resource to TI owners just prior to the October withdrawal of TI from the home computer market. The first (and only) issue of the "99'er Directory", a bound-in listing of hundreds of third-party hardware and software products for the 99/4A. It was of some comfort to the owners and aided

their buying locally hard-to-find through the mail-order listings.

There are numerous stories surrounding Kaplan's relationships with his writers, recruited from grassroot TI users. Most were nonprofessional writers that Kaplan recalls "giving immeasurable professional help" to improve their writing skills. One of the most interesting sidelights of the 99'er Magazine story was the story of "Regena". The byline "Regena" appeared in the very first issue of 99'er Magazine and, in succeeding issues, became associated with some of the best programs that appeared in the magazine. Then, according to Cheryl Whitelaw, the real "Regena" (Regena was Whitelaw's middle name), Kaplan had the idea to make the identity of Regena a mystery. He played it up with frequent "Who is Regena?" fillers in the magazine. According to Whitelaw, the idea was acceptable to begin with, but, then, as it was drawn out longer and longer, it became a burden. She recalled her address was not released to her correspondents to the magazine. According to Whitelaw she was told, finally, that her identity would be made known as a gala "unveiling" at the 99'er Magazine-sponsored TI-Fest in October, 1982, but, not only was she not unveiled there, she was not even invited to attend. Whitelaw further recalls a deal to produce her typing tutor software as promised fell through. Whitelaw then signed a contract with Scott, Foresman to distribute some of her software. Kaplan refused to elaborate on his relationship with Whitelaw, stating that he held no ill-feelings for her. He recalls that the content of 99'er HCM had "outgrown" technically the content of "some" of the authors. He admitted that Regena was to be unveiled at TI Fest, but "events just prior to TI Fest" forced a cancellation of the event. Things grew progressively sour between Kaplan and Whitelaw. When Whitelaw got an offer to write for Compute! magazine, she jumped at the chance. She has been writing a successful monthly column for Compute! since January, 1983, and has been "much happier" there. As the recollections of a few other "former" 99'er Magazine free-lance authors have confirmed, their editor was not always skilled at free-lance employee relations. Home Computer Magazine has not published the identity of Regena to this day.

When TI withdrew in October, the magazine just vanished. The hiatus was highly visible, as the magazine was, really, the only publication that most of the 99/4A owners were exposed to regularly and appeared on magazine stands. There were occasional articles in "Compute!" magazine (which had the services of Whitelaw) but that was it. Byte, Popular Computing, Personal Computing, Creative Computing and the other general interest industry publications, virtually never had any 99/4A related material. It was, truly, a information desert and the only watering hole was Gary Kaplan's magazine. And, suddenly, it was gone. It only served to heighten the feeling of betrayal of some 99/4A owners. When the magazine resurfaced, things were no better with public-relations.

It was a trying time for HCM as well. They had just spent a great deal of money on a booth at the summer CES, and were making a large effort to develop software and a new publication for the new computer (the 99/8) TI had vowed to release. Then, it all blew up with TI's October announcement. Kaplan recalls hearing the news in a meeting that Friday afternoon and declaring that HCM would survive. To do so, it had to go underground for several months. The November issue was already out and that would cover them for a while. While they made the transition to a new format, HCM and Emerald Valley Publishing lay low.

The publication reappeared in February, 1984... well, sort of. The magazine was now, simply, "Home Computer Magazine", had doubled in size (to nearly 200 pages), and now covered, according to Kaplan, "the three brands which we feel will be most in demand for home use during the remainder of the 80's: Apple, Commodore, and IBM." While most TI owners understood the reasons behind the expansion (economic survival in a shrinking and highly competitive industry - the computer magazine industry), it still didn't sit all that well with a large segment of subscribers who made Home Computer Magazine a reality to start with - the user group membership. I believe, to them, it smacked of repeat "abandonment" (even though, page-for-page, the 99/4A coverage remained virtually the same) and the vibrations

were negative. Some user group newsletter editors lashed out at the magazine with a great deal of venom. Kaplan and his staff got the word back in Eugene, Oregon. He recalls: "We were truly hurt by the negative response from the TI community. We felt we had nurtured them and protected them in many ways; like not selling our TI mailing lists despite some aggressive offers. We had protected them all along and felt I had a very good relationship with the users. Then, a few writers attacked us without knowing the facts or bothering to find them. It was unfounded muckraking at its best." To counter the "bad press", Kaplan had his right-hand man, Executive Editor David Brader write a letter to the user groups (see Appendix 10). The letter was intended to clarify HCM's position in the TI community. From what I have read, it came across to many of the more vocal groups as a slap on the wrist from an irate teacher. Further, it is my opinion that with many user group chapters its rather condescending language just added fuel to the fire and was totally counterproductive. I feel that, even today, the relationship between the "grassroots press" (the user group newsletters) and Home Computer Magazine is not a good one. I have read continued complaints from some that the product news for the TI users is grossly out of date and outrage that "On Disk Revue"(tm) software is marketed at computer sales shows for all the machines HCM covers except the TI. One user group newsletter reported that they asked Kaplan about that fact at the 1985 summer CES in Chicago. His reply, as reported in the Chicago Area User Group newsletter by Dave Wakeley, was that the TI market was "too small" for HCM to offer software to, and that their program listings in the magazines were sufficient. The comments were, needless to say, not received well by that user group, one of the most influential in the country. Kaplan countered that the "On Disk Revue" software is, predominantly, for sale in retail storefronts which do not generally exist for the TI market. That was his reason given for not carrying this software for the TI computer. He asserted that virtually "the same" software is available for the TI user through the "On Disk"(tm) software available through mail-order and covering the 99/4A consumer.

The "new" Home Computer Magazine featured a radical departure from the norm in its format. Newsstand issues of the magazine had no advertising in them (other than what is viewed by some as the rather substantial space devoted to singing the praises either of the magazine itself - "Once you compare there's no comparison" - or pushing Emerald Valley Publishing's software ventures - notably "On Disk"[tm]). It was reported in the magazine that HCM subscribers would receive 9 issues per year of "Home Computer Digest", which would contain mail-order type advertisements, but nonsubscribers would not be made privy to the information. And, to the TI users, advertising was considered information. The deletion of advertising copy from the magazine was billed as an improvement and, for the ease of reading and lay out design, was. Perhaps it was a boon to other computer users who had myriad other sources of advertising information, but for the product-starved TI users who were eager for any information on where they could obtain increasingly rare hardware or new software, the change over was not favorably received. Again, there were the negative newsletter comments. Kaplan asserts that the change was dictated by, first, a desire to be different and unique. "We felt the change would set us apart from the run-of-the-mill computer magazine", he stated. Secondly, with HCM trying to gain a distribution source in the computer storefronts, not having possibly competing mail-order advertising made the magazine more attractive to the local, retail computer dealer. Thirdly, according to Kaplan, he was doing the 99/4A user a favor. He proposed that "We wanted to protect the TI user from the hucksters who were becoming more and more common. We had lost literally hundreds of thousands of dollars in advertising revenues to TI advertisers who didn't pay for their ads. By making advertisers now pay in advance for advertising space, we prevented fly-by-night merchandisers from running an ad, obtaining orders and money for a product that may or may not exist, and then vanishing." So, in my opinion, Gary Kaplan saw the removal of advertising from the magazine as a positive move all around and, in general, he believes it has been well-received. It is important to note that the advertising supplement, "Home Computer Digest" has been very irregular in its appearance and, remains, predominantly TI

dealers.

In spite of what I consider a "love-hate" relationship between Home Computer Magazine and the TI 99/4A user, the magazine, is, according to Kaplan, still strongly supported by the TI community. It has recently been reduced to 10 issues per year and the move has, seemingly, improved the promptness of the magazine's publication schedule. It remains a major source of 99/4A programs for the average user and the listings have improved in scope, centering on the usefulness of the 99/4A as a home computer. Recent issues have presented program listings which allow the TI to be used as a "thought-processor", time manager, and budgeting tool. Kaplan maintains that, by including other computers in the magazine he has actually improved the quality of programs offered for the /4A. Further, he vows that "HCM will continue to support the TI users as long as they support us" and does not see the magazine dropping TI coverage in the foreseeable future. "We are very proud of our relationship with the TI users," says Kaplan. In my opinion, it appears there still is an eager consumer base starving for TI-related information that, it appears, is willing to overlook past indiscretions from a magazine and still support it.

The second major publication supporting the 99/4A first appeared, again, after Texas Instruments left the marketplace. It was begun as an idea in September of 1983 when an editor for a small city's newspaper (and TI 99/4A enthusiast) decided it was time for another publication for 99/4A users. John Koloen, news editor for the Round Rock "Leader" (a small city just north of Austin, Texas) said he had grown tired of the way Home Computer Magazine was selling itself within the pages of the magazine and felt he couldn't get an unbiased opinion anymore on anything. The newspaper reporter within him could no longer tolerate what was blatant conflict of interest within a publication. "When I read something, I couldn't tell if they were trying to inform me or sell me something", Koloen says. He and his associate, Laura Burns, decided to produce their own publication. They stuck with the idea through the months after TI ceased production of the 99/4A eve though "our

friends said we were crazy". The first issue appeared in February of 1984. The timing was perfect, as when the first issue of "Home Computer Compendium" (HCC) appeared, Kaplan's HCM was still in hiding. Desperate for information, the subscriptions rolled into Round Rock. Koloen also outmaneuvered Kaplan by making an offer to the TI users groups across the country. He would send each user group a copy of the magazine each month for a copy of the users group's newsletter. He got free publicity from the groups as a result and got an open (and low cost) exchange of information with the groups, which are often the first to hear of new products and TI news. Where Emerald Valley Publications had all but alienated the 99/4A users groups with the firm's rumored shoddy handling of consumer complaints and aloof and disinterested contacts with user group, Koloen befriended the groups and was an almost instant success.

Koloen, who bought his first TI computer in 1982, best expressed his dissatisfaction with existing TI supporting publications in his editorial in the first issue of Home Computer Compendium. He wrote:

"As you can see, HCC is not a slick, high priced magazine. Nor is it a clever merchandising scheme. We have no intention of selling you, the reader, anything other than this magazine. We have no plans to market software, books, T-shirts, or anything else we cannot fit between the covers of the Compendium."

There was also something unique about the magazine itself. It was produced on the same paper stock as the Round Rock "Leader" newspaper and on the same presses. Thus, it could, according to Koloen, be produced within a few days of completion of a major story, as opposed to the long lead times for articles appearing in the "glossy" magazine. Also, the low-cost paper kept the price of the magazine (\$12 per year initially). The first issues were 24 pages each. They were prompt and regular, both popular treats for the consumers. When Home Computer Magazine reappeared, they quickly saw the competition. They

immediately informed Koloen to cease using the name "Home Computer" in his magazine's title or face a law suit. Not in a position to take up a legal battle only 3 months into publishing a new periodical, Koloen renamed the magazine "Micropendium" in May, 1984. The magazine jumped to 32 pages in September, 1984 and 40 pages in November. Laura Burns, to this point, working part-time as Editor, was able to leave her job as an information specialist with a Texas state agency and devote full-time to the magazine in April, 1985. The magazine expanded even further to 48 pages each month shortly thereafter. If magazine renewals rates are a reflection of the number of users staying with their TI machines, then 99/4A owners are a loyal crowd. Burns observes that "every now and then we get a letter saying 'we love your magazine and our cancellation is not a reflection of your magazines quality. But we just bought a Commodore.' or an Apple. But, or the most part, renewals are well over 50 per cent." Koloen estimates renewals to be 80 per cent or more. They also continue to receive new subscriptions. Koloen guesses they are known to only 10 per cent of the available market. In particular, he notes "There is a large TI community in Germany. This group is very active and have developed, almost parallel to the US producers, several exciting new hardware and software products for the /4A. We are just beginning to reach this large market." Koloen and Burns both see expansion of the magazine in the future, but each jump has to occur in 8 page increments due to the nuances of the print process (thus they have gone from 24 to 32 to 40 and, lately, 48 pages). Koloen observes: "If we could go 2 or 4 pages, it was be easier to gradually expand. With 8 pages, it is a big jump. But we see that coming and maybe a 56 pages in late 1985." (They made that goal with the October issue).

Another periodical that started up after the pullout of Texas Instruments was "Super 99 Monthly". Published by Bytemaster Services of Sulphur, Louisiana (near Lake Charles) and edited by Richard Mitchell, owner of Bytemaster. The 32 year old Mitchell, an accountant by training and presently working for a large law firm as systems operator of a minicomputer, bought his first 99/4A in mid-1983. He chose TI "for the 16-bit processor and the

price." As he started working with the machine, he became "hooked", working and learning on his machine about 100 hours per month. Looking over the information published for the computer at that time, he was not impressed, and, when TI dropped production, the idea of a periodical first came to him. He recalls "I figured some things are best when everyone wants out, leaving a void." He was even more determined to begin a new publication when he witnessed Home Computer Magazine's disappearing act in late 1983. He planned to publish in the spring of 1984, but a large advertisement paid for and scheduled to appear in the remaining TI periodical, IUG's "Enthusiast" never happened. The money was lost when IUG went bankrupt. Not a very encouraging start for Mitchell, but he persisted. With a loan from a relative, he bought some equipment to fully expand his computer, wrote off the IUG failure to a painful business lesson, found a local printer to do his printing cheaply but professionally, started with 12 subscribers, and put out the first issue of his 12-page monthly. Subscriptions were \$12 a year, for 12 pages a month. The content has come from his main abilities. Mitchell states: "I think of myself as a conceptualizer over and above my programming. I am persistent. I get an idea of something I think is useful and, even though I don't think of myself as a brilliant programmer, I keep hacking away until its completed. Two of the programs I published took 5 months of off and on work to develop." His publication caters to fellow programmers and, while for the first year it was a solo project, Mitchell has added several notable TI programmers as contributors to Super 99 Monthly. The hardest problem with supporting the TI community? "Getting the exposure", Mitchell states. He says it is very difficult to get word out to the average 99/4A user. He has dramatically increased his subscriber base with letters and sample copies to virtually all known users groups, notices on the electronic facilities of The Source and Compuserve and "ads wherever people would sell me one." Mitchell is satisfied with his progress to date but looks also to Europe, particularly Germany, as a potential large source of new subscribers just waiting to be reached. "How to reach them is the only problem." While Mitchell would like to make Super 99 Monthly a full-time venture, he doubts that it will

be in the immediate future. But, philosophically, the venture has served as a real "learning process". He feels users of the 99/4A are in a unique position in relation to future jobs in the computer industry. "Users who have to learn not just how to run 'canned' software but also how to tinker with their machines and be innovative, as we have in the TI community, will be better suited to work with the computers of the future." He feels the 99/4A users who have had to push their machines to the limit to make them useful have learned valuable and marketable skills. Mitchell agrees with Koloen that there is little sign that the TI users are dropping out as time goes on. His subscription renewal rates are high and he still gets new subscribers. He is "confident that if I could produce the information that the people wanted, they would still be around. And they have." He plans to continue running Super 99 Monthly as "In a manner similar to a user group -- honestly, with the primary purpose being to distribute knowledge and gather people who share common interests in this machine."

Another supplier of information through a publication has been Jim Peterson. While Peterson, a 62 year old retired Civil Service employee, is primarily a programmer and software distributor, he has used his monthly "Tips from the Tigercub" to advertise his software. Tigercub Software sells some 135 programs Peterson alone has programmed and at incredibly reasonable prices, all at \$3.00 each. None any higher. Peterson, who bought his machine in March, 1982 ("I decided it was time for my son to learn something about computing, as he was planning a career in engineering." His son never became interested, but the father did.), is undoubtedly the most prolific commercial programmer (possibly even the most prolific programmer period) in the TI market. Without any previous computer experience, he admits to having written "over 200 programs in Basic and Extended Basic, of which 140 are in my catalog, the rest given to public domain." His programs are characterized as well done, original, educational and constantly updated. But he has been unhappy with the professional realities of selling software commercially. He has seen his \$3.00 programs illegally copied and distribute widely. He resigned from his own local users group as he found people

within his own group stealing his programs. On selling commercial software, Peterson says "That is the only decision that I have regretted. The lack of market for software has been a source of continual disappointment and frustration. Also, I soon learned that when you put a copyright on a program and attempt to sell it, you put yourself on the other side of a wall and you are avoided by all those nonprogramming users who believe in their inalienable right to copy anything for free." Despite the problems Tigercub Software has faced, Peterson still puts out a monthly newsletter which is, surely, the most reproduced and widely distributed source of information in the TI "world". His 4-page monthly is a regular section of virtually all user group newsletter and the contents are further distributed freely through electronic bulletin board systems across the country. Peterson has been putting out the "Tips" for almost 30 months. He recalls: "I began writing my "Tips from the Tigercub" partly to promote my business, partly because I like to write, and partly because I had many routines which were not worth selling but were worth sharing. As a business promotion, the Tips have been a failure, but they have brought me many interesting newsletters in exchange, many phone calls and letters, more contacts and friends all over the world than I have found in my own users group."

Even as late as the fall of 1985, there is a new publication for the 99/4A on the horizon. Barry Traver, a minister in Philadelphia and founder of the Philadelphia users group (which the Rev. Traver proudly points out is still the third largest computer specific segment of the large Philadelphia Area Computer Society, outnumbering Atari, Commodore or Tandy and exceeded only by IBM and Apple), has released plans for the "TRAVeLER" computer magazine on disk. It is an idea that has been popular with other machines and, thanks to Traver, appears promising for the TI.

Often referred to as "paperless periodicals", they are another improvement in information exchange brought about by the so-called "computer revolution". Whereas in the past we have read magazines and books passively and page-by-page,

the "magazine-on-disk" concept has become popular because it allows an active participation by the reader in the exchange of information. Paperless periodicals are alive. They force you to interact and think as you move through the programs. Through menus, many paperless periodicals allow you to push a button and be "transported" to the article or program of your choice. They have existed for several years for the Apple (Sofdisk, Microzine, Diskazine), IBM (I.B. Magazette, Mentor, P.C.Disk Magazine) and other brands. The publication format was attempted previously in the TI community but failed. Traver has revived the project.

Traver, a member of the MENSA society, plans a bimonthly disk full of articles, tutorials, and programs to be distributed at a subscription cost of \$30 per year. He has surrounded himself with several 99/4A "experts" who have promised to contribute to the magazine, which is due for release in early October. Like the founder of the popular Diskazine (for the Apple), Christine Mullholand, who "views Diskazine as a family venture and views subscribers as pen pals", Traver plans intimate and personal information exchange and regular publication schedules.

Perhaps the longest running "series of articles about the TI of a technical nature has been the writings of Randy Holcomb for the "Computer Shopper Magazine". Under the byline "Randy's Ravings", Holcomb has been writing some of the most technical and informative columns for the 99/4A anywhere. It is a tribute to the quality of Holcomb's writing, his technical expertise and his popularity in the TI world that editor Stan Veit continues to carry a TI column. Veit freely admits the reason why the column is continued:

"Having attended the Comdex Show in Atlanta and being scheduled to go to NCC, I sat out the spring CES (Consumer Electronics Show) and sent Randy Holcomb in my place. The marketing people at our booth were amazed at the reception Randy received from the TI 99/4A fans. Considering they have been "on their own" for so long, with almost no corporate support, I find this amazing myself. It

is because of this strong user support that Computer Shopper keeps these sections going although there is almost no advertising support for them." (Computer Shopper, page 13, August, 1985)

Holcomb, one of the founders of the TI Forum on CompuServe and presently running the TI special interest section of the new Delphi telecommunication system, has even had a collection of his articles on the technical aspects of the 9900 series of computer chips published by Computer Shopper. "The Innermost Secrets of the TI 99/4A " was published in mid-1984 and was an immediate hit in the TI community. Holcomb's column continues and is a monthly feature of Computer Shopper.

The largest single publisher of books for the 99/4A computer has been Compute! Magazine. While the coverage in Compute! Magazine for the TI has diminished, the firm has continued to produce popular and useful books for the machine. But the books have not been limited to them (as one can see from the list in Appendix 8).

It is obvious, that the 99/4A user has several sources of information about his machine. And, interestingly, they appear to be stable and in no danger of disappearing. With what appears to be a loyal and stable subscription base (and even, in the eyes of most TI publishers, a large untapped base awaiting), the existing magazines will continue and new ones may even continue to appear.

CHAPTER 8 - FREEWARE

When Andrew Fluegelman wrote the IBM program "PC-TALK III" and released it to the public through a new concept called "Freeware" (which he later trademarked) little did he know the effects he would have on other computer communities outside the IBM compatibles. The impact of the programs made available to the 99/4A users through this marketing concept have sustained the owners through a relative "commercial" product drought, and brought innovative and, usually, better than otherwise available software to the users.

How does it work? The concept is the epitome of simplicity. The software program is released to the users in an "unprotected", copyable form. Any and all may make copies of the program and try it out. If you find the program useful, you are requested to send a specified donation to the author of the program for his efforts. You may also give copies to friends, users groups, and bulletin board systems for their use and decision on the program's value. The programs remain copyrighted and the property of the original author, so they are not, truly, "public-domain". There is an ethical, if not legal, obligation, to reimburse the author for his program if you use it regularly. The user is given the privilege of using the program, "trying before he buys" and can make a decision on its value before he has committed money in a store for a 99%-of-the-time, nonreturnable piece of software. That is the uniqueness of "Freeware". Because the users, themselves, do a great deal of the distributing and advertising for the author, the costs for the program can be quite low (the request for PC-Talk III was for a \$35 "donation"). Further, those that compensate the author, are often informed of new and versions of the program and can get updates directly from the author for a disk, mailer and return postage.

This system of distribution is a very successful method of marketing programs for, in particular, the IBM and its "clones". The system also seemed remarkably well suited for

selling software for the TI 99/4A. When TI abandoned the machine, local stores and national outlet chains (e.g. KMart, J.C. Penny, etc) ceased carrying 99/4A products almost immediately. Further, few computer stores carried /4A software. Thus, commercial distribution, for all but the largest markets was limited to mail-order. For the individual programmer, contacting the limited mail-order houses to persuade them to carry their program became a difficult task. Additionally, the mail-order houses knew they were the "only game in town" and, for the most part, extracted unreasonably high percentages of the market price of a program and, subsequently offered small royalties. But few individual programmers could afford the initial capital investment required to adequately produce, advertise and distribute their own products. The rustic analogy of being "caught between a rock and a hard place" was never more applicable.

H.L. Nieburg described the system with an appropriate analogy. In his article "Freeware: Unique Concept for High Quality PC Software" (Computer Shopper, April 1985, pp. 162-170) he wrote:

"This is a high tech version of the Hippie free stores, bread upon the waters...But it is also a hard headed solution to some of the problems of marketing original software. There are many creative programmers out there who do not wish to become part of megalithic business enterprise. They do not have the resources for large scale distribution and do not want to devote most of their time to this end of the business."

Thus, a Freeware-like system was well-suited for this restricted but certainly software-starved market. And it comes as no surprise that when the method did start in the 99/4A consumer base, it was effective, if not a miraculous success story.

The first, to the recollection of most, venture into this form of distribution was from a young programmer in Wilmington, Delaware. Steven Lawless programmed a disk-copy

program which was, truly, the best of this genre of programs produced for the 99/4A, including the traditionally marketed varieties.

Lawless, a 29 year old physician (M.D. and radiologist) wrote "Masscopy" in early 1984. He admits that he did a lot of "soul-searching" trying to decide whether to release the program or not. He recalls "It would copy virtually all disks, regardless of protection schemes at that time and I didn't want it to be tool for illegal copying." But he also looked at the cost of the commercial alternatives to him program ("\$40 or more") and felt that was too high. At the urging of another 99/4A enthusiast, Tom August, Dr. Lawless decided to use the Freeware marketing method. "Once I decided to market the program", Dr. Lawless remarks, "I realized that I would have to invest a lot of money just for advertising. Tom told me 'They have a lot of programs for the IBM sold this way. Why not give it a try.' So, I chose this approach. I released the program in mid-1984. I have never been sorry for the choice." Admitting he had no major financial aspirations ("I just wanted enough money to get a second disk drive"), he has made over \$1000 through the Masscopy program. The program has undergone several revisions and, on an hourly basis, certainly hasn't totally compensated the programmer for his efforts, but it was enough for Dr. Lawless. And his pioneering the concept of Freeware marketing in the TI community set the stage for a flood of other programming efforts.

One of the most important of Freeware or, as Barry Traver (an assistant systems operator of the TI Forum) prefers to call to it, "Fairware" (which I will now use in place of Freeware which is, as mentioned, copyrighted) offerings was the "Fast-Term" terminal emulator program (previously mentioned in the Chapter 5). This particular program points out one of the obvious advantages of the Fairware distribution technique. It provides for good programmer-to-user contact. When Paul Charlton wrote Fast-Term and released it in the first version, he actively sought input from the users as to what features they would like to see added. This interchange was particularly active on Compuserve's TI Forum, as Charlton checked in there

frequently and the program could be downloaded from there. Further, as users encountered problems with the program, through either electronic messages on Compuserve or the traditional letters or phone calls, the original author was always available for the definitive answer or solution. As a result of the feedback, the program was quickly and efficiently refined into an almost perfect program. In a traditional marketing scheme, the process of getting user-feedback and solving problems is, usually not as easy. The authors, since they have been, often, removed from the distribution process of a program, are difficult for the user to contact, and program revisions take much longer to distribute. Thus, Fairware solves another major complaint of the software consumer today - getting assistance after the sale.

During 1985, the Fairware distribution pathway became increasingly popular. That year alone saw the release of nearly 30 different software packages for the 99/4A user. For some, it was successful, for others, a disappointment.

One of the problems was the relative newness of the concept to the 99/4A users. It would take time to educate these consumers exactly what the deal was. Confusion reigned supreme at times. The term Freeware smacks of public-domain. "Isn't 'Freeware' free?" The answer, of course, was no. It is distribution of copyrighted software on the honor system. The process of educating the consumer still goes on today.

Another problem was lamented by one Fairware programmer who wrote in a message on one telecommunication system:

"A few weeks back someone asked us freeware authors how we felt the system was working. At the time I answered that I felt it was working well. Since then I have sent out my largest batch of requests for XXXXXXXX [I have elected to delete the program name], and would like to update my answer. Fairware as a whole is a good idea, but in reality is some what less. I received a number of requests for XXXXXXXX that were missing a needed item, such

as a disk or two, return postage, or a mailer. I realizing that the person sending the request might not have been told all that I required decided to send the person XXXXXX providing the missing items out of my own pocket. I included a note stating what was missing and asking that the person see to it that the situation be corrected. Well, much to my surprise I have not received a response from any of these people, some of which are leaders of the TI community. As a result of the above situation I decided to calculate my profit from releasing XXXXXX freeware. Yes, I have actually lost money! Now to show you why authors of quality programs don't go freeware: If I had sold the program for \$30, \$10 of which is cost, I would have made about \$200 figuring that half those that paid for XXXXXX under freeware would have purchased the program. Also, as a result I have decided that I will no longer fill requests missing any item or items. I have not decided as to what to do with the requests, as notifying the person or returning the items will cost me more money. I guess what I am saying is that it seems funny that a lot of people wanted me to go freeware, but have not shown me the same amount of trust I placed in them. In other words the TI community seems to be biting the hand that feeds it. I do want to say THANK YOU to those that have sent me money for the program and hope that you realize that this is not directed toward you."

Another programmer made these comments in a letter to a programmer requesting advice on whether to try Fairware or not for his own programs. Again, the names of the programs are deleted.

"About your question on Freeware. I have marketed two games - one Freeware and the other, by direct sale. I would like to see Freeware work but to be perfectly honest with you, I made 10 times as much with the non-Freeware program. If you plan to distribute a program to make money, don't do it was

Freeware unless you have no choice. The Freeware concept is a great idea but unfortunately falls prey to the fact that most people will not pay for a program that they already have. About 15 people sent me \$5 for my Freeware game while for the straight sale game I sold 50. The Freeware game was better! I am now releasing my programs as either public domain or through a mail-order distributor. It is hard to keep track of how many people have a Freeware program, but I know that over 400 have my Freeware game. I reached this conclusion by noting the number of times it was downloaded off of bulletin boards. 15 responses divided by 400 (at least) users is a 2 per cent response rate."

Thus, it appears that, for some, Fairware was not a panacea. It has its problems. Many solutions have been offered for the problems, none universally adopted. Some have suggested that no disks/mailers/postage be accepted but only a set fee for the author's disk and materials (say \$5 for all) and then the Fairware fee to be returned over and above that later. One programmer has stated this is much more convenient for all involved. Others have suggested using large, reputable users groups to handle the distribution for a small handling fee (say, \$1 per order for copying) to, first, be a central point for interested people to contact for information on Fairware offerings and, secondly, to free up the programmer's valuable time for updating his programs or working on other projects. There are no perfect solutions. Additionally, there have been complaints from commercial software producers and dealers (the latter completely left out of the money in the Fairware marketing scheme) that Fairware is hurting their market and is cutting into their already meager profits. Some of the dealers have insinuated in print that the Fairware programmers are merely rewriting already existing software and selling their new versions much cheaper. The debate between the two camps has cooled of late and peaceful coexistence seems possible. Despite the problems inherent in the system, there seems to be no diminution of the interest in Fairware as a distribution system and new

offerings occur regularly.

Another unique distribution sequence fostered by Bob Wallace, author and distributor of PC-Write (a word-processor for the IBM family) is called "Shareware". Under the Shareware system, as described in Glossbrenner's book, you obtain the program from users, groups or bulletin boards or from the author. But, instead of a donation as in Fairware, you are requested to send \$75 as a "registration fee" to Wallace's firm, Quicksoft. Then, you can give the program to any and all you wish. Then, the innovative part of Shareware occurs next. If anyone you give the program to, in turn, registers with Quicksoft, you are paid a \$25 finders fee by Wallace. If you were to run a BBS and make PC-Write available, you could almost pay for the system if there were enough interested people downloading and registering the program with Quicksoft. As with Freeware, a form of Shareware has also shown up in the TI world.

Don Thomson, who heads Thomson Software (D.I.P) has written three excellent programs for the 99/4A. "Disk + Aid", "Memory Manipulator", and "Credit Card Database" are now distributed under what Thomson calls his, "dealer incentive program" (thus the "D.I.P" in the firm's name). Thomson describes his system thusly:

"These programs are distributed under a new marketing arrangement. I encourage the copying and distribution of the manual and the disk object code of this program, however, I request that you encourage each recipient to register their copy for the \$20 registration fee. This fee provides update support for future releases and revisions, problem solving support, and the right to participate in the D.I.P. program. When they register their copy, they are to provide your registration number and your name. They will receive a new unique registration number to use in their distribution of the program. You will receive a check for \$5 for each copy of yours that is registered plus \$5 for each "second level" copy of your distribution. There have been two major revisions of one program

to date with revisions for other programs planned. Also, there is included a limited customization service, if your hardware requires some source modifications to operate correctly."

Unlike Shareware, Thomson's program is a true "pyramid". Each registered owner has, potentially, several levels to be paid on and there is no diminishing payments; it remains \$5 per registration at all levels. This plan is newly developed so its degree of success is unknown. But, again, it shows that TI owners are learning from owners of other machines and are experimenting with various product distribution schemes in the hopes of gaining increased sales and distribution. Both Fairware and D.I.P. have provided alternative and cheaper ways for programmers to get their products in circulation and it appears to work. If more consumers were aware of the importance of making their contributions, it could even be more successful. Only the future will say whether or not it was a success.

CHAPTER 9 - WHAT THE FUTURE MAY HOLD

There is, of course, no way that the TI 99/4A consoles will continue to function forever. They will need repair at the least. Texas Instruments has committed themselves to provide that service. A greater threat to the community of TI users, however, is the computer industry itself. The new machines are quite something to behold and use. Commodore bought a California firm called Amiga and the rights to its computer by the same name and are bringing it out in late 1985. It has 256 kilobytes of memory standard, and incredible graphics capabilities. Atari has been rejuvenated by Jack Tramiel and is bringing out the cheap (\$799) Atari 520ST which comes with a 512 kilobytes of memory, a disk drive, monochrome monitor and a "mouse" (the business man's version of a joystick). With price cuts in the other existing standards (IBM PC and Apple IIe and McIntosh), it has become easier and easier for the TI orphans to move on to a factory supported machine with enhanced software capabilities.

As the preceding chapters have shown, there is "Life-after-death" for TI as well as other orphaned computers. Industry hardware support remains strong and grassroots programmers have contributed mightily to the software needs of the users. New products are just over the horizon which will bring the basic 99/4A console closer to present industry standards. Publication support appears strong.

Despite these pluses, there are those who would believe that without a compatible "upgrade" computer using 9900-type technology but with increased addressable memory and an 80-column video display, the TI community of users will rapidly diminish. The diminution will result from defections of users serious about computer technology who truly (or in their mind's eye) need the increased power of the industry's new computers. Is this a valid hypothesis? It will surely vary from individual user to user. One user group newsletter editor summed his thoughts up in an editorial on the same subject. He wrote:

"We are hearing a lot these days about the "new machine". Call it the 99/8 (Which it isn't), the 99/128 (coined by those who know), or the "Messiah" (from Dr. Guy-Stefan Romano of the Amnion Helpline service), or whatever, by all reports it appears to be an excellent machine. I look forward to the machine with great interest if I do keep my glasses on to see things in perspective.

What I see that I do not agree with is the prevailing atmosphere and philosophy that "if we don't get a new machine, the T.I. community is doomed". That is a lot of bunk! Let us examine why we think we need a "new" machine.

There are people in the world who trade cars every 2 or 3 years to get a new model. Why do they do this. Several reasons come to mind. They trade to (1) be fashionable, (2) show their upper economic status, (3) to keep a reliable set of wheels under them if they travel a great deal, (4) rarely, for the tax breaks major purchases allow, and (5) to get new technologic innovations found in the newer cars (like to useful "speaking" prompters that tell you your door is ajar). There maybe other reasons, but since I am (obviously) not one of these people, I can think of no others. I think these reasons aptly apply, in a round about way to those who feel compelled to get a new computer "upgrade", be it another brand or wishfully looking to the east for the new 9900 offspring.

Well, I drive a 1977 Granada. I can afford to get another car. Why don't I? Several reasons running counter to the above mentality. First, I am not very demonstrative of my social class. I am not driven by a burning desire to show the world that I am upwardly mobile in the grand economic scheme of things. I feel strongly that possessions do not reflect clearly our economic/social worth. Secondly, I have yet to see any major improvements

in the quality or the features of the new cars...I honestly don't want my car talking to me or do "0 to 60" in 8 seconds. I don 't need that.

Thirdly, and most importantly, is the car I already have. It has been and remains, a very reliable and functional piece of transportation. It requires minimal service, keeps rolling, and was proven to be a good, utilitarian machine. I am comfortable with "old paint". I know what it can do, I know how to get it to do what I want it to do, I know its limits and what it takes to keep it going. Call me compulsive, but I don't like to break in "new" things, particularly when the old things work just fine. I fix old things rather than throw them away and buy new. I'll probably keep my Granada till it breaks irrevocably and then I'll buy a new car.

I think, in a crude way, the analogy is obvious. Before we sit, waiting expectantly for a "new, improved 9900" or, worse, run out and buy another computer to "upgrade", let us reflect on what our present machine does for us and how comfortable we are with it. Weigh against that the things we would "like" to be able to do and can't because of the limits of our machine. I, quite frankly, could not think of anything I cannot do well now that I would like to do. And if I did (sure, I would like a good relational database!) , with the incredible improvements in our own software of late, I would wonder if that capability is possible on our computer and whether it is just around the corner.

Wither lead these remarks? There always remains the distinct possibility that there will not be new 9900 series machine. I say "so what"! I am not sitting on the edge of my seat waiting for it anyway. If it comes, I will give it a look and see what it offers, and will probably buy one out of curiosity, but I would be very surprised if I found

myself doing a great deal more than I do now. If it doesn't come, I will certainly survive. My 99/4A is working just fine, it already talks to me, I already know how to run it, its is quite functional and reliable, and I don't need/want the status symbol of something "bigger". We are just now releasing some of the capabilities of this computer and I anxiously await new developments in its capabilities with much more anticipation than I wait form a new computer. It didn't cease to serve me in October of 1983, and it will not cease to work if we don't get the "Messiah" from the east.

In a recent Conference on Compuserve's TI forum, John Clulow was asked a question about what he expected from the "new machine". Rather than answer that question, he replied in the Socratic fashion with a query of his own: "What do you want to do that you can't do now?"...the attendees were mute. Think about it."

There continue to rumors, as mentioned in previous chapters, of new machines coming forth. None have ever been seen in public, however. If the machine does not appear (and it is the author's belief that one never will), there will probably be a continued gradual exodus of TI users from the present owner base. There will not be a sudden mass defection. The users who have stayed with their machines for the past two years have made a major investment in both their software and hardware and are not likely to "jump ship" on a whim or the promise of new technology. They are sophisticated computer users at this point and must be truly convinced that the other computers offer cost-effective and useful improvements over their present equipment before they will be willing to make the expenditure for an entire new computer set up and, along with that, learn how to operate an entirely new machine.

But what the future will hold is not that important. The mere fact that there is a community of TI users two years after their computer left production is a tribute to the users' ingenuity and the quality of the original

product. Given the incredible rate of flux and product development in the computer industry, 24 months is an eternity, virtually more than one-fifth of the entire lifespan of the true home computer's history. Yet, despite the mercuric advancements in technology, the 99/4A owners remain with their machines. Sharing, inventing, and pushing their machines to capabilities they never thought possible in 1983. The fact that their history and legacy can be written about in 1985 is monument enough. If they survive for another two years as a family, is a moot point.

CHAPTER 10 - SURVIVAL MANUAL

Well, as you can tell, life in the Texas Instruments 99/4A orphanage is active and never dull. Those who have been confined to it and want to make the best out of it by developing their skills and pushing their computers to new heights, as you can tell by the previous chapters, have followed certain unwritten (at least till now) guidelines. They have learned many lessons over the past two years, some have been painful. For those owners reading these pages, both within the TI community or those using other brands of computers, orphaned or not (who is to tell when abandonment may happen anyway), perhaps a distillation of these lessons may be of interest should you ever need them.

As you have probably gathered by now, I am one of the "charter members" of the COMPUTER ORPHANAGE, having bought a Texas Instrument (TI) 99/4A Home Computer in Feb, 1981. About 18 months later, TI abruptly and without warning (at least to me!) announced that, due to major financial losses, they were leaving the home computer marketplace and were to cease production of the 99/4A computer, support peripherals, and software. As pointed out in Chapter 2, to understand the true impact of this move to the TI computer owner you must understand where we stood at the time. Unlike the present situation with, for example the Commodore 64 home computer where software and hardware support comes from many producers outside Commodore, Inc., the users of the TI computer were virtually totally dependent on TI for both hardware and software. One of the major reasons TI failed in the Home Computer market was their "closed system" approach to support industries. TI was, really, the only maker of both software and hardware for the 99/4A and, when they left the industry, the owners were truly devastated, far beyond what would happen if Commodore or IBM left their computer owners abandoned.

So, the "orphanage" was founded in earnest. The events that followed were long and complex. I have tried to archive them in these pages. As you have seen, the owners of the 99/4A are alive and well. Beyond that, they are

actually using more sophisticated software and hardware than they ever dreamed of when the original manufacturer was our sole provider. Not only is there significant commercial support, the users of the 99/4A have become sophisticated programmers and hardware developers themselves, necessity being the mother of invention. The "orphans" have made their computers progressively functional and have made their initial computer purchase a good one, instead of what they all thought was a blunder on October 28, 1983 (the day TI announced its withdrawal from 99/4A production). The analogy has been confined to the TI home computer but is certainly not limited to those users. There are Timex-Sinclair orphans, Coleco orphans, Mattel orphans, and others forging ahead with abandoned but entirely functional home computers. They are surviving. Further, there are likely to be even more given the continued variability and vagaries of the home computer economy. The Computer Orphanage is real, it will exist for some time, and it is an potential reality for any who buy a personal computer.

If you do find yourself admitted to the ORPHANAGE, what next? While there are many intricacies, for the sake of discussion, let's limit the lessons to 10 steps to survival. If followed and obeyed, those in the Orphanage will thrive and prosper. If not followed, at least for the most part, it could be a short stay there, indeed.

Step #1 - Relax!

Perhaps the hardest thing to do when you read or hear that your computer's manufacturer is dropping production of your machine is remain calm. Keep one thought in mind: Computer manufacturers may be subject to economic hard-heartedness, but they are not diabolical. They did not implant a self-destruct device in your home computer. It will not suddenly smoke and disintegrate on the given hour that Smorgasbord Computers, Inc. announces they are discontinuing support of the ALL-WORLD home computer. If it worked the night before the obituary was posted, it will work the night after.

When the shock wears off (a variable period of mourning is expected), its time to realize your position and make some decisions.

Step #2 - Decision making

After your heart has returned to a regular rhythm and the trembling hands have stabilized, sweaty palms dried, you have to make a couple of decisions. First, are you serious about using a home computer. Not as silly a question as it first appears. Whatever the reasons were for the initial purchase of a home computer (word-processing, home budget, children's education, etc.), you must go through the very same reasoning again. If you seriously see using a home computer in your future, then you have passed the first step. If you bought your machine because the neighbor had one, or Jane's best friend was using one to study subtraction and you weren't really clear in your plans for the computer, then you must really do some serious soul-searching before you get a key to the orphanage. You have to be adamant and steadfast in your plans to make it through the rigors that await. You have to be willing to work and make sacrifices to keep your machine viable and functional. So, think it over and think hard. If you REALLY want to make a go of it, good for you. If not, swallow your losses, let the kids play Invaders, and buy another computer when and if you are ready.

If you passed the first decision test, you have another one. Are you rich? If you are, you are certainly better off buying another machine which is still in production and has a future of new and innovative product development. No need facing the rigors of the orphanage if you can afford not to. So, if you can afford to move on, go buy an IBM (but then, not a Peanut, its already orphaned), or an Apple (but not a Apple III, its out of production too!). Just, in the words of the watch sergeant on a popular police show "be careful out there!" If, on the other hand, you are serious about computing in your home, and unable to afford a new machine, your room in the orphanage will be ready in a moment.

Step #3 - Look for the Big Bailout

If you have decided to make a go of your computer choice, you are in for some real fun. One of the most incredible things you will witness is the price you will be able to buy both new and used equipment compatible computer equipment for. Both dealers and people who failed the "decision making" will be anxious to unload their stock of the newest orphan at bargain-basement prices. Now is the time to upgrade and back up. If you have clear-cut plans or need for memory expansion, an RS232 interface, a modem, or software, now is the time. You will be able to get equipment at a fraction of what you had originally planned on paying (and would have paid had the abandonment not occurred!). One of the most important purchases is a back up computer. Yes, that's right. A second orphan (I said you had to be really serious about sticking with it!). Get what you think you will need, search the classified ads locally and bulletin boards at computer stores. Think about putting an ad in the paper yourself "Interested in buying used ALL WORLD home computer". You will get your first thrill of the excitement of life in the orphanage when you buy a disk drive for one-third what you would have paid 3 weeks earlier. Think out what you will need, what you are willing to invest, and get it now. And keep looking. Bailing out will continue for months to years. Prices will continue to drop, so if you can't afford the upgrade right away, again don't panic. Sooner or later, you can afford it. Believe me!

Step #4 - Organize

To be trite (but truthful), there is strength in numbers. While you are looking around for bailouts, also look for others who are willing to tough out orphanage life. Put a notice on a computer store's bulletin board, the newspaper (the same time you put up your "buy-out" notes), that you would like to join or start a user group for owners of your computer. There may already be one in existence and, hopefully, you are already a member. If so, you are in good shape. If not, start one. Ask the dealer where you bought your computer if they have a list of others who

bought your machine. Be sure to tell them why. If they don't keep such records, ask if they will pass the word to any that come into their shops looking for ALL WORLD computer equipment that you are starting a user group. Look through computer magazines and see if there are any national user groups for your machine and find out what they offer by writing. Some computer magazines even carry listing of local user groups by state. Even your computer's ex-manufacturer may have a list of user groups (TI did and even had a "starter pack" for new groups). Write and find out.

Step #5 - Write to producers

You certainly won't get the computer's manufacturer to resume producing with a letter. There's was a firm though drastic decision. But letter-writing does have a place in the orphanage. Compile a list of all the hardware and software producers you have bought products from and those you have seen advertising products for your machine. Draft a letter stating your decision to stick with your computer and your interest in their company continuing to market products for it. An individual letter from you and a letter in the form of a "petition" signed by other local users are both called for. The more letters and the more signatures the better. It will show third-party producers that the abandoned computer did not self-destruct nor did the users of it. Your consumer potential and dollars did not vanish either. Let these companies know you exist, are not alone, and that you are going to continue using and buying for your machine for some time. Magazines are particularly sensitive and responsive to letters from readers. Contact those magazines that carried information for your machine B.O. ("before orphaning"), and tell them you are interested in seeing more information for your computer in their magazine. They will respond. When TI left the market, production of hardware and software was taken over by several highly competent manufacturers which remain with the machine even today. The equipment they have produced has sold well and have been true upgrades for our machines. Software has flourished. There is economic reward awaiting companies who take up from the parent company and support the orphans. It

is up to you to reassure them of that.

Step #6 - Learn how to program

Despite the fact that there will still be software produced from commercial sources for you to buy and use, it is also a reality that your product selection will be limited. You may not be able to find a particular software application to fit your individual needs. So, what to do? Program it yourself! Jump in there, plug away, program and write your own application! It can be done, and has been done by thousands already in residence in the orphanage. And when you do complete a program, don't hide it or think no one else would be interested. Pass it on! Give it away to any and all interested in having it. They may build on it and improve it or use the techniques they learn from your code to write a program of their own, which you will then have access to. That's one of the major ways to get application software for your machine to fill in the gaps of commercial production. User-written, public-domain software.. Learn to write your own, share it and seek out programs from others. All the programming geniuses of the world do not write for commercial houses.

Step #7 - Help/encourage others

At user group meetings, help out. Answer questions, direct others to information sources, share your experiences with software or hardware you have bought (or better, programmed or built!). Don't sit and be a "doom and gloom" prophet. No one in your orphanage wants to hear "This machine is obsolete...as soon as I can afford it I'm going to buy....". Those comments should be kept private. Talk optimism and good things. Everyone in residence KNOWS they have their back against the wall...they don't need you to remind them.

Step #8 - Telecommunicate

If at all possible, get a modem and start telecommunicating. It is important to make national contacts even if you are in a large city with lots of local

fellow orphans. It is IMPERATIVE if your local contacts are limited. With a modem, you can call public bulletin board systems (BBS) and find other users. Also, by signing up to one of the commercial information systems (Compuserve, STC, DIALOG), you can get sources of help and instruction across the country. The TI FORUM on Compuserve was actually founded AFTER Texas Instruments pull out. The users realized the need to band together and form a national telecommunication network for emotional and technical support of the orphans. It has flourished; information, product reviews, how to hook up a printer, programs are all a major part of the FORUM. Public systems also exploded into prominence. There are at least 5 commercial and 4 public-domain bulletin board packages available for the TI today. They are scattered across the country and even in foreign countries. So, get a modem and reach out through the phone lines to other "branch orphanages". You will find many pearls waiting.

Step #9 - Write and teach

Start a user group newsletter and exchange it with other groups across the country. Write for and support you group's newsletter. If you enjoy writing, try writing for a magazine. Send them a good tutorial for your machine or a program you wrote for consideration. If accepted, it will be the best advertisement possible to industry and other users that there are active and productive users still out there. Besides, writing is fun. Offer to teach a class in something you have learned (a programming language, a word processor, spreadsheet, anything). If you can teach others how you use your machine and get them competent in it, they will be much more likely to stick with it (and YOU!).

Step #10 - Support Commercial producers and FREeware

When at all possible, buy new software produced for your machine. If you need a new word processor, spend a few dollars and buy a commercial entry. Try it and share you review of it with others. But BUY! Only by spreading a some money around are you going to be able to keep the companies interested. Sure, you may get stuck with a dog product now

and again , but you'll also keep programmers programming. Also, if you run across a really super public-domain offering, try to find out who wrote it. The, put \$5 or \$10 dollars in an envelope and send it to the author. That single act will bolster that particularly talented author and add immeasurable enthusiasm in his future programming. Encourage FREEWARE by telling talented local and national programmers you would like to send them a few dollars for their program efforts. They could go commercial but may not have the start up capital. By "going FREEWARE" allows these commercial quality programmers to get some financial rewards with none of the expenses of usual advertising, distribution, etc. The USERS distribute and are on their honor (it does work in the orphanage!) to send something to the author for his efforts. Encourage this activity and support it.

Well, there you have it. A step-wise approach to survival in an initially terrifying but later, enjoyable place: the COMPUTER ORPHANAGE. I hope your computer remains in production indefinitely and you never have to get a room here, but if you do need a room, we'll be around. Orphans are a tough breed and have learned a lot about the industry from a unique vantage point. We plan to stick around for some time. We may dwindle in numbers over the months and years, but hard-core hanger-ons will be here if you ever need us (God-Forbid!).



APPENDICES

APPENDIX 1

TI's Announcement at Summer CES, 1983 Concerning Possible Legal Actions Against Unlicensed Software Production

NOTICE

If you manufacture or sell Plug-in cartridges
for home computers, the following may
be important to you.

Texas Instruments (TI) from time to time makes modifications in the design of its home computer products in order to reduce cost, improve reliability and performance, and safeguard its image as a manufacturer of quality products. Plug-in semiconductor cartridges marketed by TI for its 99/4A Home Computer each contains a proprietary auto-incrementing memory. In view of planned new introductions to its product lines, cartridges that do not include auto-incrementing will, in TI's judgment, no longer be compatible with all TI Home Computers.

TI holds patents that cover a number of proprietary features in the cartridges for its Home Computer. These patents include 4,243,984; 4,286,320; 4,298,949; RE 30,671; 4,304,964 and DES 260,515. In addition, the U.S. Patent and Trademark Office has indicated that it will issue a patent relating to Allophone Speech to TI. TI does not intent to license these patents to others for supplying cartridges for the TI Home Computer. TI intends to enforce these patents against others who use them.

TI will discuss with potential developers arrangements wherein TI would be a licensee and distributor of such cartridges with attractive compensation to its developers.

[Appeared June 4, 1983 in the Chicago CES daily trade journal]

APPENDIX 2

IUG's Bankruptcy Statement

THE IUG HAS FILED FOR PROTECTION UNDER CHAPTER 7 OF THE FED. BANKRUPTCY ACT. ALL SOFTWARE LIBRARY ORDERS RECEIVED ON OR BEFORE APRIL 30, 1985 WILL BE SHIPPED PRIOR TO MAY 30, 1985. WE HIGHLY REGRET THIS ACTION BUT HAVE NO OTHER ALTERNATIVE AT THIS POINT. THE CURRENT LIBRARY AS WELL AS SOME 400 NEW PROGRAMS HAVE BEEN KEPT IN TACT AND WILL BE MARKETED BY A NEWLY FORMED COMPANY WHICH WILL BE ANNOUNCED ON 6/1.

THIS NEW COMPANY WILL USE THE CURRENT IUG CATALOGS AND PROGRAM NUMBERS SO THERE WILL BE NO CONFUSION TO NEW MEMBERS. I PERSONALLY FEEL DEEPLY SADDENED THAT THE QUALITY OF SERVICE THAT WE STRIVED FOR OVER THE PAST 5 YEARS HAS SUFFERED SO IN OUR LAST 6 MONTHS OF OPERATION AND HOPE THAT OUR THOUSANDS OF MEMBERS AND FRIENDS CAN UNDERSTAND THAT WE DID EVERYTHING IN OUR POWER TO CONTINUE TO SUPPORT OUR MEMBERS TO THE BITTER END. FOR THOSE HOSTILE MEMBERS WHO SEEM TO THINK THAT I HAVE AMASSED A PERSONAL FORTUNE FROM THE IUG PLEASE REST ASSURED THAT THIS IS NOT THE CASE.

THE FACT IS THAT WE CURRENTLY STAND TO LOOSE "EVERYTHING" THAT VIRGINIA AND I HAVE WORKED FOR OVER THE PAST 20 YEARS TO ASSURE THAT OUR MEMBERS AND CREDITORS ARE SATISFIED.

CHARLES LA FARA

APPENDIX 3

IUG's Copyright Statement (Catalog Series 1000)

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APPENDIX 4

Software Produced by Texas Instruments

model #	description	Module Based Software
PHM 3002	Early Learning Fun	
PHM 3003	Beginning Grammar	
PHM 3004	Number Magic	
PHM 3006	Home Financial Decisions	
PHM 3007	Household Budget Management	
PHM 3008	Video Chess	
PHM 3009	Football	
PHM 3010	Physical Fitness	
PHM 3011	Speech Editor	
PHM 3012	Securities Analysis	
PHM 3013	Personal Record Keeping	
PHM 3015	Early Reading	
PHM 3016	Tax/Investment Record Keeping	
PHM 3018	Video Games I	
PHM 3020	Music Maker	
PHM 3021	Weight Control and Nutrition	
PHM 3022	Personal Real Estate	
PHM 3023	Hunt the Wumpus	
PHM 3024	Indoor Soccer	
PHM 3025	Mind Challengers	
PHM 3026	Extended Basic	
PHM 3027	Addition Subtraction I	
PHM 3028	Addition Subtraction II	
PHM 3029	Multiplication I	
PHM 3030	A-Maze-ing	
PHM 3031	The Attack (MB)	
PHM 3032	Blasto (MB)	
PHM 3034	Hustle (MB)	
PHM 3035	Terminal Emulator II	
PHM 3037	Hangman (MB)	
PHM 3038	Connect Four (MB)	
PHM 3039	Yahtzee (MB)	
PHM 3041	Adventure Module	
PHM 3042	Tunnels of Doom	
PHM 3043	Reading Fun	

model #	description	Module Based Software
PHM 3044	Personal Report Generator	
PHM 3046	Reading On	
PHM 3047	Reading Roundup	
PHM 3048	Reading Rally	
PHM 3049	Division I	
PHM 3050	Numeration I	
PHM 3051	Numeration II	
PHM 3052	Tombstone City	
PHM 3053	TI Invaders	
PHM 3054	Car Wars	
PHM 3055	Editor Assembler	
PHM 3056	Alpiner	
PHM 3057	Munch Man	
PHM 3058	Mini Memory	
PHM 3059	Scholastic Spelling (Level 3)	
PHM 3060	Scholastic Spelling (Level 4)	
PHM 3061	Scholastic Spelling (Level 5)	
PHM 3062	Scholastic Spelling (Level 6)	
PHM 3064	Touch Typing Tutor	
PHM 3082	Reading Flight	
PHM 3089	Disk Manager II	
PHM 3090	Addition (Milliken)	
PHM 3091	Subtraction (Milliken)	
PHM 3092	Multiplication (Milliken)	
PHM 3094	Integers (Milliken)	
PHM 3098	Numeration (Milliken)	
PHM 3100	Equations (Milliken)	
PHM 3101	Measurement Formulas (Milliken)	
PHM 3109	TI Logo II	
PHM 3110	Chisholm Trail	
PHM 3111	TI-Writer	
PHM 3112	Parsec	
PHM 3113	Microsoft Multiplan	
PHM 3115	Alien Addition (DLM)	
PHM 3117	Dragon Mix (DLM)	
PHM 3118	Minus Mission (DLM)	
PHM 3122	PLATO Interpreter	

model #	description	Module Based Software
PHM 3131	Moonmine	
PHM 3144	Early Logo Learning Fun	
PHM 3145	Sneggit	
PHM 3146	Munch Mobile	
PHM 3148	Championship Baseball (MBX)	
PHM 3149	Space Bandit (MBX)	
PHM 3150	Sewermania (MBX)	
PHM 3151	Bigfoot (MBX)	
PHM 3152	Meteor Belt (MBX)	
PHM 3153	Super Fly (MBX)	
PHM 3154	Terry Turtles Adventure (MBX)	
PHM 3155	I'm Hiding (MBX)	
PHM 3156	Honey Hunt (MBX)	
PHM 3157	Sound Track Trolley (MBX)	
PHM 3168	Treasure Island	
PHM 3178	Story Machine	
PHM 3189	Return to Pirates Island	
PHM 3194	Jawbreaker II	
PHM 3197	Slymoids	
PHM 3219	Super Demon Attack	
PHM 3220	Microsurgeon	
PHM 3222	Fathom	
PHM 3224	Moonsweeper	
PHM 3225	StarTrek	
PHM 3226	Buck Rogers	
PHM 3227	Congo Bongo	
PHM 3229	Hopper	
PHM 3233	Burger Time	

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model # | description          Disk Based Software
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PHD 5003 | Personal Financial Aids
PHD 5007 | Teach Yourself BASIC
PHD 5009 | Music Skills Trainer
PHD 5015 | Oldies But Goodies- Games I
PHD 5017 | Oldies But Goodies- Games II
PHD 5019 | Teach Yourself Extended BASIC
PHD 5021 | Checkbook Manager
PHD 5022 | Business Aids Library-Finance
PHD 5025 | Saturday Night Bingo
PHD 5029 | Business Aids Lib.-Cash MGT
PHD 5037 | Draw Poker (X-B)
PHD 5038 | Business Aids Lib.-Lease/PU
PHD 5046 | Adventureland
PHD 5053 | Ghost Town
PHD 5058 | TI Invaders
PHD 5067 | Beginning BASIC Tutor
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model #	description	Cassette Based Software
PHT 6002	TI-Trek	
PHT 6003	Personal Financial Aids	
PHT 6006	Programming Aids I	
PHT 6007	Teach Yourself Basic	
PHT 6008	Electrical Engineering Library	
PHT 6009	Music Skills Trainer	
PHT 6010	Mystery Melody	
PHT 6011	Computer Music Box	
PHT 6013	Graphing Package	
PHT 6015	Oldies but Goodies I	
PHT 6016	Structural Engineering Library	
PHT 6017	Oldies but Goodies II	
PHT 6018	Market Business Simulation	
PHT 6019	Teach Yourself Extended Basic	
PHT 6026	Bridge Bidding I	
PHT 6031	Speak and Math	
PHT 6037	Draw Poker	
PHT 6038	Business Aids Library	
PHT 6039	Bridge Bidding II	
PHT 6041	Bridge Bidding III	
PHT 6042	Spell Writer	
PHT 6044	AC Circuit Analysis	
PHT 6046	Adventureland	(Adv Series
PHT 6047	Mission Impossible	" "
PHT 6048	Voodoo Castle	" "
PHT 6049	The Count	" "
PHT 6050	Strange Odyssey	" "
PHT 6051	Mystery Fun House	" "
PHT 6052	Pyramid of Doom	" "
PHT 6053	Ghost Town	" "
PHT 6054	Savage Island I	II " "
PHT 6056	Golden Voyage	" "
PHT 6067	Beginning Basic Tutor	

model #	description	Packaged Software
PHV 1001	Entertainment Pack: Hangman, Parsec, Adventure, Blasto, Oldies But Goodies, Connect 4	
PHV 1002	Variety Pack: Beginning Basic Tutor, Market Simulation, Oldies But Goodies, Personal Financial Aids.	
PHL 7001	The Home Financial Manager: Home Financial Decisions, Household Budget Management, Personal Real Estate.	
PHL 7002	The Family Entertainer: The Attack, A-Maze-ing, Hunt the Wumpus.	
PHL 7003	The Elementary Educator: Beginning Grammar, Addition Subtraction I, Early Learning Fun.	
PHL 7004	The Music Educator: Music Maker, Music Skills Trainer	
PHL 7006	The Scott, Foresman Speaking Math Teacher: Addition and Subtraction I, Addition and Subtraction II, Multiply I.	
PHL 7007	The Scott, Foresman Speaking Reading Teacher: Reading Fun, Early Reading.	
PHL 7009	The TI Arcade Game Series: TI Invaders, Car Wars, Tombstone City.	
PHL 7011	The Computer Introductory Package: Household Budget Management, TI Invaders, Multiplication I.	

APPENDIX 5

Representative Listing of 129 Public Bulletin Board Systems Supporting the TI 99/4A Home Computer

City, State	Area Code	Phone Number
Tom's River, New Jersey	201	929-8161
Old Bridge, New Jersey	201	679-0549
Brick, New Jersey	201	477-7263
Elmwood Park, New Jersey	201	794-3175
Florence, Alabama	205	767-5490
Bremerton, Washington	206	377-1845
Lynnwood, Washington	206	784-4142
Portland, Maine	207	797-5690
Philadelphia, Pennsylvania	215	927-6432
Reading, Pennsylvania	215	372-1154
Easton, Pennsylvania	215	258-5235
Reading, Pennsylvania	215	929-5348
Philadelphia, Pennsylvania	215	676-7393
Pittsburgh, Pennsylvania	215	882-3374
Cleveland, Ohio	216	289-7311
Urbana, Illinois	217	384-8173
Champaign, Illinois	217	356-3431
Rome City, Indiana	219	854-4787
Whiting, Indiana	219	659-1245
Baltimore, Maryland	301	477-1624
Hyatsville, D.C.	301	927-7079
Washington, D.C.	301	434-0117
Washington, D.C.	301	681-5065
Baltimore, Maryland	301	882-0887
Newark, Delaware	302	322-3999
Albans, West Virginia	304	727-8436
West Palm, Florida	305	793-8050
Orlando, Florida	305	877-6546
Orlando, Florida	305	889-3687
Orlando, Florida	305	851-8384
Orlando, Florida	305	869-5029
Orlando, Florida	305	894-9641
Pekin, Illinois	309	353-9161

City, State	Area Code	Phone Number
Chicago, Illinois	312	587-1950
Chicago, Illinois	312	562-7670
Chicago, Illinois	312	757-3135
Chicago, Illinois	312	561-7246
Chicago, Illinois	312	766-2797
Chicago, Illinois	312	848-3669
Chicago, Illinois	312	598-5955
Chicago, Illinois	312	966-2342
Roseville, Michigan	313	775-6430
Warren, Michigan	313	751-1119
Hazel Park, Michigan	313	544-0714
Oak Park, Michigan	313	552-0395
Oak Park, Michigan	313	544-7788
Detroit, Michigan	313	288-0530
Troy, Michigan	313	524-0204
Royal Oak, Michigan	313	288-2020
Garden City, Michigan	313	422-7124
Wichita, Kansas	316	681-3167
Indianapolis, Indiana	317	631-994A
Lake Charles, Louisiana	318	474-6144
Cranston, Rhode Island	401	785-0697
Atlanta, Georgia	404	998-7444
Atlanta, Georgia	404	425-5254
Atlanta, Georgia	404	471-1283
Atlanta, Georgia	404	928-4278
Ringold, Georgia	404	935-4054
Atlanta, Georgia	404	487-5181
San Jose, California	408	926-8767
Santa Cruz, California	408	426-1482
San Jose, California	408	226-4740
San Jose, California	408	986-8685
San Jose, California	408	578-6264
Pittsburgh, Pennsylvania	412	854-5575
FondsDuLac, Wisconsin	414	922-5747
Milwaukee, Wisconsin	414	649-TEAM
Appleton, Wisconsin	414	739-5380

City, State	Area Code	Phone Number
Freedom, Wisconsin	414	788-9730
San Fran, California	415	756-7670
Oakland, California	415	444-6362
San Fran, California	415	431-3783
Fremont, California	415	794-8050
San Fran, California	415	364-8517
San Fran, California	415	355-3092
Fremont, California	415	651-4147
San Fran, California	415	658-3159
Daly City, California	415	994-4877
Ontario, Canada	416	265-8956
Toledo, Ohio	419	385-7484
Gresham, Oregon	503	661-0408
Spokane, Washington	509	328-0553
Austin, Texas	512	250-5967
Knoxville, Iowa	515	842-2104
Patchogue, New York	516	475-6463
Long Island, New York	516	783-7296
Long Island, New York	516	781-1762
Albany, New York	518	765-4993
Phoenix, Arizona	602	252-4499
Madison, Wisconsin	608	256-3192
Knoxville, Tennessee	615	691-9558
Knoxville, Tennessee	615	573-2136
Reading, Massachusetts	617	664-5988
Malden, Massachusetts	617	321-8214
Burlington, Massachusetts	617	273-3262
San Diego, California	619	296-9386
San Diego, California	619	282-3525
Fontana, California	619	350-8583
San Diego, California	619	427-6154
Phoenix, Arizona	713	537-0741
Houston, Texas	713	487-5530
Houston, Texas	713	466-0701
Houston, Texas	713	537-0741
Houston, Texas	713	337-4128

City, State	Area Code	Phone Number
Fontana, California	714	350-8583
Brea, California	714	497-8583
N.Tonawonda, New York	716	692-7289
Tonawonda, New York	716	837-6635
Lockport, New York	716	433-6607
Virginia Beach, Virginia	804	486-1484
Lubbock, Texas	806	792-5831
St.Petersburg, Florida	813	526-1265
Tampa Bay, Florida	813	525-7998
St. Petersburg, Florida	813	526-1265
Tampa, Florida	813	677-0718
Bradenton, Florida	813	747-2081
Girard, Pennsylvania	814	774-4620
Joliet, Indiana	815	886-2906
Sheldon, Indiana	815	429-3533
Kansas City, Missouri	816	444-4163
Glendale, California	818	507-6219
Pasadena, California	818	578-0678
Germantown, Tennessee	901	357-5425
Dartmouth, N.S. Canada	902	434-3121
DaytonaBeach, Florida	904	253-2993
Merriam, Kansas	913	831-4111
Middleton, New York	914	343-5076
Rocklin, California	916	624-3328
Raleigh, North Carolina	919	851-8460

APPENDIX 6

Where to Look

What follows is a sort of "who's who" and "where to look" for various support services for the TI 99/4A Home Computer. The list includes commercial concerns, and public (often free) sources of information. It is certainly not comprehensive but, the author has made every effort to check information such as addresses and phone numbers, but cautions the reader that these are subject to change.

===== Hardware =====

Corcomp, Incorporated
1255 North Tustin Ave.
Anaheim, CA 92807
(714) 630-2903

Morning Star
4425 SW 109th Ave.
Beaverton, OR 97005

Foundation Computing
74 Claire Way
Tiburon, CA 94920
(415) 388-3840

Myarc, Inc.
241 Madisonville Road
Basking Ridge, NJ 07920
(201) 766-1700

Millers Graphics
1475 W. Cypress Ave.
San Dimas, CA 91773
(714) 599-1431

===== Software =====

Asgard Software
P.O. Box 10306
Rockville, MD 20850

John T. Dow
6560 Rosemoor St. Suite 12
Pittsburg, PA 15217
(412) 521-9385

Bright Micro Computers
2781 Resor Road
Fairfield, OH 45014

Mechatronic GmbH
Dresdener Strabe 21
D 7032
Sindelfingen, West Germany

CSI Design Group
P.O. Box 50150
St. Louis, MO 63105

Millers Graphics
1475 West Cypress Avenue
San Dimas, CA 91773
(714) 599-1431

Great Lakes Software
804 E. Grand River Avenue
Howell, MI 48843

Navarone Industries
11836 Judd Court
Dallas, TX 75243
(214) 437-1118

Infocom
25 Cambridgepark Drive
Cambridge, MA 02140
(800) 262-6868

Quality 99 Software
1884 Columbia Road #500
Washington, DC 20009
(202) 667-3574

Inscebot, Inc.
P.O. Box 260
Arnold, MD 21012

SST Software
Box 26
Cedarburg, WI 53012
(414) 771-8415

Intelpro
5825 Baillargeon Street
Brossard, Quebec
Canada J4Z 1T1

Thomson Software (D.I.P.)
1461 Beach Street
Muskegon, MI 49441
(616) 726-4602

J & KH Software
2820 S. Abingdon St.
Arlington, VA 22206

Tigercub Software
156 Collingwood Avenue
Columbus, OH 43213
(614) 235-3545

===== Distributors & Dealers =====

99/4A NATIONAL ASSISTANCE
6679 S. W. 41 COURT
DAVIE, FL 33314
(305) 583-0467

BITS AND CHIPS
933 N. 182ND ST.
SEATTLE, WA 98133
(206) 542-1636

9900 USERS GROUP INC.
717 CHATHAM RD.
SOMERDALE, NJ 08083
(609) 435-7301

BOB BOONE
25 OTTAWA ST.
ARNPRIOR, ONTARIO
CANADA K7S 1W7
(613) 623-7841

ALBOS COMPUTERS & SUPPLY
6940 MACON RD.
COLUMBUS, GA 31907
(404) 563-7220

CACTUS CLIFF COMPUTER
BOX 406RC NEW RIVER STAGE
PHOENIX, AZ 85029
(602) 943-3409

ARCADE HARDWARE
211 HORTON ROAD
FALLOWFIELD, MANCHESTER
ENGLAND M14 7QE
061-225-2248

CAPTAINS WHEEL
17295 CHIPPENDALE AVE.
FARMINGTON, MN 55024
(612) 460-6348

B & D COMPUTERS
32 COVINGTON DR.
SHREWSBURY, PA 17361

COMPETITION COMPUTER
2629 W. NATIONAL AVE.
MILWAUKEE, WI 53204
(414) 672-4010

B & M COMPUTER ENTERPRISE
40 FOURTH AVE.
MT. LAWLEY,
WESTERN AUSTRALIA 6050
(09) 271-8642

COMPRO SYSTEMS
4917 GRAFTON RD.
BRUNSWICK, OH 44212
(216) 225-2340

BANEY ELECTRONICS
3429 FULTON ST.
LAUREL DALE, PA 19605

COMPU-PHONE
3066 EL CAJON BLVD.
SAN DIEGO, CA 92104
(619) 282-6678

COMPUTER BUG
5075 CLAIRTON BLVD.
PITTSBURGH, PA 15236
(412) 882-3374

COMPUTER DYNAMICS INC.
426 C AMERHERST
HARRISBURG, PA 17109

COMP-U-WARE
P.O. BOX 91374
LUBBOCK, TX 79413
(806) 792-6184

D.C. ELECTRONICS
5206 KINGSMILL
FRIENDSWOOD, TX 77546
(713) 482-0186

DERRIC ELECTRONICS
1218 WHITNEY AVE.
HAMDEN, CT 06517
(203) 248-7227

DHEIN'S WHOLESALE
7 WEST AIRLINE HWY.
WATERLOO, IA 50703

DISK ONLY SOFTWARE
1041 CARNATION DR.
ROCKVILLE, MD 20850
(301) 340-9617

EDU-COMP
6516 O'HENRY CIRCLE
NORTH RIDGEVILLE, OH 44039
(216) 327-6579

IEC
4150 FOX ST. UNIT A-2
DENVER, CO 80216
(303) 458-5600

IRISH INPUT
4026 ALABAMA ST.#5
SAN DIEGO, CA 92104
(619) 692-4346

L. L. CONNER ENTERPRISES
1521 FERRY ST.
LAFAYETTE, IN 47904

LAKE COMPUTER DEPOT
2139 LAKE AVE
WHITING, IN 46394
(219) 659-5628

M & S COMPUTER SYSTEMS
15918 CAVENDISH DR.
HOUSTON, TX 77059
(713) 486-0224

MICRO STUPH
1456 GRANDVIEW
COLUMBUS, OH 43212
(614) 486-7262

MICRO-COMPUTER DEPOT
COLONY SQUARE
SUMTER, SC 29150
(803) 775-5165

MIKE'S C. P. & SOFTWARE
34 ELM ST.
CUMBERLAND, RI 02864
(401) 727-0262

MRB COMMUNICATIONS
P.O. BOX 8621
CRANSTON, RI 02920
(401) 785-0697

NEW LOGIC OF MICHIGAN INC
32760 VAN DYKE
WARREN, MI 48093
(313) 264-2460

NOVA COMPUTERWARE
52 AIRPORT RD.
EDMONTON, ALBERTA
CANADA T5G 0W7
(403) 452-0372

PILGRIMS PRIDE
219 N. YORK RD.
HATBORO, PA 19040
(215) 441-4262

R K COMPUTER HOUSE
113 GLENGARRY DR.
CORAOPOLIS, PA 15108
(412) 457-8740

RAMSOFT ENTERPRISES
1501 CHAPMAN AVE. #338
FULLERTON, CA 92631
(714) 738-5665

RON WELLS COMPUTER
5523 SAN JOSE
MONTCLAIR, CA 91763
(714) 983-2878

SECURITY BUSINESS MACHINE
6 1/2 BOSTON ST. #4
SEATTLE, WA 98109
(206) 283-0953

SINE WAVE ELECTRONICS
9648 KIEFER
SACRAMENTO, CA 95826
(916) 364-8011

SOUTH JERSEY COMPUTERS
200 NEW JERSEY AVE.
NATIONAL PARK, NJ 08063

SPECIALIST IN
821 MAINSTREET
HOPKINS, MN 55343
(612) 544-6219

SUN SUFFICIENCY, INC.
RD 1 BOX 359-5
KINGSTON, NY 12401
(914) 336-6144

TENEX COMPUTER EXPRESS
P.O. BOX 6578
SOUTH BEND, IN 46660
(219) 259-7051

TEXAMENTS
53 CENTER STREET
PATCHOGUE, NY 11772

T. J. DISCOUNT DISK
P.O. BOX 1324
STERLING HEIGHTS, MI 48311
(313) 826-3529

TI STUFFF
106 ALBA ST.
PORTLAND, ME 04103
(207) 797-2104

TRITON PRODUCTS, INC.
P.O. BOX 8123
SAN FRANCISCO, CA 94128
(800) 227-6900

VALLEY COMPUTERS
613 N. IDLEWILD ST.
KAUKAUNA, WI 54130
(414) 766-3589

UNISOURCE ELECTRONICS, INC.
7006 UNIVERSITY
P.O. BOX 64240
LUBBOCK, TX 79464
(800) 858-4580

===== Repairs =====

Micro-Rep
4413 Cornell Drive
Garland, TX 75042

===== National Organizations =====
(Membership fees required)

99/4A National Assistance Group
Box 290812
Fort Lauderdale, FL 33329
(305) 583-0467

===== National Non-Profit Assistance =====
(Information, Public-Domain Software)

Amnion Helpline
116 Carl Street
San Francisco, CA 94117
(415) 753-5581

99 Users Group Association
3535 South H. Street #93
Bakersfield, CA 93304
(805) 397-4361

===== National Telecommunication Networks =====

Compuserve
5000 Arlington Center Blvd.
P.O. Box 20212
Columbus, OH 43220
(800) 848-8990

The Source
1616 Anderson Road
McLean, Virginia 22102
(800) 336-3330

===== Bulletin Board Software =====

Commercial

TIBBS(tm)
P.O. Box 383
Kennesaw, GA 30144
(404) 425-5254

Caltex Software
P.O. Box 23314
San Jose, CA 95123
(408) 578-6264

Fairware

Techie Bulletin Board
Monty Schmidt
525 Wingra Street
Madison, WI 53714

Scott Darling
W. 5515 Woodside
Spokane, WA 99208

Public Domain

TI-COMM
John Clulow
345 West South Boundary
Perrysburg, OH 43551

Mark Hoogendoorne
21 Long Street
Burlington, MA 01803

===== Publications =====

Micropendium
P.O. Box 1343
Round Rock, TX 78680
(512) 255-1512

Super 99 Monthly
171 Mustang Street
Sulphur, LA 70663
(318) 527-0035

===== Fairware Listing =====

[Note: It is strongly suggested by the author to contact by mail the authors listed below inquiring whether their offerings are still available before sending disk or payment. Further, include a Self-addresses, stamped envelope to ensure a timely reply. While the author has made every effort to provide factual information in this listing, he cannot assume any liability for problems encountered as a result of inadvertent errors.]

MASSCOPY - Disk Copier
Steve Lawless, 2514 Maple Avenue, Wilmington, DE 19808

X_DISASM - Disassembler Utility
Fred Hawkins 1020 North 6th Street, Allentown, PA. 18102

NEATLIST - Programming Utility
SCREENDUMP - Screen Dump to Printer Utility
Danny Michaels, Route 9, Box 460 Florence, AL 35630

THE DIRECTOR - Disk Catalog Database
Ron Rutledge, 1020 3rd Street Waukee, IA 50363

FAST-TERM - Terminal Emulator
Paul Charlton, 1110 Pinehurst Court Charlottesville, VA 22901

ASSAULT THE CITY - Tunnels of Doom Game
John Behnke, 5755 W. Grace, Chicago, IL 60634

EASYSprite - Programming Utility for Sprites
Tom Freeman, 515 Alma Real Dr., Pacific Palisades, CA 90272

DISASSEMBLER - Disassembler Utility
CATLIB - Disk Catalog Database program
Marty Kroll, 218 Kaplan Avenue Pittsburg, PA 15227

CHECKBOOK & BUDGET MANAGER - Household budgeting and finance
John Taylor; available through 99 Users Group Association,
3535 South H. Street #93, Bakersfield, CA 93304

DIRECTOR '99' - Disk Catalog Database Program
Robert Neal & Ed Bert, P.O. Box 216R, Romeoville, IL 60441

PRBase - Database Program
William Warren, 2373 Ironton Street, Aurora, CO 80010

APPENDIX 7

Why TI?

TI has has a broad growth oriented product line, including:

- minicomputers
- terminals
- microcomputers
- software
- printers
- service

TI products are reliable values. The Omin 810 printer for example is so reliable that many companies waive the incoming quality control inspections required for other vendors.

TI has data communications experience you can rely on. TI's own data communications network:

- is the world's largest private network
- links over 32,000 small computers and terminals
- uses 165 mainframe computers
- handles 225,000 electronic mail messages every day

TI has over 200 service facilities staffed by more than 800 TI-trained customer service representatives.

TI equipment is used at more than 300,000 businesses every day.

In fact, it's hard not to buy a TI computer, because TI makes more computer components than any other company.

TI Financial Strength

6 Billion dollars in annual sales.

Number 63 in the Fortune 500.

TI computer division alone would rank in the Fortune 500.

Over 20% compound annual growth rate for the last 40 years.

America's 31st largest employer.

Over 86,000 employees at 50 plants in 18 countries.

TI Technological Strength

TI made the breakthroughs that led to the computer revolution. Some say TI invented the microcomputer.

For example:

1954--First mass produced germanium transistor

1958--First integrated circuit

1961--First all IC computer delivered to US Air Force

1967--First handheld calculator

1970--First microprocessor

1971--First single chip microcomputer

Over 6000 patents by TI inventors.

TI.....

is the world leader in integrated circuit production.

has sold more integrated circuits than any other company.

has produced more handheld calculators than any other company.

has an installed base of over 100,000 minicomputers.

has shipped over one million printers and terminals.

introduced more new products in 1984 than ever before.

TI's computer related RD budget for 1985 is over 600 million dollars.

TI's artificial intelligence research effort is larger than the Japanese MITI "fifth generation" project.

TI is the leader in putting technology to work solving real world problems.

APPENDIX 8

A Brief Annotated Bibliography of Books Relating to the TI 99/4A (from the personal library of Barry A. Traver)

Assembly Language for the TI-99/4A

*Lottrup, Peter M.L. *Beginner's Guide to Assembly Language on the TI-99/4A*. Compute! Books, 1985. Although oriented toward Mini-Memory, this book is excellent for beginners, with very clear explanations and lots of short but useful program examples.

*McComic, Ira. *Learning TI 99/4A Home Computer Assembly Language Programming*. Prentice-Hall, 1984. A good book for beginners who have the Editor/Assembler but no previous experience in assembly language.

*Molesworth, Ralph. *Introduction to Assembly Language for the TI Home Computer*. Steve Davis Publishing, 1983. Primarily for use with the Editor/Assembler, but also can be used with Mini-Memory. Moves faster and further than the McComic book.

*Morley, M.S. *Fundamentals of TI 99/4A Assembly Language*. TAB Books, 1984. A good book for those who have the Mini-Memory Cartridge but not the Editor/Assembler.

BASIC Programs and Programming for the TI 99/4A

Ahl, David H. *The Texas Instruments Home Computer Idea Book*. Creative Computing Press, 1983. "Includes 50 Ready-to-Run Educational Programs," but most of them seem to be written in minimal BASIC and make no use of the special features of the TI 99/4A.

*Carlson, Edward H. Kids and the TI 99/4A. DATAMOST, 1982. This book is truly "not just for kids," but one of the *best* introductions to learning how to program in TI BASIC.

Casciato, Carol Ann, and Don Horsfall. TI 99/4A: 24 BASIC Programs. Howard W. Sams, 1983. Available with optional program cassette. Games, finances, home management, personal records, and utilities are included, all in TI BASIC.

*Compute!'s TI Collection: Volume One. A worthwhile collection of "over 30 TI 99/4A games, applications, utilities, and tutorials -- most never before published," including a word processor, a data base management system, an electronic spreadsheet, several games, helpful programming tricks, and a super graphics program called "SuperFont."

Creative Programming for Young Minds...on the TI-99/4A. Creative Programming, 1982-1983. Several volumes in series. Hands-on instruction in TI BASIC (plus some small later reference to TI Extended BASIC). This series--like Carlson's book--is "not just for kids."

*Davis, Steve, ed. Programs for the TI Home Computer. Steve Davis Publishing, 1983. Four dozen programs that *do* make use of the special features of the TI 99/4A. Most of the programs only require TI BASIC and cassette system, though some make use of TI Extended BASIC, disk system, memory expansion, or Terminal Emulator 2 and speech synthesizer.

D'Ignazio, Fred. TI in Wonderland. Hayden Book Company, 1984. "21 programs for learning and fun," intended for youngsters, by the popular author of Katie and the Computer.

D'Ignazio, Fred. The TI Playground. Hayden Book Company, 1984. "23 programs for learning and fun," intended for young children.

Dusthimer, Dave and Ted Buchholz. The Tool Kit Series: TI-99/4A Edition. Howard W. Sams, 1984. Brief 5- to 15-line subroutines--dealing with color, sound and music, graphics, animation, and computation--that can be combined to form the basis of educational programs and computer games.

Engel, C.W. Stimulating Simulations for the TI 99/4A. Hayden Book Company, 1984. 11 "simulation game programs" in TI BASIC, 2 in TI Extended BASIC, adapted from a popular book first published in 1977.

*Flynn, Brian. 33 Programs for the TI 99/4A. Compute! Books, 1984. Although this book contains a few games, including a version of "Chomp" called "Vanilla Cookie," it is primarily concerned with mathematically-oriented programs, including money management and business programs, curve-fitting routines, matrix manipulations, statistics, and numerical analysis, all in Extended BASIC.

*Flynn, Christopher. Extended BASIC Home Applications on the TI-99/4A. Compute! Books, 1984. An excellent book containing data file management utilities, bar graph programs, an electronic card file, an appointment calendar, and two electronic spreadsheets. Flynn's programs always allow data to be saved on either tape or disk.

*Grillo, John P., and others. Data and File Management for the TI 99/4A. Wm. C. Brown Publishers, 1984. "Includes 48 programs to give the more advanced user techniques for information management." All programs are in TI Extended BASIC, and many make use of disk. Topics included: pointers, sorting, strings, linear and linked lists, sequential access files, direct access files, trees, and inverted files.

Grillo, John P., and others. Introduction to Graphics for the TI 99/4A. Wm. C. Brown, 1984. Includes 38 programs in TI Extended BASIC, some making use of disk, BUT note this comment by the authors: "In this book, we have limited our discussion to low-resolution graphics only. We do not discuss the color, sound, joystick, and lightpen features of this fine machine. We hope to cover these topics in a subsequent book."

Herold, Raymond J. TI 99/4A Sound and Graphics. A fairly good guide to sound, graphics, and speech synthesis on the TI 99/4A (including coverage of TI's text-to-speech diskette). Of the games, "Alphabet Invasion" and "Slot Machine" are done quite well.

Holtz, Frederick. Using Programming the TI 99/4A Including Ready-to-Run Programs. TAB Books, 1983. Although this book is widely distributed, many chapters are either too elementary or too advanced to be of benefit to the average TI 99/4A owner.

Inman, Don, and others. Introduction to TI BASIC. Hayden Book Company, 1980. A straight-forward textbook on TI BASIC which does not go very far beyond the two manuals supplied with the TI 99/4A.

Knight, Timothy Orr. TI 99/4A Graphics and Sounds. Howard W. Sams, 1984. Available with optional program cassette. 37 sample (and simple) TI BASIC programs, originally written for the Commodore 64, most of which are rather trivial in nature.

Knight, Timothy Orr, and Darren LaBatt. TI 99/4A BASIC Programs. Howard W. Sams, 1984. Available with optional program cassette. Although these 30 TI BASIC programs were also originally written for the Commodore 64, they are more substantial than those contained in the other book by Knight.

Kreutner, Donald C. TI 99/4A Favorite Programs Explained. Que Corporation, 1983. 40 practical and entertaining programs in TI BASIC, with explanations.

*Loreto, Remo A., ed. The TI 99/4A in Bits and Bytes. Remo A. Loreto, 1983. A hodge-podge collection, but one containing within it a number of worthwhile programs (some in Extended BASIC) and programming hints.

Peckham, Herbert D. Programming BASIC with the TI Home Computer. McGraw-Hill Book Company, 1979. Another straightforward textbook on TI BASIC, going a bit further than Inman's book.

Regena, C. BASIC Programs for Small Computers. Compute! Publications, 1984. Although this book contains "things to do in 4K or less" for other computers (notably the Vic-20 and TRS-80), it also contains programs in TI BASIC for the TI 99/4A.

Regena, C. Programmer's Reference Guide to the TI 99/4A. Compute! Publications, 1983. Not so much a reference guide as an instruction manual on how to program in TI BASIC, this book contains 48 programs by popular columnist Cheryl Whitelaw (or "Regena" of 99'er and Compute! fame).

Rugg, Tom, and others. 32 BASIC Programs for the TI 99/4A. dilithium Press, 1984. Programs include applications, education, games, graphics display, and mathematics. 30 programs in TI BASIC, 2 in TI Extended BASIC. (The programs can be ordered on disk or cassette.)

Sanders, William B. The Elementary TI 99/4A. DATAMOST, 1983. Contains useful chapters on "Data and Text Files" and "You and Your Printer," topics usually ignored in similar books.

Schechter, Gil M. TI 99/4A: 51 Fun and Educational Programs. Howard W. Sams, 1983. Available with optional program cassette. All programs are in TI BASIC, and all are probably 4K or less in size.

Schreiber, Linda M. and Allen R. The Last Word on the TI 99/4A. TAB Books, 1984. "55 practical and entertaining programs, all written in TI Extended BASIC," perhaps the best of which are "Battleship" and "Towers Game." (Programs are available on tape.)

*Sternberg, Charles D. TI BASIC Computer Programs for the Home. Hayden Book Company, 1984. Programs include automobile, conversion, home finances, kitchen helpmates, list, tutorial, and others, and each program is documented with description, symbol table, and output sample. The book is an adaptation for the TI 99/4A of Sternberg's BASIC Computer Programs for the Home; now if only someone will do an adaptation of his excellent two volumes on BASIC Computer Programs for Business!

Turner, Len. 101 Programming Tips Tricks for the Texas Instruments TI 99/4A Home Computer. ARCsoft Publications, 1983. An unimpressive book carried in many bookstores.

Turner, Len. 36 Texas Instruments TI 99/4A Programs for Home, School Office. ARCsoft, 1983. Many other books on this list contain a much better selection of programs in TI BASIC.

*Winter, Mary Jean. Computer Playground on the TI 99/4A. A colorful collection of TI BASIC computer activities intended for children in grades 2 through 6. Adapted for the TI 99/4A by Marcia Carrozzo.

*Wyatt, Allen. BASIC Tricks for the TI 99/4A. Howard W. Sams, 1984. Available with optional program cassette. A good collection of 28 useful subroutines dealing with selective input, rounding, dollars and cents, report formatting, time and dates, upper and lower cases, sorting, and menus.

*Zaks, Rodnay. Your First TI 99/4A Program. Like anything done by Zaks, this book is clearly written and well done. It is, however, as the title indicates, a book for those who are just beginning to learn "the basics of BASIC."

Games in TI BASIC or TI Extended BASIC

Holtz, Frederick. TI 99/4A Game Programs. TAB Books, 1983. 32 "games, puzzles, and brain teasers" in TI BASIC, with explanations.

*Ingalls, Robert P. TI Games for Kids. Compute! Publications, 1984. An excellent collection of 32 educational game programs in TI BASIC for children ages 2 to 17.

McEvoy, Seth. Creating Arcade Games on the TI 99/4A. Compute! Publications, 1984. With the exception of one chapter devoted to TI Extended BASIC, this book tells "how to" write arcade games in TI BASIC, and includes eight finished games.

*Mullish, Henry, and Don Kruger. Zappers: Having Fun Programming and Playing 23 Games for the TI 99/4A. Simon Schuster, 1984. Many favorites in TI BASIC, including "Blackjack," "Hangman," "Hidden Word Search," "Othello" ("Flip-a-Disk"), "Simon," and "Tic Tac Toe."

*Regena, C. TI Games. Compute! Publications, 1983. About 30 games for the TI 99/4A, mostly in TI BASIC, but including 7 in TI Extended BASIC, including the excellent "Mystery Spell" and "Mosaic Puzzle."

Renko, Hal, and Sam Edwards. Terrific Games for the TI 99/4A. Addison-Wesley Publishing Company, 1983. A mixed bag of 30-some unusual game programs from the Netherlands in TI BASIC and TI Extended BASIC.

*Singer, Scott L., and Tony E. Bartels. Games TIs Play. DATAMOST, 1983. 32 TI BASIC game programs based on the book Games Apples Play by Mark James Capella and Michael D. Weinstock. (Programs are available on disk.)

*Ton, Khoa, and Quyen Ton. Entertainment Games in TI BASIC and Extended BASIC. Howard W. Sams, 1983. Available with optional program cassette. One of the *best* program collections available; "Frogger"-lookalike "HomeBound" is excellent. Book also contains a few non-game programs, e.g., "Address Inventory" and "Auto Sprite Editor."

LOGO Programs and Programming for the TI 99/4A

*Abelson, Harold. TI LOGO. McGraw-Hill Book Company, 1984. If you have TI LOGO II, you already have this excellent book, but if you have TI LOGO (I), get it!

Bearden, Donna. 1, 2, 3, My Computer Me. Prentice-Hall, 1983. Though not just for the TI, this "LOGO funbook for kids" contains an appendix on "editing features for Apple LOGO, MIT LOGO, and TI LOGO."

*Conlan, Jim, and Don Inman. Sprites, A Turtle, and TI LOGO. Prentice-Hall, 1984. "A friendly, playful introduction to the TI LOGO computer language," very well done.

*Programming Discovery in TI LOGO. Texas Instruments, 1982. This attractive "student guide" was used by Texas Instruments with their Computer Advantage Clubs and is very well designed.

Ross, Peter. Introducing LOGO: For the Apple II Computer, Texas Instruments 99/4A, and Tandy Color Computer. Ross comments that "TI LOGO differs from Terrain LOGO and Apple LOGO in several important ways.... The main difference is that TI LOGO has 'sprites' and 'tiles' as well as the turtle." TI LOGO II also has music. Ross's book is useful, but unspectacular.

Thornburg, David D. Computer Art and Animation: A User's Guide to TI 99/4A Color LOGO. Addison-Wesley Publishing Company, 1984. This book is also an introduction to TI LOGO, more general in content than the title might suggest.

*Watt, Daniel. Learning with LOGO. McGraw-Hill, 1983. Although primarily concerned with Terrapin/Krell LOGO and secondarily with TI LOGO, this is one of the best and most comprehensive books on LOGO presently available.

Miscellaneous Books for the TI 99/4A

*The Best of 99'er: Volume 1. Emerald Valley Publishing, 1983. A very worthwhile collection of articles on "Starting Out," "Programming Techniques and Languages," "Inside BASIC and Extended BASIC," "LOGO," "Assembly Language," "Computer-Assisted Instruction," "Computer Gaming," and "Applications and Utilities."

Blackadar, Thomas. The Best of TI 99/4A Cartridges. SYBEX, 1984. As the title indicates, this book only covers some of the cartridges (but, in my opinion, not always the best). Nevertheless, this is one of the few books that has any significant treatment of cartridges for the TI.

Brewer, Bill. The TI 99/4A User's Guide. Macmillan, 1983. How can you not like a book whose cover blurb says this?: "There is only one home computer priced below \$100 that has a microprocessor as powerful as the expensive IBM PC's. And that home computer has more educational cartridges produced for it than for any other system. It's the TI 99/4A, the best computer value for its price on the market today."

*Casciato, Carol Ann, and Donald J. Horsfall. The TI 99/4A User's Guide. Howard W. Sams, 1983. An excellent book, carefully done, by two authors who know the TI 99/4A well.

Garrison, Paul. The Last Whole TI 99/4A Book: Programs and Possibilities. Wiley Press, 1984. Contrary to the promises on the cover, this is not "the only book you need," although it does cover a lot of ground (with a few inaccuracies here and there).

*Heller, David and Dorothy. Free Software for Your TI 99/4A. Although the information is not always entirely accurate, this book contains much information not readily available elsewhere.

Micronova's Home Computer Directory for the TI 99/4(A). Micronova, 1983. A very useful book when it first appeared, although some of the information is now significantly dated.

The User's Guide to Texas Instruments TI 99/4A Computer, Software, Peripherals. Beckman House, 1983. A useful guide "by the editors of Consumer Guide," this book has appeared in several different formats.

Willis, Jerry, and others. Things to Do with Your TI 99/4A Computer. New American Library, 1983. Part of a series prepared by dilithium Press, this book is fairly competent as an outside look, but unimpressive.

*Especially recommended.

This list (prepared by Barry Traver, 835 Green Valley Drive, Philadelphia, PA 19128) is not complete, but should prove useful to those who are interested in knowing more about some of the books that are available for the TI 99/4A.

APPENDIX 9

Users Groups - Listed in Country, Zip Order

Australia

HUNTER VALLEY 99'ERS
35 BAYVIEW ST.
WARNERS BAY, NSW
AUSTRALIA 2282

TI 99/4A MELBOURNE U.G.
52 CLENDON RD.
TOORAK, MELBOURNE
AUSTRALIA 3142

MELBOURNE INTERIM COORD.
42 PALM TREE AVE.
SCARBOROUGH, OLD
AUSTRALIA 4020

PERTH INTERIM COORDINATOR
P.O. BOX 246
MT. LAWLEY, WESTERN
AUSTRALIA 6014

TASMANIAN T.I. USER GROUP
7 TARANA ROAD
BLACKMAN'S BAY, TASMANIA
AUSTRALIA 7152

Austria

TI 99 JOURNAL
STUMPERGASSE 14.
A-1060 VIENNA
AUSTRIA

Belgium

TEXSOFT CLUB
PB 3 B 3101 HALLAAR

BELGIUM

TI 99/4A GEBRUIKERSCLUB
BROEKESTRAAT 63
B-9670 HOREBEKE
BELGIUM

Canada

RYTE DATA
BOX 210 MOUNTAIN ST.
HALIBURTON, ONTARIO
CANADA

TI NOVA SCOTIA
28 SAVONA COURT
DARTMOUTH, NS
CANADA B2W 4R1

TI U.G. S.E. NEW BRUNSWICK
139 DUFFERIN ST.
MONCTON, NEW BRUNSWICK
CANADA E1C 1Z2

TI FREDRICKTON N. B.
170 CANTERBURY DR.
FREDRICKTON, N.B.
CANADA E3B 4L9

CLUB GOTIQ
3291 RUE HAMELIN
STE-FOY, QUEBEC
CANADA G1W 2X1

CLUB TIPS
11680 ST. REAL
MONTREAL, QUEBEC
CANADA H3M 2Y4

MONTREAL TI 99/4A USERS
5290 WEST BROADWAY
MONTREAL, QUEBEC
CANADA H4V 2A2

CLUB INFO. MONTREAL 99
53 WHITE OAK RD.
DOLLARD DES ORMEAUX, QUEBEC
CANADA H9B 1K2

LE CLUB D'INFORMATIQUE
C.P. 695
OKA, QUEBEC
CANADA JON 1E0

SHER-TI
422 7E AVE SUD
SHERBROOKE, QUEBEC
CANADA J1G 2N2

THE OTTAWA TI 99/4A U.G.
25 OTTAWA ST.
ARNPRIOR, ONTARIO
CANADA K7S 1W7

KAWARTHA 99'ERS
45-30 CHAMPLAIN CRES.
PETERBOROUGH, ONTARIO
CANADA K9L 1T1

NIAGARA REGION TI U. G.
76 PRINCE CHARLES DR.
ST. CATHERINES, ONTARIO
CANADA L2N 3Z1

9-T-9 USERS GROUP
3753 TEESWATER RD.
MISSISSAUGA, ONTARIO
CANADA L4T 2A5

TORONTO 99'ERS
3175 KIRWIN AVE. #159
MISSISSAUGA, ONTARIO
CANADA L5A 3M4

9T9 USERS GROUP TORONTO
33 LADYKIRK AVE.
TORONTO, ONTARIO
CANADA M4L 3K8

FREDERICTON AREA U.G.
170 CANTERBURY DR.
FREDERICTON, NB
CANADA N3B 4Z4

99/4A USERS OF CANADA
435 CARADOC ST. S.
STRATHROY, ONTARIO
CANADA N7G 2P8

WESTIG
2774 SIERRA DR.
WINDSOR, ONTARIO
CANADA N9E 2Y7

SUDBURY 99'ERS
2530 IDA ST.
SUDBURY, ONTARIO
CANADA P3E 4X1

WINNIPEG 99/4 USER GROUP
1105 CHURCH AVE.
WINNIPEG, MANITOBA
CANADA R2X 1G1

RND 99'ERS
74 COOPER CRESCENT
REGINA, SASKATCHEWAN
CANADA S4R 4J7

SASKATOON 99'ERS
407-2010 22ND ST.
SASKATOON, SASKATCHEWAN
CANADA S7M 0V1

EDMONTON 99'ERS
P.O.BOX 11983
EDMONTON, ALBERTA
CANADA T5J 3L1

VICTORIA 99'ERS
2602 PEATT RD.
VICTORIA, B.C.
CANADA V9B 3T8

NANAIMO 99'ER USERS CLUB
2666 STARLITE TR.
NANAIMO, B. C.
CANADA V9T 3S7

VANCOUVER U. G.
5825 MAYVIEW CIRCLE
BURNABY, B.C.
CANADA Z5E 4B7

South America

ASOCIACION COLOMBIANA
AVE. NUTIVARA #C 3-6
MEDELLIN
COLOMBIA S.A.

Denmark

TI-FORTH USER GROUP
AEGIRSGADE 23
2200 KOBENHAVN N.
DENMARK

England

T.I. HOME
157 BISHOPFORD ROAD
MORDEN SURRY
ENGLAND SM46BH

Singapore

TIES OF SINGAPORE
P.O. BOX 698 TIONG BAHRU
SINGAPORE 9116

Sweden

PROGRAMBITEN
WAHLBERGSGATAN 6
S-121 46 JOHANNESHV
SWEDEN

Massachusetts

PIONEER VALLEY 99/4 U.G.
3 MARKET STREET
NORTHAMPTON, MA 01060

PERSONAL COMPUTER U.G.
P.O. BOX 782
WESTBOROUGH, MA 01581

MAGNETIC
57 RIVER RD.
ANDOVER, MA 01810

MIT LINCOLN LAB. 99/4A UG
244 WOOD ST.
LEXINGTON, MA 02173

NEW ENGLAND 99'ERS
99 SCHOOL STREET
WESTON, MA 02193

SWEC-PCC TI USERS GROUP
850 TEMPLE ST. RR#4
DUXBURY, MA 02332

CLUB 99 COMPUTER BUGS
TEXAS INSTRUMENTS INC.
ATTLEBORO, MA 02703

Rhode Island

TRI-STATE USERS' GROUP
P.O. BOX 457
LINCOLN, RI 02864

NORTH EASTERN 99'ERS UG.
76 HERSCHEL ST.
PROVIDENCE, RI 02909

New Hampshire

NEW HAMPSHIRE 99'ERS U.G.
P.O. BOX 5991
MANCHESTER, NH 03108-5991

Maine

GREATER SANFORD U.G.
RFD 1 BOX 275
SPRINGVALE, ME 04083

Connecticut

THE NUTMEG NINETY NINERS
139 GRASSY HILL RD.
WATERBURY, CT 06704

New Jersey

SK 99 USERS' GROUP
180 HALEDON AVE.
PROSPECT PARK, NJ 07508

CENTRAL JERSEY 99/4A U.G.
16 FEATHERTREE CT.
HOWELL, NJ 07731

THE 9900 USERS GROUP INC
P.O. BOX K
MOORESTOWN, NJ 08057

CENTRAL GARDEN STATE UG
91 BENNINGTON DR.
EAST WINDSOR, NJ 08520

NEW JERSEY USERS GROUP
49 PINE GROVE AVE.
SOMERSET, NJ 08873

New York

AMERICAN EXPRESS INT.
DEPT 204
/ APO NEW YORK 09757

THE NEW YORK TIMES U.G.
229 WEST 43RD ST.
NEW YORK, NEW YORK 10036

NEW YORK 99/4 U.G.
34 MAPLE AVE. BOX 8
ARMONK, NY 10504

CENTRAL WESTCHESTER 99'ER
382 FT. WASHINGTON AVE.
HAWTHORNE, NY 10532

THE HONEWELL USERS GROUP
1615 NORTHERN BLVD. #201
MANHASSET, NY 11030

BEDFORD-STUYVESANT CLUB
790 PUTNAM AVE.
BROOKLYN, NY 11221

QUEENSBOROUGH C.C. 99'ER
56TH AVE. & SPRINGFIELD
BAYSIDE, NY 11364

LONG ISLAND 99'ER U.G.
P.O. BOX 544
DEER PARK, NY 11729

UPSTATE NEW YORK 99/4A UG
P.O. BOX 13522
ALBANY, NY 12212

MID-HUDSON 99/4A U.G.
RD 1 BOX 359-5
KINGSTON, NY 12401

SMUG TI USERS GROUP
KIRKWOOD DEPT 444 MS/619
BINGHAMTON, NY 13902

BULLDOG 99'ER
1132 BONCLIFF DR.
ALDEN, NY 14004

WESTERN NEW YORK 99'ERS
298 BRENTWOOD DR.
N. TONAWANDA, NY 14120

SIERRA HOME COMPUTER CLUB
P.O. BOX 222
BUFFALO, NY 14225

R. G. & E. 99ERS
71 FINNEGAN WAY
HENRIETTA, NY 14620

CHAUTAUQUA COUNTY U.G.
2209 BIG TREE ROAD
LAKEWOOD, NY 14750

TWIN TI ERS USERS GROUP
ROCK STREAM, NY 14878

Pennsylvania

PRIVATE CLUB U.S. AIRLINE
RD 1 213 A
CLINTON, PA 15026

AIRPORT AREA COMPUT. CLUB
P.O. BOX 710
CORAPOLIS, PA 15108

PITTSBURGH USERS' GROUP
P.O. BOX 18124
PITTSBURGH, PA 15236

GRANT AVE COMPUTER CLUB
P.O. BOX 1510
BUTLER, PA 16003

MEADVILLE AREA COMPUT. UG
RD. #1 BOX 274
MEADVILLE, PA 16335

ERIE 99'ER USERS GROUP
2812 W. 33RD ST.
ERIE, PA 16506

CENTRAL PA 99/4A U.G.
P.O. BOX 14126
HARRISBURG, PA 17104

SUSQUEHANNA VALLEY U.G.
R. D. #5 ABOX 145
DANVILLE, PA 17821

LEHIGH USERS GROUP
P.O. BOX 4837
ALLENTOWN, PA 18103

HAZELTON 99/4 U.G.
P.O. BOX 285
HAZELTON, PA 18201

PHILADELPHIA 99ER U.G.
552 SEVILLE ST.
PHILADELPHIA, PA 19128

FT. WASHINGTON U.G.
3730 LYNFORD ST.
PHILADELPHIA, PA 19149

Delaware

DELAWARE VALLEY U.G.
P.O. BOX 6240
WILMINGTON, DE 19804

KENT COUNTY 99/4A U.G.
BOX 354 ANDREWS LAKE
FELTON, DE 19943

Maryland

SEVERNA PARK 99/4A U.G.
27 WHITTIER PARKWAY
SEVERNA PARK, MD 21146

BALTIMORE USERS' GROUP
5504 FORGE RD.
WHITE MARSH, MD 21162

Virginia

WASHINGTON DC AREA TI U.G
BOX 267
LEESBURG, VA 22075

TIDEWATER 99/4A U.G.
942 BOLLING AVE. #106
NORFOLK, VA 23501

ROANOKE VALLEY 99ER UG
934 DOMINION LANE
SALEM, VA 24153

SOUTHSIDE 99/4A COMPUTER
356 NORWOOD DR.
DANVILLE, VA 24540

West Virginia

TRI-STATE USERS GROUP
RT. 1 BOX 44B
SALT ROCK, WV 25559

North Carolina

THE FORSYTH 99ER U.G.
4801 SELWYN DRIVE
WINSTON-SALEM, NC 27104

CAROLINA 99/4A U.G.
8467 SOUTHARD ROAD
STOKESDALE, NC 27357

GUILFORD 99'ER USERS
P.O. BOX 21691
GREENSBORO, NC 27407

BITS AND BYTES USER GROUP
139 VANCE ST.
ROANOKE RAPIDS, NC 27870

CHARLOTTE TI99 U. G.
3454 WASHBURN AVE.
CHARLOTTE, NC 28205-7027

THE PIEDMONT 99ER U.G.
316 REYNOLDS DR.
STATESVILLE, NC 28677

South Carolina

CAROLINA COMPUTER CLUB
225 WYNCHWOOD DR.
IRMO, SC 29063

SUMTER COMPUTER 99'ERS
875 BAY BLOSSOM AVE.
SUMTER, SC 29150

MIDLANDS 99'ERS
P.O. BOX 7586
COLUMBIA, SC 29202

CAROL PATE
7921 CAUGHMAN RD.
COLUMBIA, SC 29209

CHARLESTON TI USER GROUP
4918 FRANCE AVE.
NORTH CHARLESTON, SC 29406

PIEDMONT 99'ERS U.G.
P.O. BOX 5921
GREENVILLE, SC 29606

Georgia

ATLANTA 99/4A COMPUTER UG
P.O. BOX 19841
ATLANTA, GA 30325

GEORGIA 99/4A U.G.
P.O. BOX 88464
DUNWOODY, GA 30356

SAVANNAH COMPUTER U.G.
128 JACQUELYN DR.
SAVANNAH, GA 31406

GOTO USERS GROUP
P.O. BOX 12081
COLUMBUS, GA 31907

Florida

DAYTONA 99ERS
P.O. BOX 4594
S. DAYTONA, FL 32021

WEST JAX 99'ERS
P.O. BOX 176
ORANGE PARK, FL 32043

ACTI-FORTH & 99/4A U.G.
321 RIBAUT ST.
ST. AUGUSTINE, FL 32086

TALLAHASSEE 99ERS
2600 MICCOUKEE RD. #1202
TALLAHASSEE, FL 32308

NORTHWEST FLORIDA 99ER UG
3256 LAS BRISAS COURT
PENSACOLA, FL 32506

GREATER ORLANDO 99ER UG
P.O. BOX 1381
MAITLAND, FL 32751

BREVARD USERS GROUP (BUG)
P.O. BOX 1402
PALM BAY, FL 32906-1402

SPACE COAST 99ERS
1180 SHADY LANE
MERRITT ISLANDS, FL 32952

SOUTH FLORIDA 99 U.G.
433 WRIGHT DRIVE
LAKE WORTH, FL 33461

CITY OF CLEARWATER U.G.
P.O. BOX 3021
SEMINOLE, FL 33542

TAMPA BAY 99ER U.G.
13097 LOIS AVE.
SEMINOLE, FL 33542

M.I.T. LINCOLN LAB U.G.
8820 90 WAY NORTH
SEMINOLE, FL 33543

PINELLAS PENINSULA 99/4A
5060 86TH AVE. N.
PINELLAS PARK, FL 33565

MANASOTA 99 USERS' GROUP
6625 ROXBURY DRIVE
SARASOTA, FL 33581

SUNCOAST 99'ERS
945 MONTOCELLO BLVD. N.
ST. PETERSBURG, FL 33703

Alabama

CAHANA HEIGHTS UG
124 HUNTERS POINT CIRCLE
BESSENER, AL 35023

TIBUG
9032 BEL AIR DR.
BIRMINGHAM, AL 35206

BAMA 99'ERS
P.O. BOX 1307
TUSCALOOSA, AL 35403

JASPER 99/4A USERS' GROUP
1F NORTHWOOD TOWNHOMES
JASPER, AL 35501

SHOALS 99'ERS
1701 BROWN ST.
MUSCLE SHOALS, AL 35661

NORTH AL (TI) 99 U.G.
P.O. BOX 11204
HUNTSVILLE, AL 35814

GADSDEN AREA TI U. G.
3334 WILSON AVE.
GADSDEN, AL 35901

CENTRAL ALABAMA 99/4A UG
551 LARKWOOD DRIVE
MONTGOMERY, AL 36109

WIREGRASS 99 USERS' GROUP
106 HARWOOD PLACE
ENTERPRISE, AL 36330

S.M.A.U.G.
RT. 2 BOX 169-B
GRAND BAY, AL 36541

99/4A USERS GROUP-MOBILE
8066 OAK BEND DR.
THEODORE, AL 36582

Tennessee

MUSIC CITY 99'ERS
P.O. BOX 4072
MADISON, TN 37116

ATHENS 99/4 COMPUTER U.G.
2215 CONGRESS PARKWAY
ATHENS, TN 37303

MIDDLE TENNESSEE U.G.
P.O. BOX 367
ESTILL SPRINGS, TN 37330

K-TOWN 99/4A USERS GROUP
3506 GARDEN DR.
KNOXVILLE, TN 37918

MID-SOUTH 99 USER GROUP
P.O. BOX 38522
GERMANTOWN, TN 38183-0522

Mississippi

METRO-JACKSON MICRO USERS
551 ELMWOOD DR.
BRANDON, MS 39042

Kentucky

KENTUCKIANA 99/4 U.G.
9801 TIVERTON WAY
LOUISVILLE, KY 40222

THE BLUEGRASS AREA U.G.
2210 BURTON PIKE
GEORGETOWN, KY 40324

BLUEGRASS 99/4 COMPUTER
P. O. BOX 11866
LEXINGTON, KY 40578-1866

Ohio

MIAMI TRACE CHEM CLUB
3722 SR 41 N. W.
WASHINGTON CH, OH 43160

C.O.N.N.I.
1456 GRANDMIN AVE.
COLUMBUS, OH 43212

NEW HORIZONS USERS GROUP
5 MOUNT VERNON DR.
WATERVILLE, OH 43566

OH-MI 99ERS COMPUTER CLUB
1522 RESWICK DR.
OREGON, OH 43616

CLEVELAND AREA 99/4A U.G.
13771 OAKBROOK DR. #206
NORTH ROYALTON, OH 44133

SUMMITT 99'ER USERS GROUP
807 WASHINGTON AVE.
CUYAHOGA FALLS, OH 44221

ECO 99ER USERS GROUP
P.O. BOX 1601.
E. CANTON, OH 44730

BUCKEYE 99ER
2424 MANSFIELD LUCAS RD.
MANSFIELD, OH 44903

CIN-DAY USER GROUP
P.O. BOX 519
WEST CHESTER, OH 45069-0519

GREATER DAYTON 99'ERS
BOX 248
ENGLEWOOD, OH 45322

Indiana

ANDERSON 99ER USERS GROUP
RT. 2 BOX 374A
PENDLETON, IN 46046

HOOSIER U. G. (HUGgers)
P.O. BOX 2222
INDIANAPOLIS, IN 46206-2222

THE MICHIANA 99/4A U.G.
911 DOVER DR.
SOUTH BEND, IN 46614

MIAMI COUNTY AREA 99/4A
P.O. BOX 1194
PERU, IN 46970

Michigan

LOWER MICHIGAN 99/4A U.G.
18659 LUCY
ALLEN PARK, MI 48101

FORD EMPLOYEES H/C U.G.
P.O. BOX 152
DEARBORN, MI 48126

HOME COMPUTER CLUB
41599 SIMCOE
CANTON TOWNSHIP, MI 48188

TI-99 CENTRAL MICHIGAN UG
1970 KIBBY RD.
JACKSON, MI 49203

MUSKEGON 99ERS U.G.
1621 MOULTON AVE. NORTH
MUSKEGON, MI 49445

GRAND RAPIDS 99'ER U.G.
P.O. BOX 1649
GRAND RAPIDS, MI 49501

Iowa

CENTRAL IOWA 99/4A U.G.
P.O. BOX 3040
DES MOINES, IA 50316

NORTHWEST IOWA U.G.
1421 DELTA DRIVE
CEDAR FALLS, IA 50613

QUAD CITIES COMPUTER CLUB
P.O. BOX 1124
BETTENDORF, IA 52722

Wisconsin

ROCK 99 COMPUTER CLUB
N2425 CHAPEL DR.
WHITEWATER, WI 53190

J. C. PENNEY 99ER UG
11800 W. BURLEIGH ST.
WAUWATOSA, WI 53225

LONESTAR COMPUTERS
1924 MICHIGAN
RACINE, WI 53402

THE MADAREA 99ERS
944 BURR OAK LANE
MADISON, WI 53713

WISCONSIN 99'ER COMPUTER
P.O. BOX 1031
FOND DU LAC, WI 54035

GREEN BAY 99ERS UG
301 N. WASHINGTON
GREENBAY, WI 54303

FOX CITIES USERS GROUP
P.O. BOX 2277
APPLETON, WI 54913

Minnesota

MSP 99 USERS GROUP
P.O. BOX 12351
ST. PAUL, MN 55112

South Dakota

SIOUXLAND 99'ERS
4604 BLUESTEM CIRCLE
SIOUX FALLS, SD 57106

North Dakota

MAD HUGERS
1604 A "J" ST.
GRAND FORKS AFB, ND 58205

Montana

BIG SKY 99ERS COMPUTER UG
P.O. BOX 1044
GREAT FALLS, MT 59403

LAST CHANCE 99ERS
566 HIGHLAND
HELENA, MT 59601

Illinois

99/4A OWNERS USERS GROUP
8602 DORR ROAD
WONDER LAKE, IL 60097

CHICAGO 99/4A USERS GROUP
20 N. CLARK ST. SUITE 808
CHICAGO, IL 60602

WINDY CITY 99 CLUB
640 N. LASALLE ST. #280
CHICAGO, IL 60610

K*3 USERS GROUP
RT. 2 BOX 203
MOMENCE, IL 60954

EAST CENTRAL ILLINOIS 99
3701 TUTTLE
DANVILLE, IL 61832

DECATUR 99'ER HOME U.G.
P.O. BOX 726
DECATUR, IL 62525

LINCOLNLAND 99ER U.G.
P.O. BOX 1434
SPRINGFIELD, IL 62705

Missouri

99/4A U.G. OF ST. LOUIS
271 OAK PASS COURT
BALLWIN, MO 63011

MC DONNELL DOUGLAS U.G.
4126 90TH AVE.
FLORISSANT, MO 63034

ST. LOUIS 99ERS
6112 STAELY AVE.
ST. LOUIS, MO 63123-3463

JACKSON COUNTY 99ERS
3012 CANTERBURY
BLUE SPRING, MO 64015

LIGHTYEARS 99'ERS
1581 N. W. 65TH TERR
KANSAS CITY, MO 64116

CENTRAL MISSOURI 99/4A CC
738 GLENDALE DR.
JEFFERSON CITY, MO 65101

OZARK 99'ER USER GROUP
2956 SOUTH BARNES
SPRINGFIELD, MO 65804

Kansas

MID AMERICA 99/4 U.G.
P.O. BOX 2505
SHAWNEE MISSION, KS 66201

Nebraska

OMAHA USER GROUP FOR 99/4
4412 HICKORY ST.
OMAHA, NE 68105

CROSS ROADS 99'ER U.G.
511 IOWA STREET
YORK, NE 68467

LINCOLN 99'ER USERS GROUP
5810 ELKCREST DRIVE
LINCOLN, NE 68516

Louisiana

BAYOU 99 USERS GROUP
P.O. BOX 921
LAKE CHARLES, LA 70602

Arkansas

SALINE 99'ER U.G.
422 S. MAIN
DENTON, AR 72015

JACKSONVILLE USERS GROUP
P.O. BOX 525
JACKSONVILLE, AR 72076

ARTIC K-BYTERS
RT. 1 BOX 69
VAN BUREN, AR 72956

Oklahoma

SOONER 99'ERS
2925 N. ROBINSON
OKLAHOMA CITY, OK 73103

Texas

FOREST LANE UG
925 ALAMO
GARLAND, TX 75040

DALLAS TI HOME COMPUTER
1221 MOSSWOOD
IRVING, TX 75061

LEWISVILLE USERS GROUP
P.O. BOX 405 MS/3405
LEWISVILLE, TX 75067

YOUNG PEOPLES LOGO ASSOC
1208 HILLSDALE DRIVE
RICHARDSON, TX 75081

EXPRESSWAY H/C U.G.
13510 CENTRAL EXPRESSWAY
DALLAS, TX 75266

NET 99 ER (HCUG)
P.O. BOX 534
HURST, TX 76053

HOUSTON USERS GROUP (HUG)
18103 BAMBRIDGE
HOUSTON, TX 77090

S.C. USERS' GROUP
2321 CORYELL ST.
LEAGUE CITY, TX 77573

TRIANGLE 99ERS
P.O. BOX 5920
BEAUMONT, TX 77706

SAN ANTONIO AREA 99ERS
P.O. BOX 2509
UNIVERSAL CITY, TX 78148

THE GREATER RANDOLPH 99ER
P.O. BOX 721
RANDOLPH AFB, TX 78148

CORPUS CHRISTI 99ERS
3602 BRAEBURN
CORPUS CHRISTI, TX 78415

CENTRAL TEXAS 99/4A USERS
P.O. BOX 200246
AUSTIN, TX 78720-0246

AMARILLO 99/4A UG
1615 LAWSON LANE
AMARILLO, TX 79106

LUBBOCK COMPUTER CLUB
RT. 14 BOX 1212
LUBBOCK, TX 79416

WEST TEXAS 99/4 U.G.
P.O. BOX 6448 M/S 3030
MIDLAND, TX 79701

Colorado

COLORADO 99/4 USERS GROUP
BOX 3400
LITTLETON, CO 80161

BOULDER 99/4A USERS GROUP
7129 MT. MEEKER RD.
LONGMOUNT, CO 80501

FRONT RANGE 99'ER U.G.
P.O. BOX 9572
COLORADO SPRINGS, CO 80932

Wyoming

MAX COMPUTER CLUB
P.O. BOX 400-12504
RAWLINS, WY 82301

Idaho

BOISE 99'ERS COMPUTER
1331 COLORADO AVE.
BOISE, IA 83706

Utah

NATIONAL 99ERS CLUB
3333 WEST 9000 SOUTH
WEST JORDON, UT 84084

SLAVE USER'S GROUP
3892 SO. 3760 W.
WEST VALLEY, UT 84120

Arizona

ARIZONA 99 UERS' GROUP
4328 E. LA PUENTA AVE.
PHOENIX, AZ 85044

YUMA 99'ER USERS' GROUP
1573 E. KUNS COURT
YUMA, AZ 85365

THE COCHISE 99ER UG
172 JAMES DR. NE
SIERRA VISTA, AZ 85635

SOUTHWEST NINETY-NINERS
P.O. BOX 17831
TUCSON, AZ 85730

New Mexico

BERNALILLO 99/4A H/C U.G.
2008 LEAD AVE. S.E.
ALBUQUERQUE, NM 87106

MISSILE RANGE 99'ERS
2718 TOPLEY AVE.
LAS CRUCES, NM 88005

Nevada

SO. NEVADA UG (S.N.U.G.)
P.O. BOX 26301
LAS VEGAS, NV 89126-0301

NORTHERN NEVADA 99'ERS
1345 AKARD DR.
RENO, NV 89503

California

L.A. 99'ERS COMPUTER UG
P.O. BOX 3547
GARDENA, CA 90247-7247

NRC COMPUTER USERS GROUP
2301 W. 120TH ST.
HAWTHORNE, CA 90250

SAN FERNANDO VALLEY U.G
P.O. BOX 1844
CANYON COUNTRY, CA 91351

TRI-VALLEY 99ERS
633 HOLLYBURNE LANE
THOUSAND OAKS, CA 91360

CLUB 99
1877 E. FARLAND ST.
COVINA, CA 91724

POMONA VALLEY COMPUTER
1833 E. PRINCETON ST.
ONTARIO, CA 91764

SAN GABRIEL VALLEY U.G.
1008 DORE ST.
WEST COVINA, CA 91792

SOUTHERN CA COMPUTER U.G.
P.O. BOX 21181
EL CAJON, CA 92021

SDCS TI-SIG
P.O. BOX 83821
SAN DIEGO, CA 92138

TI RIVERSIDE U.G.
3523 MC KINLEY
RIVERSIDE, CA 92506

BREA 99'ERS USERS GROUP
635 SO. ORANGE AVE.
BREA, CA 92621

EL TORO USERS GROUP
P.O. BOX 2752
COSTA MESA, CA 92628

USERS GROUP OF ORANGE CO.
17301 SANTA ISABEL ST.
FOUNTAIN VALLEY, CA 92708

T.I.C.O. (TI CLUB OXNARD)
3183 KELP LANE
OXNARD, CA 93030

KINGS 99/4A USERS' GROUP
299 W. BIRCH
HANFORD, CA 93230

BECHTEL EMPLOYEES U.G.
45/16/D5
SAN FRANCISCO, CA 94119

SAN FRANCISCO 99ERS
STUDIO 311 1255 NOVATO
NOVATO, CA 94947

S.F./SOUTH BAY 99ER U.G.
16380 E. LA CHIQUITA
LOS GATOS, CA 95030

GOLDEN GATE COMPUTER U.G.
3617 GUERNEVILLE RD.
SANTA ROSA, CA 95401

CENTRAL VALLEY U.G.
2419 CLEMSON DR.
DAVIS, CA 95616

RANCHO SECO 99/4A H/C UG
11440 HIGHWAY 104
HERALD, CA 95638

SACRAMENTO 99 U.G. (SNUG)
6121 GILMAN WAY
NORTH HIGHLANDS, CA 95660

Hawaii

ALOHA 99/4A COMPUTER U.G.
92-865 PALAILAI ST.
MAKAKILO, HI 96707

Oregon

PORTLAND USERS OF 99'S
P.O. BOX 15037
PORTLAND, OR 97202

SALEM OREGON 99ER
4981 JONES ROAD SE
SALEM, OR 97302

WILLAMETTE VALLEY 99/4 UG
740 S. E. PARK AVE.
CORVALLIS, OR 97333

EUGENE 99/4A USERS GROUP
P.O. BOX 11313
EUGENE, OR 97440

Washington

PUGET SOUND 99ERS
P.O. BOX 6073
LYNNWOOD, WA 98036

KITSAP 99ER UG
2482 FIRCREST DR. SE.
PORT ORCHARD, WA 98366

EASTSIDE 99'ERS
P.O. BOX 42383
TACOMA, WA 98442

WESTERN WASHINGTON C/C
4802 DELORES DR. NE
OLYMPIA, WA 98506

NINETY-NINERS OF VANCOUVER
100 NE 94TH ST.
VANCOUVER, WA 98665

PORTLAND USERS OF 99'S
421 NORTHWEST 69TH ST.
VANCOUVER, WA 98665

N.O.V.A. 99'ERS VANCOUVER
P.O. BOX 508
VANCOUVER, WA 98666

TRI CITIES 99ER COMPUTER
2011 WEST FALLS AVE.
KENNEWICK, WA 99336

APPENDIX 10

Home Computer Magazine's Letter to the Users Groups

Home Computer Magazine
September 11, 1984

Dear User Group Members:

Here at Home Computer Magazine we have noticed some unfair "speculative muckraking" in a few TI user group newsletters regarding the changes we announced in a recent press release. For those who have chosen not to accept our reasons for changing our magazine format, the message from the publisher (reprint enclosed) in September's Home Computer Magazine and Home Computer Digest (copies enclosed) further clarify our magazine's coming improvements, Please take a moment to read them.

We understand the anxiety many of you must have felt when you incorrectly heard that our support for your machine was being revoked. Rumors about some kind of "grand plan" to phase out first TI 99/4A advertising and then TI-related articles are simply not true. In fact, concern for supporting our TI subscribers and advertisers played a major part in the changes we effected. For example:

- Our TI readership is booming and on the increase; it would be an absurd business decision to reduce coverage of the TI 99/4A.

- The strong support of our TI subscriber base and TI-related newsstand sales will allow the magazine to survive without advertising and all the negative side effects it breeds. This will increase the quality of the magazine for all of our readers.

- Nine times a year, Home Computer Digest will provide an efficient, inexpensive medium for advertisers of TI products to reach you, their targeted market. Because of the Digest's smaller format and more-limited distribution, the cost per ad page is far below the price an ad page used to

be in our magazine - thus effectively lowering the entry barrier (as low as \$100) to new advertisers.

- We now require all advertisers to pay cash up-front before publication of their ad. This helps us feel more comfortable about the financial viability of a company. In the past, we have found a high correlation between advertisers who did not pay their bills and advertisers who did not deliver what was promised to consumers.

The staff at Home Computer Magazine is proud of the fact that we are currently the only international publication with any real substance supporting the TI 99/4A. We make sure that there are at least as many pieces of quality TI software and reviews published in each issue of the current magazine as there were when we covered only the TI market.

In addition to hurting the feelings of our dedicated magazine staff, the recent flurry of negative newsletter press and rumor-mongering spreads the bad feelings among other user groups. To keep your user group base strong and vital, it is important that you stress positive issues and ideas. Otherwise, users will become discouraged and switch to other machines, or give up on computing altogether - a situation that would inevitably lead to the demise of many user groups. And nobody wants to see that happen.

APPENDIX 11

Portrait of One Super Group

[What follows is the remembrances of Dave Wakely, former president of the Chicago Area TI Users Group. Dave has been active in this phenomenal group almost since its inception and shares some candid observation about the group, its members and the TI community as a whole. The author sincerely appreciates Mr. Wakely's candor and obvious knowledge and fondness for the subject matter - The Chicago Area 99/4A Users Group.]

Dave Wakely, a Clinical Psychologist at Chicago's West Side Veterans Administration Hospital, purchased a TI from Computerland in January, 1981, and, soon after, began receiving newsletters from Texas Instruments. In one of the TI newsletters, there was a list of just-organized TI users groups, including the address of Jerry Strauss; the original president of the Chicago group. Strauss, a real-estate attorney, had formed the group in the early fall of 1980 and was one of the very first to contact TI about starting a users group. Wakely attended his first meeting in September of 1981 and marveled at the first demonstration of the new Extended Basic module given by Sam Pincus. Pincus, who works for a firm active in the Chicago commodity exchange, was described by Wakely as the "brains" of the group and was an active contributor to Gary Kaplan's "99'er Magazine".

The user group's membership had increased to 80 members or so in February, 1982, and Wakely and Strauss decided it was time to start a formal newsletter. About the same time, the group had a demonstration from TI representatives of the new Logo and Editor/Assembler software. Dave recalls that the "membership roles exploded" when TI cut the price of the 99/4A and started the rebates in late 1982, increasing to 180 or so by the end of 1982. With increased numbers came problems. Wakely recalls: "A local Chicago electronics store, Elec-Tek, began national advertising of TI hardware and software at discount prices and they had a stack of our

flyers about the group on the counter in the store. My phone started ringing at all hours from TI users from all over the country. We couldn't meet at member's homes anymore, as there were too many of us. Luckily, the assistant director of programming at Triton State Junior College was a TI enthusiast, and he obtained the large meeting room that we have been using ever since. During early 1983, our membership grew so fast that I had to drop the 'new members listing from the newsletter, because it grew too large."

The group decided that an "all TI" bulletin board would be a good idea. Pincus programmed the software in BASIC using some assembly language links and the hardware included a Hayes Smartmodem. According to Wakely, the system went into testing in February/March, 1983. The group contacted the phone company to try and get a easy-to-remember number (for example, 848-7377 was tried as the mnemonic would be "TI USERS") but "all the good numbers were taken." The group ended up with 848-3669 and made up the memorable "TI Users FOnE eXchange" or TI-UFONX. The system was officially on-line on Memorial Day, 1983. Then, Wakely recalls, a gentleman called from Georgia who had "a million questions about the hardware and software of the system." Ralph Fowler, the Georgia caller, stated that "his system was still in development and testing, but that he expected it to be up soon." The debate still rages about who was the first TI bulletin board system. Fowler advertises that his TIBBS was the first; many Chicago old-timers would argue the point. One point Chicago refuses to argue: the Chicago user group system was the VERY first to have true Terminal Emulator II program transfers (written by Bill Hoffman). They are also proud of the fact that the popular "Computer Phone Book" by Mike Cane listed the Chicago TI-UFONX as the first TI bulletin board and gave it a very favorable review; Fowler's TIBBS was not listed. (They also giggle a bit when they mention that Atlanta's TI User Group runs a TI-UFONX system - not a TIBBS). The BBS' first systems operator, Lary McMahon, bought another make of computer and the system was moved in December, 1984, and is run now in Niles,

Illinois , by Irwin "Butch" Goldstein. The system has now logged over 32,000 calls and 6200 messages. The bulletin board software has been immensely improved to now run off 4 double-sided/double-density drives and features 20 to 25 downloadable programs. John Behnke has modified the software of late and plans include an upgrade to 1200 baud transmissions and XMODEM protocol transfers.

By mid-1983, the Chicago user group had nearly 300 members, with half attending the monthly meetings regularly. Then Wakely says the group had an brainstorm. I will let Dave tell the story from here:

" Having lots of cash handy and virtually no bills, we decided to hold a 'TI Faire' where we would invite vendors to come and set up booths and sell TI hardware and software, and to simultaneously hold various classes on programming the machine. We combed the pages of 99er for the addresses of vendors and got commitments from 14. The only other such gathering of which we were aware had been 99er's show in San Francisco the previous year. We did not want to try and compete with them, so Sam [Pincus] called Gary Kaplan and he told us they would not be doing another show, but agreed to come out and be our guest speaker, to talk about the bright future of the 99/4A and the rumors of a new, powerful machine from Lubbock.

" At our October meeting that year, with the TI Faire plans finalized, we hosted Ed Weist, the Texas Instruments User Group Coordinator, and his traveling software show. He wowed us with the Forti music board and TI Forth, and assured us that all was well. Then came October 28th. [Wakely agrees with the uncanny ability of TI owners to remember "where they were when.."; Wakely heard the announcement on the car radio while on the way to his wedding reception.] All heck broke loose in Chicago, just like everywhere else TI owners

congregate. For about 3 days it was impossible to get onto our board due to TI owners seeking info about the pullout and what it meant. Despite the news, something funny happened.

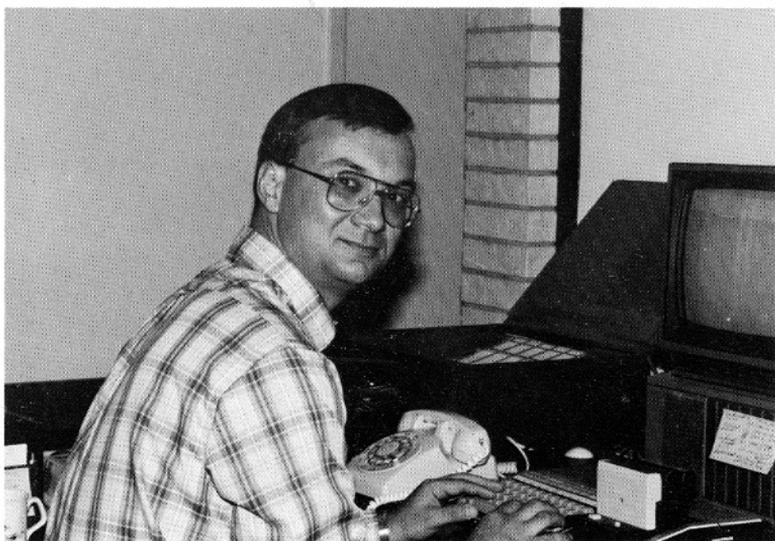
" By coincidence, our Faire was held just two weeks after 'the announcement'. We did a little local publicity, but were totally unprepared for the nearly 1000 people who showed up. Some vendors ran out of software in one hour. We also signed up 45 new members to the group and everyone wanted information. Almost everyone. Gary Kaplan did not show up. No explanation. A few weeks later he called Sam Pincus in a panic, asking him to write an article on the Apple. The rest, as they say, is publishing history (or is it infamy?)."

The group flourished in 1984. Wakely recalls: "There appeared to be more new products in early '84 than in all of '83; we had no trouble finding demos to run at our group meetings." The group ran a group programming contest in BASIC, Extended BASIC, and Assembly language and gave away \$300 in prizes and getting about 60 new programs for our library, which, now contains over 1500 programs. With the continued interest the group decided to make the Faire an annual event. The second Faire (1984 - theme "Still Goin' Strong!) drew over 1500 people and featured 21 vendors. Don Bynum, former head of Texas Instruments Home Computer Division, was the guest speaker and demonstrated the fabled, but never sold, 99/8 computer. As a service to other user groups who could not attend the Faire, The sponsoring group videotaped Bynum's excellent presentation and made the tape available to others. The group signed up 85 new members this time. Pincus had replaced Wakely as the group's president and the newsletter grew under the editorship of Carole Goldstein (yes, she is the wife of the BBS' sysop). The group has many dues-paying members across the country who belong just to get the newsletter. The group puts out 10 issues a year (averaging 30 pages per issue) with a combined Super Summer Issue, which was a mammoth 64 pages in 1985.

Currently, the Chicago Area Users Group has 410 members. They already have 22 vendors signed up for the 3rd Annual TI Faire (to be held November 2, 1985), with 7 additional vendors "promising checks". The group somehow got Texas Instruments to hand over the mailing labels for some 35,000 registered TI owners and the group has mailed to most of them the Faire announcement. The hotels in the Chicago area are reporting an increase in reservations for the weekend of the Faire. Wakely has "no idea whether we will get 1500 or 5500", but it already is a success.

There you have the profile of just one of the 99/4A "Super Groups". The Chicago Area 99/4A Users Group has been a bellwether group since its inception and has lived up to its tradition with the 3rd Annual TI Faire of 1985 its latest accomplishment. If tradition holds for this incredible group, it will be a another marvelous accomplishment to add to their already-long list.

[Membership in the Chicago Area 99/4A Users Group are \$15 per year for first year; \$12 per year thereafter. Contact the group at P.O. Box 578341, Chicago, IL. 60657]



As well as being a free-lance writer Dr. Albright is currently an instructor at the Army's Academy of Health Sciences at Fort Sam Houston. He received his Bachelor of Science degree in Biology (Pre-med) at the University of Alabama. He received his Doctorate at the University of South Alabama College of Medicine.

Dr. Albright's experience includes Chief Resident in Medicine, Brooke Army Medical Center in San Antonio, Texas, Chief of General Medicine, Martin Army Community Hospital in Fort Benning, Georgia. Ron has also written a number of Scientific articles and TI 99/4A related articles, as well as being the author or coauthor of three commercial pieces of software for the TI. Ron has been very active in the 4A community and for the past year he has served as a TI Forum Sysop on CompuServe.

MILLERS GRAPHICS
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San Dimas, CA 91773