



mini'app'les newsletter

\$2

the minnesota apple computer user's group, inc.

June, 1994

Volume 17, Issue 6

JUNE 1994

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Board of directors
Mini'app'les members welcome.
8320 42nd Ave No. New Hope Norwest
Greg Carlson, 544-8252



Apple II/GS Main
Augsberg Park Library, 7100 Nicollet Ave,
Richfield "Hypermedia"
Erik Knopp, 636-3244



ClarisWorks SIG
Norwest Bank, 5320 Lyndale Ave So.
Denis Diekhoff, 920-2437



Macintosh Main
St. Louis Park Library,
Location Pending
Mike Carlson, 377-6553



Filemaker Pro SIG
Location Pending
Steve Wilmes, 458-1513



Fourth Dimension SIG
6250 Excelsior Blvd #104
St. Louis Park "Marketing Info Systems"
Bob Demeules, 559-1124



Apple II Novice SIG
Murray Jr. High, 2200 Buford,
St. Paul "Open Forum"
Tom Gates, 789-1713



AppleWorks SIG
Murray Jr. High, 2200 Buford,
St. Paul "UltraMacros"
Les Anderson, 735-3953

Digital Communications SIG
Location & Date Pending
Keven Kassulker, 377-6553



HyperCard SIG
No Meeting. Restarts in Sept.
Peter Fleck, 370-0017



Macintosh Novice SIG
Miriam Park Lib, 1831 Marshall Ave.,
St. Paul "Open Forum"
Tom Lufkin, 698-6523



Macintosh Consultants SIG
Nora's, 3118 West Lake Street, Mpls.
Mike Carlson, 377-6553

Mac Programmers SIG
Location & Date Pending
Gervaise Kimm, 379-1836

Programmer's Workshop
Location & Date Pending
Keven Kassulker, 535-2968

mini'app'les

The Minnesota Apple Computer Users' Group, Inc.
P.O. Box 796, Hopkins, MN 55343

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SIGs: Apple II	Erik Knopp 636-3244
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Dealers – Mini'app'les does not endorse specific dealers. The club promotes distribution of information which may help members identify best buys and service. The club itself does not participate in bulk purchases of media, software, hardware and publications. Members may organize such activities on behalf of other members.

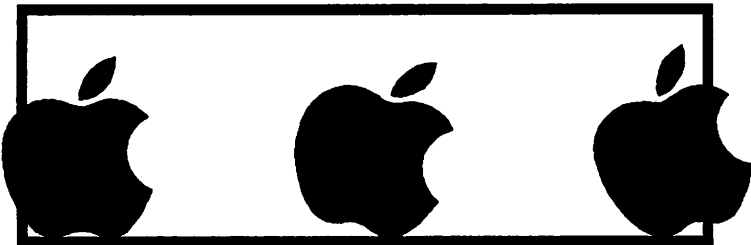
Advertisers – See MultiForm mailer in the back of this issue.

Newsletter Contributions – Please send contributions directly to our Post Office, Box 796, Hopkins, MN 55343 or upload them to our BBS at 892-3317.

Deadline for material for the next newsletter is the 10th of the month. An article will be printed when space permits and, if in the opinion of the Newsletter Editor or Manager, it constitutes material suitable for publication.

Mini'app'les BBS – 892-3317, 24 hrs. Settings: 8-1-0.

Mini'app'les Voice Mail – 229-6952



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Members Helping Members

Need Help? Have a question the manual doesn't answer? Members Helping Members is a group of volunteers who have generously agreed to help. They are just a phone call away. Please call only during appropriate times, if you are a Member, and own the software in question.

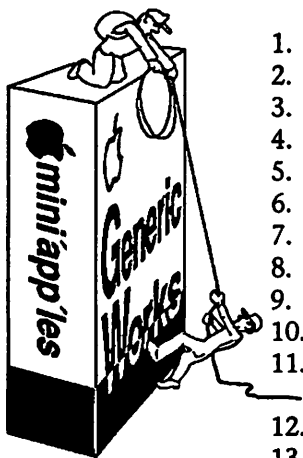
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If you would like to be a "Members Helping Members" volunteer, please leave your name & phone number on our BBS, or leave a voice-mail message at 229-6952, or use the MultiForm maller near the back of this issue.

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-340-0234D
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15. Arnie Kroll433-3517E
16. Michael Foote507-645-6710DEW
17. Richard Becker.....870-0659EW
18. Steve Peterson.....922-9219EW
19. Jodi Roste.....933-1698EW
20. Nancy McClure227-9348DEW
21. Rand Sibet.....566-8571EW

*D-days (generally 9 a.m. to 5 p.m.)
 E-evenings (generally 5 p.m. to 9 p.m.)
 W-weekends (generally 1 p.m. to 9 p.m.).
 In any case, call at reasonable hours and ask if this is a convenient time for them. We appreciate your cooperation.*

Treasurer's Report 4/94

by Jacque Gay Profit & Loss Statement

Income	
Membership - New	\$240.00
Membership - Renewal	\$400.00
Membership - Educational	\$50.00
Membership - Corporate	\$100.00
Apple II eDOMs	\$41.32
Macintosh eDOMs	\$50.71
Mail eDOMs	\$24.41
Misc. Sales/Shipping	\$2.00
Total Income	\$908.44
Expenses	
Newsletter production	\$323.49
Labeling/Mailing	\$50.00
Bulk mail/BRM permits	\$75.00
Sftwre: Mailing, copies, phone	\$2.42
BBS (phone, software expenses)	\$71.13
AppleLink account	\$15.54
Information Line	\$17.00
Membership processing	\$7.19
Total Expenses	\$561.77
Net Profit/(Loss)	\$346.67

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President's Report - May 1994

Well, this month there's not a whole lot to say - we had a "lame-duck" session. The basic news is two-fold:

1. We were able to reduce our cost of liability insurance from \$1600 to \$350 per year (thanks Nick and Tom)!
2. We authorized the money to purchase First Class software for a new bulletin board. Here we have a dona-

tion of a Mac II family computer so that we can better provide a more modern BBS to our members. We now are looking for donations of a faster modem (2400 baud currently - we'd like to get about 9600 or better) and some additional help in purchasing the software - it's about \$400 for First Class. Look for more information in the next few months.

Dick Peterson will probably need help in getting the new BBS set up.

That's about all that happened this month. Oh yes, thanks to Wayne for continuing to do the mail for us - if you see him, please thank him.

Greg - Your Prez

AppleWorks

28 April 1994

Of course there were many of us out on that dark and stormy night for the AppleWorks meeting. After some questions, highlighted by an inquiry about the single-step mode in Ultra Macros 4.3, Les showed us the demonstration video on AW4, both the database (which was not available at the time of discussion

of the DB) and the word processor. Randy Brandt was observed talking to himself in said video. Perhaps he spent too long in a darkened room staring at his monitor. After the video, Les demonstrated many of the enhancements, some to the total amazement of at least one of the audience who thought he had been through all files on the Extras disk,

but obviously missed the one on WP glossaries.

The PIE SIG was a very small group, as most couldn't wait to slosh home through the mounting slush, but the discussion of automobiles, repairs, and oxygen sensors made it well worth the trip.

Bruce Thompson

14 April 1994 Main Mac Meeting Minutes

After getting our bearings straight and heading for 8300 Normandale Plaza and the 9th floor, we arrived at a large training room with a table of goodies and pop just waiting for early arrivals. The meeting started with the traditional announcements... May is Broderbund, but the location hasn't been announced yet, Mike had a trunk full of old Mac magazines for the taking, the club will be receiving a new computer to run the Bulletin Board and is now

looking for a faster modem, Bob Demueles talked about Memberships and Eric Holtermann talked about the RAM Doubler deal. Mike introduced Shari Brandt and Harvey Johnson of Microsoft Corp. Shari had us all sign a non-disclosure agreement so "I know nothing..." about any future updates of Word, Excel, PowerPoint or FoxPro. After Shari's presentation, Harvey Johnson did a presentation FoxPro version 2.5. FoxPro is a database develop-

ment program and is used to create databases of others. Very good presentation.

The Pie SIG was at Lincoln Deli again. Discussion centered around some non-disclosed information and the proliferation of coffee roasting, bakeries and other odoriferous operations in the Twin Cities.

All for now, talk to you later...

Tom Ostertag

HC SIG Retires For The Summer

Peter Fleck

The HyperCard SIG will be retiring for the months of June, July, and August. I plan on scheduling meetings again starting in September. Perhaps a demo of the new SuperCal would be in order. It's due to be released soon.

Hope all have a nice summer and practice their HyperCarding.

There is one more meeting of the SIG scheduled for May 24 at the Science Museum where we'll look at color and HyperCard.

mini'apples Board of Director's meeting minutes

April 7, 1994

Norwest Bank, New Hope

Presiding Officer:

President Greg Carlson.

Preliminary Attendance:

Members: Greg Carlson, Jacque Gay, Erik L. Knopp, Roy Sorenson, Keven Kassulker, Tom Gates, Bob Demeules.

Excused: Al Mackler, Wade Brezina, Sam Goshorn, David Laden.

Guests: Denis Diekoff

Meeting called to order by President Greg Carlson at 7:23.

Adoption of Agenda: agenda passed.

Mar. 3, 1994 meeting minutes approved.

Treasurer's Report — Jacque Gay

See Treasurer's Report. Discussion on cost of liability insurance, which is due for renewal in May. Current carrier's quote is \$1430.20 for \$600,000 coverage for one year. Tom will contact the User Group Connection to see what other user groups are paying, and Executive Committee will follow up. Consensus was to cash one of the maturing CD's, and to pay whatever insurance policy we get with quarterly payments. Jacque, pointing out the need for long range planning, said the trend shows club expenses run about \$800/month, the club running a loss of about \$400/month.

Treasurer's report approved.

President's Report — Greg Carlson

See President's Report. Greg reported Al and Sam have resigned from the board.

Vice President's Report — Tom Gates

Swap Meet: Tom has gotten six calls for tables. He will put up flyers at Apache Plaza next week. After May 1, tables will be available to members at cost (\$5/one-half table, \$10/full table). Someone said MacUSA has been running weekend sales out of their warehouse, and might be interested in attending, or in newsletter advertising. The General meeting is set for March 9. Tom reported on our table at the

PowerMac intro: besides Tom and Roy handing out lots of brochures and answering questions, the club was included in introductory remarks by Apple's Curtis Juliber.

Membership Director's Report — Bob Demeules

March membership numbers are looking better than last month's, and some new memberships are coming on the new brochures. Bob said he needed a volunteer to restock the brochures at Computer City, and Denis promptly volunteered. Bob still needs other members willing to keep computer stores near to them well stocked with brochures. Bob said he will put renewal notices on the newsletter mailing labels to save postage costs.

Software Director's Report

No report: Sam has resigned position.

Mac SIG Director's Report — Wade Brezina

Excused, no report.

Apple II SIG Director's Report — Erik Knopp

No changes from last month.

Publication Director's Report — Keven Kassulker

Keven has newsletter layout information for Tom to pass along to the Apple component of the club. Keven reported TCCN BBS (Ray Douglas, Sysop) will soon have a Mac interface and a purported 10,000 members. Jacque will ask Steve George if he will keep our club information on TCCN up to date. Chuck Bjorgen (DTP BBS Sysop) will be coming to the Digital Communication SIG to see how he can help. Next Dig. Com. meetings are Mar. 13 (Aldus), and Mar. 20 (Radius). Greg reported that Susan Basig has agreed to put together the newsletter. Tom Ostertag will collect and edit articles from the BBS and get them to Susan.

Operations and Resources

No report: Al has resigned.

Reports were approved by board.

Old Business:

Election Update

Denis reported on the nomination committee's efforts to find members to run. Jacque and Roy will get ballot information and layout to Susan for publication in May newsletter. Greg will get ballots distributed for voting at SIG's in May.

New Business

Overhead projector status

Tom reported the overhead projector has been fixed at no charge by the Tierney Bros. repair company of St. Paul: Roy will draft a thank you letter. Denis has found another use for the overhead he offered for sale to the club.

Club Promotion

Newsletter suggestions from member Herb Montgomery were passed out and discussed. Herb had declined to renew his membership, and wrote to explain why. Saying he had never made it to a meeting, his contact to the club was the newsletter, which he found "...seldom addresses any of my ordinary concerns." Article suggestions included software reviews, use of clip art by a novice, scanners, why upgrade to System 7, evaluation of the Mac Quadra line, and what would be the ideal DTP setup. Roy told of follow up efforts, inviting Herb to the general meeting and to see the newsletter under the new staff.

MOM award

Board consensus was to name Wade Brezina Member of the Month for editing the April newsletter after Hugh's resignation. The board noted the quality and timeliness of the issue, as the spring issues announcing the general meeting, election and ballots, and swap meet highlight important club business.

Adjournment moved, seconded and approved at 9:02. Next board meeting: 7 PM, Thursday, May 5, at Norwest Bank, New Hope.

Submitted by Roy Sorenson, secretary.

ClarisWorks Meeting Minutes—10 May 1994

Bruce Thompson was standing in the parking lot as I arrived. We talked a bit about our computers as we went upstairs in the Norwest Bank Building for the ClarisWorks meeting. Denis had the computer and the LimeLiter all set up and was discussing some questions that I wasn't paying much attention to when I was asked how to load ProDOS files into ClarisWorks. I started to explain when Denis, in good pedagogical style, implied that if I was going to talk while he had the floor, I'd have to come up and display my ignorance for all to see. The computer of course, didn't have ProDOS File System installed, so I did a lot of hand waving and then proceeded to open some Stationary files (which was the topic for the evening...). I learned all sorts of tips. First, if you hold the option key

down while you insert the date (or the time...) that date (or time...) remains the same instead of changing each time the document is opened. Neat! I also learned that holding down the Command key while clicking on the Zoom box would minimize the active screen (Necessary on 9' monitors to get to the desktop.) and that option-8 would give a bullet and option -r would give a trademark symbol. Stationary files can also be saved from the save files menu if you click on the file type box. (Saves a long trip through the Finder.)

To answer a question from Greg Carlson, Brian Bantz supplied some software from his laptop and did some finagling to run a 20 second QuickTime movie (upside down face... Denis turned the LimeLiter over to invert the inverted face)

within ClarisWorks Word Processing and Drawing documents. Some unnamed individual discovered that there is a speaker in an SE/30.

Back to the topic... Stationary Files, Pam Lienke did a remarkable presentation of a number of files that are opened as Stationary; databases that consisted of tests and answer sheets and calendars that could be customized.

About that time, lightning flashed and thunder rolled (why do I always get to write about a dark and stormy night...) and the presentation came to an end. It was decided to discuss label making from the database module for the next meeting.

Pie SIG was at Perkins where the discussion turned to Apple History and denigration of MSDOS equipment.

Tom Ostertag

Time again to get your desert goodies together and head to the Mini'apples summer picnic!

Come on out! This is a "bring your own food" affair. Some folks stop at McDonald's or KFC, others use the grill stands or bring their own to cook hot dogs and other typical picnic food.

This is a chance to get everyone out to enjoy the weather and not have to talk computer-ese for the evening. We hear a lot of stories about other members of the family - so we hope you'll bring them along as well. It's as if we almost know them already.

The favorite tradition that has taken hold at these picnics is the "Bring a desert to share". Gooney (not GUI) chocolate stuff is always welcome. Special home recipes are the highlight. Store-bought is frowned upon unless it meets one criteria - see gooney chocolate stuff above. <grin>

We haven't got a full box of door prizes yet, but we'll work on it and plan on doing another drawing while everyone enjoys desert.

Hope you can attend - mark your calendars - look forward to seeing you there.

When:

Thursday evening -
August 25, 1994 -
approx. 6:30 till dark

Where:

Minnehaha Park - near the
picnic pavilion (look for the
Mini'apples sign

Who:

All members and
families are invited

What:

Do your own food
picnic - bring a
desert to share

Why:

Get out and enjoy
the weather -
discussions need not
be related to
computers (how
them Twins doing?)

OLDER TECHNOLOGY COMPUTERS? (Part 1 of 2)

by Darrel Raines

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The Apple Computer Enjoyment Society
of South Florida.

"The Apple IIGS is a computer based on older technology. It is slow and is not supported by any of the major software manufacturers. You cannot get software and you cannot get support. Why would anyone want to be stuck with an old Apple computer?"

The previous paragraph accurately describes the feelings that many people express when they find out that my home computer is an Apple IIGS. You see, they know that I sell computer hardware on the side (custom systems and software). They know that I have set up a number of people with Macintosh and MS-DOS compatible systems. When they ask about my home computer, most of them are floored when they learn that I still use an Apple II.

"Didn't you just set up Larry with that '486, 66 MHz monster with 16 Meg of RAM, a 340 Meg hard drive and the HP laser printer? Then why do you still use a computer that was invented back in the 1970s?" The people who ask these questions just don't understand.

Part of the problem is that our entire society is caught up in the newest, latest, greatest technology race. If you do not have the newest CD player with video display capabilities, 10 disk changer, and a cigarette lighter, then you are not keeping up with the times. Each of us have fallen prey to this craze at one time or another. In fact, this same phenomenon may account for your owning an Apple IIGS in the first place.

However, I think that it is worth while to put aside the hype for awhile and take a hard look at the reality behind the statements made by my friends (and perhaps yours). I do not deny that there are times when it is imperative that a person update their equipment. My television set went south a few months ago. It would not have cost much to repair the TV, but it was 11 years old and might have a picture tube blow at any time. My wife and I felt that the money was

better spent on getting a new television with some of the current gadgets attached. What fun!

On the other hand, a client (and friend) of mine was in the market for a home computer that would let him keep track of home finances and would run lots of educational software for his children. Price was also a factor for him. This sounded like an ideal situation for an Apple II. The client is now happily using a previously owned Apple IIGS computer complete with AppleWorks and kid's software. Another happy customer!

In both cases, the customer got what he/she needed and was able to effectively use his/her financial resources. Our new television set has many nice features. The controls are much easier to use than the old one and the picture is bigger and brighter. My Apple IIGS client has all of the tools that he wants for his home computer and his kids have a great time "playing" on the computer. In addition, this client is ecstatic about the multitude of cheap software that is available either from software mail-order houses or as used software from individuals.

Some of my friends and/or clients have specific applications that require the latest computer technology for support. In these cases, the obvious answer is to buy a new computer with the necessary capabilities. However, most people do not even scratch the surface of what their computers are capable of doing. An Apple IIGS is a powerful computer. It is very much able to run hefty word processors, spreadsheets, databases, and publishing systems. Existing packages meet the needs of most home users. In fact, many Apple II users do not go any further than AppleWorks or AppleWorks GS to meet all of their software needs.

Of course, there is more to home computing than just productivity software. Educational software has always been a strong point for the Apple II computer. Graphics packages are available to bring out the artistic side of any user. Telecommunication software provides access

to a world of people and ideas. Now, did I forget anything? Oh yes, game software is a must for most home computer users.

My personal opinion is that the reason behind the success of the Apple II had more to do with the built-in joystick port than it did with the fact that it was a color computer. Every home Apple II owner that I know has spent a significant amount of time playing games on their computer. Therefore, they are interested in the availability of good entertainment software for the Apple II. Once again, there is a whole world of software that has been written for this popular computer. As a matter of fact, I could probably play on my computer for the next 10 years and never exhaust the supply of games that I currently own for my Apple.

With all of this going for the Apple II, why do people shun the computer as old technology? One reason for this attitude is ignorance of the true capabilities of my Apple. Some assume that an old machine is a slow and useless machine. Nothing could be further from the truth. Another reason could be that no huge commercial firms still write software for the Apple II family. While this is true, there is plenty of software and support coming from the companies that have remained in the Apple market.

The final piece to this puzzle will be examined in next month's column. At that time, I will examine the availability of shareware, freeware, and roll-it-yourself-ware. I will also answer the following riddle: "How is Apple II shareware like a fine wine?" Stay tuned and find out.

Darrel Raines is an Electrical Engineer who works as a contractor to NASA on the Space Station Freedom program. He runs a small business on the side that deals in custom computer systems and software. He is also an avid computer hobbyist, programmer and writer. You may reach him on GEnie at D.RAINES.

Inkjet Refill Option

by Tom Gates

I've been using an HP DeskJet 500 for nearly a year now and have had very good luck with the printer. Has done an excellent job. But one of the things I had to take into consideration when buying the printer was the cost of refill cartridges vs. ribbons for a dot matrix printer. Well, I decided the output quality of the DeskJet out weighed the larger cost of the cartridges.

But, still having had a lot of my wife's Scottish side wear off on me, there was still the need to minimize my costs on the replacement. These things go for upwards of \$25 each to replace. Replacements, on the other hand, could be had for about \$12 for a set of two. So after reading a number of articles on the BBS services related to the Inkjet printers and the option of refilling instead of replacing, it was decided that refilling would be an OK way to go.

Most of what I found said that a typical cartridge could be refilled six

or eight times before noticing much of any change in the quality of output. That was what I'd do, refill the cartridges. But no more than five times. I felt this would both give me some relief from the price of new, and not push the chance of problems or bad quality by being too stingy.

But I now think I've found an even better solution. It is just a little more expensive, but looks to be a real good compromise between cost and convenience. Pelikan, a brand of refill/replacement cartridges, has recently come out with a refill kit without the syringes and bottles of ink.

The refill kit contains a printhead sans the ink. In place of the typical bottles of ink, there are five sealed ink containers that drop inside this replacement printhead. You just remove an adhesive strip from one of the containers and place it down into the printhead. That's all it takes. When that one is empty, remove the container from inside this printhead and replace with another of the containers.

SAMS Club is currently carrying these kits for about \$50. This includes the special printhead and five containers of ink. This option gets you into the \$10 range per refill. A little higher than the "fill-your-own" method, but there is not the likelihood of ink spurt-ing all over the place. And is a much cheaper option than the \$25 complete replacement. As mentioned before, a pretty fair compromise.

I haven't seen these kits in any other stores yet, but would expect them to show up at places like Computer City, Comp-USA and the Office Max/BizMart stores. Prices should be very comparable.

If you'd like to reduce the costs, but aren't into jabbing ink bottle needles into old cartridges, this may be a great option for you. Hope you check it out.

LaserWriter Printer Tip

Here's a little tip about LaserWriters that you never need. On the LaserWriter IISC and I presume other LaserWriters, what do you do when both the out-of-paper and the paper-jam lights come on?

My owner's guide says "Both flash when printer needs service."

The first time this happened, I thought of the \$100 service call and banged it with my fist. That stopped

the lights from blinking for a few months. On the second or third try it didn't work. \$100+ to ComputerLand. All the guy did was take off the cover, probe around a bit, and put it back together.

So, the next time the fist didn't do the trick, I took off the covers (keep the screws straight, they are a bit different) and jiggled connections. I didn't take off any of the

metal shielding. It worked. I have to repeat this every four to six months. It takes me about 20 minutes.

One of Larry Pina's books on do-it-yourself Mac repairs mentions a resistor as causing this problem, but I've never bothered locating that part.

Melvyn D. Magree
(M)agreeable software, inc.

APC Discount

APC Power Protection Products

Contact Keith Kalenda at Business Security Products - local distributor of APC products. Members receive 1/3 off list price of the SurgeArrest surge protector products and 25% off list price of other power backup UPS products and PowerChute software. (612) 789-1190

Submitted by Tom Gates

GOOD DEALS #9

by Ken Slingsby

This is the ninth in a series of articles which list good deals and press releases that have been brought to our attention via a news source established by Apple Computer Co, AppleLink. Due to the constraints of space in our newsletter and time available, the articles have been greatly condensed. All were posted in their entirety on the Club's BBS. To read the full articles, plead or beg a friend who has access to the BBS to copy it for you.

As an aid in your review of the articles, I have divided them somewhat arbitrarily into DEALS and Press Releases. The DEALS include price, dates available, and the address of the publisher or author. Most of the DEALS are special limited time offers of a significant price reduction. They are presented here as a service of Mini'app'les. The PRESS RELEASES are to make you aware of the new products. You may have to hunt to find a dealer that supports the product.

Mini'app'les makes no claim as to the usefulness or quality of the products offered herein. The User Group does not endorse the products and is not supporting the products. The following is not paid advertisement. There may be other products mentioned on AppleLink not appearing here. If so, that is an omission, not a refusal of the product. As in all purchases, buyer beware!

In order to qualify for some of the items presented here, you MUST be a member of an Apple User Group. Be prepared to give your member number, and tell them that Mini'app'les sent you!

Deals

User Group Connection April Mailing Vendors Offering User Group Member Discounts Some prices do not include shipping or tax. Whenever you call and ask for information, or order a product, identify yourself as a Mini'app'les User Group Member.

Advanced Software - The #1 selling free-form address book program and guaranteed easiest way to organize your contacts and calendar. Get InTouch 2.1 for \$35 (reg. \$99.95). DateView 1.0 for \$35.00 (reg. \$99.95). Or get both for \$49.90 (75% off retail!). Call 1-800-346-5392.

Aladdin Systems - SITcomm and StuffIt Deluxe 3.0 for \$49 each (regularly \$120) or \$79.95 for both! This prices are way cheaper than mail-order, only available to UG members. Call 1-800-732-8881 ext. 500.

APS - Special UG Member price on APS 44MB SyQuest Drive: \$199. Also included is the new APS Syguard for a limited time. Order APS Part Number #0173. Call 1-800-289-5385

ASD - 50% off all products: FileGuard (@ \$124.50), FileDuo (@ \$74.50), TrashGuard (@ \$39.50), ASD Trio (all three for \$129.50), WindoWatch (@ \$74.50), Wiz Tools (@ \$45, \$50 for PowerBook). call 909-624-2594 for more information.

Callisto Corporation - Special UG Prices: Super Maze Wars \$30 (\$64.95 retail) additional network players for

\$15, Spin Doctor \$30 (\$59.95 retail), Super Mines \$20 (\$49.95 retail). call 1-800-348-5324.

Casady & Greene - Buy Conflict Catcher II at a special UG price of \$39.95 (Save \$40). Spaceway 2000@ for \$19.95 (Save \$30). Call 1-800-359-4920.

CeLan Technology - Quality network products at 30-75% off retail for User Group Members. Ethernet adapters, hubs, peripherals, and other communication products. Example: Ethernet SCSI Adapter with RJ45/BNC for \$179 (List \$399). Ethernet Nubus Adapter with RJ45/BNC/AUI for \$85 (List \$199). Call 1-800-27-CeLan to order or get information. (exp. 7/31/94)

Jambone Comics - At Bat product launch! You will be among the first to see this interactive CD-ROM comic book about baseball for children of all ages. Suggested retail \$49.95. One Time Offer \$24.95! Call 604-739-7281. (exp. 6/30/94)

Portfolio Software / UGC - Exclusive to User Groups on Dynodex v.3.01. Get all the features and benefits of this award winning address book manager now for just \$11.95 plus \$4 shipping and handling by ordering through the User Group Connection. If you decide to upgrade to Dynodex version 3.5, Portfolio will offer that upgrade directly for \$19.95 until June 30, 1994 (regularly \$29.95). Fax order

to UGC at (408) 461-5701 or send e-mail to AOL: Apple UGC or Alink: User.Groups (Same week shipping, Limited supply, Available now on first-come/first-serve)

Ray Dream Design / UGC - Jag II gets rid of jagged edges on screen or when printed (ink-jet or laser printer). User Group special \$59.95 +\$5 shipping/handling (street price reg. \$89). Fax order to UGC at (408) 461-5701 or send e-mail to AOL: Apple UGC or Alink: User.Groups (Same week shipping, Limited supply, Available now on first-come/first-serve)

Science for Kids - Multimedia Science Curriculum (3 CD-ROMs) includes a unit on Cell Biology (ages 5-8), a unit to introduce the physical sciences (Ages 8-13), a unit to continue the physical sciences (ages 8-14). Regularly \$289 per program. Special Trainer's Price (available to teacher/computer trainers) \$125! Call 1800-KSCIENCE.

Seven Hills Software - Gate Special UG price only \$30. Gate blends action, adventure, and brain-teasing challenges into an addictive fast-action game with smooth animation, exciting music and sound effects. At Home records, organizes and quickly finds your personal and home data. Introductory price only \$7.50 (retail \$49.95) Drive Cleaner removes dust and debris from your disk drive. UG price only \$19.95 (retail \$34.95). Call 1-800-845-9528. (exp. 5/31/94)

Supra / UGC - SupraFAXModem V.32
9600 Baud Data /FAX, Send/Receive.
5-year warranty. Powerful fax manag-
ing software (Faxcillitate) and serial
cable included. Limited Supply!
Special UG member price of \$119
+\$15 shipping/handling. Fax order to
UGC at (408) 461-5701 or send e-
mail to AOL: Apple UGC or Alink:
User.Groups (2-day UPS, Same week
shipping, Limited supply, Available
now on first-come/first-serve)

Synex - Introducing Bar Code Pro
which creates EPS or PICT graphics
for fifteen of the most popular bar
code symbologies. Exclusive offer—
save 40% off the list price of the sin-
gle/all versions (List price \$450/\$299)
Intro price \$279/\$179! (exp 5/1/94).

User Group Member Purchase Program
Apple Refurbished Products Available
May 1, 1994

Performa 430 \$699.00 68030,
16MHz, 4MB Ram, 120MB Hard
Drive, 256 Colors, 14" .39 Monitor.
Great for home use, light business
and education. Comes with At Ease
and ClarisWorks. Keyboard, Mouse
and system software included
(Modem not included). This product
is refurbished with a 90-day warranty.
Product in stock, but limited supply!
Orders taken through May, 1994, and
product shipped within 2 weeks of
order. (\$30 shipping and handling.)
Product #M2853LL/A

Centris 610 \$759.00 68040, 20 MHz,
4MB Ram, 80MB Hard Drive, PMMU
chip integrated. Low cost 040
machine. PowerPC upgradable!
Supports one internal half-height 5.25
inch peripheral, such as a hard disk
drive, a CD-ROM drive or a magneto-
optical drive. Monitor, keyboard and
mouse NOT INCLUDED. Limited sup-
ply! This product is refurbished with a
90-day warranty. Orders taken through
May, 1994, and product shipped with-
in 2 weeks of order. (\$15 shipping and
handling.) Product #M1345LL/A

Personal LaserWriter 300 / Jag II
Bundle \$549.00 300 dpi, 4 pages per
minute, 39 TrueType fonts included,
QuickDraw enhanced with
GrayShare, Networkable, 2MB virtual
Ram buffer. This LaserWriter is refur-
bished with a 90-day warranty. Jag II
gets rid of jagged edges on screen and

when printing (see below for more
details). Orders will be taken during
month of May, and shipped within 2
weeks. (Does not include serial cable,
\$15 shipping and handling) . Product
#M2047LL/A

THIRD PARTY UGMPP DEALS:

9600 Baud SupraFAXModem v.32
\$119.95 Including Cable and
FAXcillitate Software. Create custom
fax cover sheets, send and receive
faxes in the background.
SilentAnswer@ lets you receive both
fax and voice calls on the same phone
line. Five Year Warranty! Limited
Supply! Order now, same week ship-
ping. (\$15 shipping and handling, 2-
day UPS). Part #UGCSupra

Dynodex v3.0 \$11.95 Winner of
MacWeek awards, 4.5 mice from
MacUser and 1993 World Class
Award. Wide range of database func-
tions. Dialing functions, export or
import to and from any database or
word processor, print out pre-formed
addresses for personal organizer. 3-D
Color interface, 22 fields (all renam-
able), extensive notes field, automatic
caps, shorthand keys, and more!
Same week shipping. (Available now,
same week shipping, \$5 shipping and
handling) Part #UGCDyno

JagII \$49.95 REDUCED Price! Street
price is \$89! Remove jaggies and
enhance your digital and printed
images. This award winning graphics
utility is packed with new features.
Works with B&W or color images,
scans and bitmapped clip art. Jag II
supports TIFF, EPS, Photo CD,
Photoshop, MacPaint, PICS, and
QuickTime. Received 4 star rating
from Publish Magazine (November,
1993) (Available now, same week
shipping, \$5 shipping and handling).
Product #UGCJAG

*May orders only taken from May 1 through
May 31. FIRST COME FIRST SERVED,
WHILE QUANTITIES LAST. UGC will only
accept orders sent in one of the following
ways: FAX ORDERS TO: 408-461-5701 or E-
MAIL orders to: APPLELINK: USER.GROUPS
- AOL: APPLE UGC Master Card, Visa or
cashier's checks payable to: USER GROUP
CONNECTION Send cashier's checks to:
User Group Connection, P.O. Box 67249,
Scotts Valley, CA 95067-7249*

PRESS RELEASES

New Generation of Apple Products Makes Multimedia More Accessible, Affordable for Macintosh and PC Customers

LOS ANGELES, Ca—April 12, 1994—

The products include: the Apple
Multimedia Kit for Macintosh, the
Multimedia Kit for Windows, Apple-
Design Powered Speakers II, and the
AppleCD 300e Plus external CD-ROM
player. The new generation of prod-
ucts makes multimedia—the ability to
create, use and combine graphics,
text, music, video and images on a
computer—even easier for consumers.
*System Requirements Apple Multimedia
Kit for Macintosh - Any Apple Macintosh—
including Performa and Power
Macintosh—or PowerBook computer with
a 68020, 68030, 68040 microprocessor -
At least 4MB of RAM (5MB or more recom-
mended with some CD-ROM titles) - A
color display with a 640x480-pixel resolu-
tion or higher (note that some CD-ROM
titles require 13-inch or larger displays) -
Macintosh system software version 6.0.7
or later, or Macintosh Performa system
software... Price/Availability The Apple
Multimedia Kit for Macintosh is expected
to be available in May 1994, and the
Multimedia Kit for Windows is expected to
be available in June 1994. Each
Multimedia Kit has an ApplePrice of \$449.*

Apple Multiple Scan 17 Display CUPERTINO, California—April 11, 1994—

Apple Computer, Inc. today
announced the Apple Multiple Scan
17 Display, a 17- inch, full-page, color
Trinitron display that provides high
screen performance at a competitive
price. With an Apple price of \$1,069
(U.S.), the Apple Multiple Scan 17
Display is scheduled for availability
this month through Apple authorized
resellers worldwide.

Please Submit...

**Submission Deadline for
the Newsletter is
the 9th of each month!**

Start of Mac Tips 3!

Speedier FC Downloads

For faster downloads in First Class Mac Client 2.0.9, choose "Quit" and a dialog will appear to ask you to confirm disconnect. At this time, don't click either "OK" or "Cancel". If you have the File Transfer Progress window open, you will notice that the file transfer speed is much faster. You have put your Mac into a passive mode awaiting the answer to the dialog box - no extra attention is paid to other system calls, and the download can go faster. After the file transfer is finished, click "Cancel" to resume your session or "OK" to really quit.
from 'The Active Window, April 94'

Installations

It is best to restart the computer and hold down the Shift key to prevent the loading of any extensions before installing new software. This ensures your virus utilities are off as well as preventing any other conflicts. Claris programs have been noted for having installation problems if this is not done.
from 'The Active Window, April 94'

RAM

Unsure if you have allocated too much RAM to a program? Turn on Show Balloons and then select About This Macintosh in the Apple Menu when the Finder is the active program. Hold the pointer over the thermometer bar for the program you are curious about. The Balloon will tell you exactly how much memory it is using and how much is allocated to it.
from Burnie Burgetts, MacVIEWS

Hint

If you constantly switch between BY NAME and BY DATE in your Finder windows, simply click on NAME or LAST MODIFIED (or SIZE or KIND) in the window header instead of mousing up to the VIEW menu. The current view is the one underlines.
from PMUG dialog

Unformattable Disks

What do you do with those disks that refuse to format on your Mac? Throw them away? Well, next time it happens, try formatting them on a PC first (if you know of someone who has one). Many times these disks will then format on a Mac. It's worth a try.
from MacVIEWS, May '94

If you have a disk in your floppy drive that you can't remove, hold down the mouse button as you reboot. This works even if it contains a System Folder.
from MacVIEWS, May '94

If you want to make sure a file you trashed cannot be retrieved, generate a blank document with the same name and trash it. Then, if someone tries to retrieve the document, all they'll get is the blank.
from MacVIEWS, May '94

In a dialog box that has several fields to fill out, you can move from field to field by pressing the TAB key. I'm sure most of you know that, but you might not know that pressing SHIFT-TAB moves you to the previous field.

from AMUG news

I've never tried this, but I'll repeat it for those of you who are still trying to get a life. In Disinfectant, select About Disinfectant from the Apple Menu and wait a few seconds. You'll soon hear John P. Sousa's "Liberty Bell March"

from MacVIEWS, May '94

from Gregory Carlson

Nick Ludwig wins club appreciation

The mini'app'les board of directors presented member Nick Ludwig with an award of appreciation at the May board meeting. Nick, who works with insurance professionally, provided very generous help and energy in obtaining new liability insurance for the club at a rate substantially less than what we had been paying. He worked hard not only to find us a policy at the best price, but to include at no additional charge some additional coverage which formerly would have involved additional premium payments.

The board wishes to express again their appreciation for Nick's hard work in this important area. We need still more volunteers to provide other necessary services to our club. Remember that we have a variety of needs; don't feel that you need to be a computer whiz to help us out. Like any organization, we have business needs that address a wide range of knowledge and information; chances are good that whatever you do for a living or for a hobby can be helpful to our club in some way. Any member who wishes to volunteer should contact Roy Sorenson who can help connect you with the people and areas where your expertise is needed.

Thanks, Nick!

Procedure for Cleaning Dot Matrix Print Heads

by Michael McConnell

submitted by Gregory Carlson

(This article was originally published in "The Apple Spice", newsletter of Delaware Valley Apple Club for the GS)

You say your printer is printing stripes through your letter to Aunt Mable?? Your pictures print out like they were being viewed through venetian blinds? Your ribbon looks like something from a fuzz ball convention?? Well Bunkie, it's time to spring clean that ole printer of yours! If you're one of those adventurous types, an hour spent pulling the innards out of your printer and cleaning them, then putting things back will be an hour well spent, and we won't even mention the money you could save from the repair bill you'd have at your friendly neighborhood repair center!

Dot matrix printers are real work-horses and can pound out the text for months, sometimes years, without nary a complaint. But when the print quality starts to suffer, you may be able to restore the print to its original clarity with some simple steps. If you're ready... let's take a look.

First, closely examine a sample of the printer's output. If the characters have thin horizontal 'white' stripes through the lines of text, you may have a stuck or bent needle in your print head. Print heads are constructed of 9 or 24 'pins' or wire needles that are forcibly driven into the ribbon as the print head moves across the paper. As the pins 'fire' at the proper times, they create readable characters by transferring ink from the ribbon onto the paper. If one of the pins is not striking the paper hard enough, it will leave an inkless gap in the line of print. This may be correctable without having to spend a fortune on a service bill.

If your print seems to have characters that have a 'wavy' or 'zig zag' appearance, or even a slanted look, you may not be able to correct this by cleaning, but what the heck, it's work a shot!

You will need to collect a few items such as:

GLOVES: use the flexible rubber type, you want to protect your hands from the chemicals.

SCREWDRIVER: both standard and phillips head, you'll need one of them.

CLEANER: get a small bottle of "Platen Cleaner" from your nearby office supply store, then type used for dissolving old ribbon ink from typewriters. You could also use alcohol, but it's not as effective.

Q-TIPS: to clean out small areas of the print head.

SMALL SHALLOW DISH: to hold the cleaner.

MAGNIFYING GLASS: to examine the print head, unless you have good eyesight!

LIGHT-WEIGHT MACHINE OIL: get one of those 'needle' oilers from Radio Shack, or use a toothpick to drop some oil into place.

CUP OF COFFEE: you will need this.. at least I always do!

Next, make SURE the printer is unplugged from the wall... we don't need any more red-nosed ornaments out on the front lawn this Christmas. You might also want to move the printer to a well-lighted location with plenty of ventilation, some of the cleaners can be a hazard if inhaled for an extended time.

Now a little ingenuity is needed to determine how to remove the print head from the printer. On a lot of the newer printers, the print head is held in place with a clip arrangement and can be easily removed. Other printers may need a couple of retaining screws loosened or removed to allow the print head to come free. Be extra careful if the control cable is permanently attached to the print head, you don't want to break any wires. Usually the print head can be loosened to the point where you can work with it, even if it will not come completely free of the printer.

Now, take a close look at the "nose" or front of the print head; use the magnifying glass. You will see one or two vertical rows of needles (pins) that should be flush with the

surface of the needle guide (or bearing, it's usually made from a ruby!). If you see one needle sticking out past the surface of the needle guide, see if it's bent over to one side. If it is, stop here and drink the coffee... we can't do anything about this problem as the needles are very brittle and can't be re-bent, it's time to buy a new print head.

If the needle appears to be perfectly straight, try to gently press it back into place with your fingernail; it may simply be stuck with dried ink.

If the needles appear to be lined up uneven (they should be stacked one over the other in one or two very straight lines), the front "nose" guide may be worn, again you will probably need a new print head.

If everything looks in order, pour a small amount of cleaner (about 1/2" depth) in the shallow dish, and prop the print head in the dish in such a way that the very nose of the print head can soak in the cleaner. Be careful not to get any liquid in the back area of the print head where the electric solenoids that 'fire' the pins are located. Gently swirl the print head every few minutes to wash out dissolved ink from the front guide. Use a Q-tip to clean any ink from around the nose of the print head. About 10 minutes in the bath should do it... any more and the print head may start to wrinkle (I'm kidding, just kidding!!)

Remove the print head, and dry off as much of the cleaner as you can with another Q-Tip, and let the print head stand for about 15 minutes or so. The cleaner will evaporate rather quickly (now's a good time to hit the coffee again).

If you look closely at the underside of the print head just before the 'nose', you may see a small piece of felt stuffed into an opening near the nose guide. This is a lubricating reservoir that keeps the needles moving freely. Place about 4 or 5 drops of light machine oil on the felt and let

(Continued on page 15)

Macintosh Tips, Terms, and Tidbits:

Collected by Greg Carlson

Em-dash: A long dash used in U.S. practice to mark a break in a sentence. Press Option/Shift/hyphen.

En-dash: A dash longer than a hyphen, but shorter than an Em-dash, sometimes used to join the ends of a range. Press Option/hyphen.

Italicize text that you would have underlined on a typewriter. Some fonts are very difficult to read on the screen when they are italicized, but print clearly.

Bold text that you would have typed as all capital letters.

When underlining more than one word, underline the entire phrase [but avoid underlining completely, if possible].

Underline spaces, but do not underline punctuation.

Use actual typesetting marks. Learn to use true ellipsis (...), curly quotes (" "), em- and en-dashes, and hyphens appropriately.

Do not put two spaces after a colon or at the end of a sentence.

Don't use a series of spaces or tabs to position text. Use justification and tab settings.

Don't overuse the new tools offered by the word processor. This will negate the polished look you are trying to achieve. This is especially true of using too many fonts and font styles in a single document.

For more information, there's a handy little book by Robin Williams called "The Mac is not a typewriter." (from *Mac Monitor - Savannah Macintosh Users Group newsletter*)

Stories I Never Told Before:

By Robert Wright

I once had an assistant who had never used a computer. I began by showing her how to move the mouse around and explaining that once the pointer was over what you wanted you should 'click'. She picked the mouse up off the desk, pointed it at the screen like a remote control and started clicking like mad

saying, "It's not working!"

A user came into a service bureau with a file on an old-style IBM 5.25-inch disk. The proprietor apologized and explained that the user would have to get the job transferred to a 3.5-inch disk first. The user asked, "Couldn't we just get a scissors and trim it?"

A user was perplexed by an error that would appear every time he tried to print. The computer would say, "Looking for LaserWriter" and after a while, "Can't find LaserWriter." His solution? He turned the Mac so that the screen faced the printer.

Cool Photoshop Trick

This is a cool Photoshop trick. Whenever I do this one in class, I hear a chorus of "ooohs." This instantly gives you a spectrum. (Ordinary people call it a rainbow.) Start by choosing a foreground color of red at the very top of the color spectrum. Made the red as saturated as you can. Next, choose a background color of red at the very bottom of the spectrum. And make it saturated. At this point your foreground and background colors should look almost identical. But the first red will be a little bluer than the second. Double Click on the blend (gradient) tool and choose Style: Clockwise Spectrum. Then drag your blend from one spot to another. Your blend will start out on red and continue through purple, blue, aqua, green, yellow, and orange, ending with the final red. For an even more exciting look, try the radiant blend option.
From Oct. 1993, Applebytes

Killing time Online

Here's a good tip for some holiday savings (actually can be used all year). If you have to leave your Mac for a period of time while working in an online service, move to a customer-service or help area. The hourly charge is usually waived while in there, and you won't have to log-off and back on again later.

Keep in mind that if you're gone too long, the service may hang up on you. Even if it does, it's worth a change.

From MacViews via Nov. 93 MacIntouch.

Enrich your BBS style with a Squiggley & Smiley

Just what are those funny little squiggley things? Just what are those MLAs (multi-letter acronyms and :) (emoticon) type things that you see in message echoes?

Acronyms allow you to enter commonly used text in a fast, easy way. They are a form of shorthand that has been adopted in the BBS world.

Here are a few of the more commonly seen acronyms:

AAMOF = as a matter of fact

IMHO = in my humble opinion

TTLY = talk to you later

OTOH = on the other hand

ROTFLMAO = rolling on the floor laughing my ASCII off

Since it is hard for the receiver of a message to know the tone or feeling the writer is trying to convey, the writer adds emoticons so the text isn't so dry:

:-) your basic smiley. This smiley is used to inflect a sarcastic or joking statement since we can't hear voice inflection over the echo.

;-) winkey smiley. User just made a flirtatious and/or sarcastic remark. More of a "don't hit me for what I just said smiley."

:-(frowning smiley. User did not like that last statement or is upset or depressed about something.

:-I indifferent smiley. Better than a frowning smiley, but not quite as good as a happy smiley.

:-> user just made a really biting sarcastic remark. Worse than a :-)

>:-> user just made a really devilish remark.

from Incider, April 1994

(Print heads, continued from p. 13)

it soak in for a minute. Too much is not necessarily better!

Now, reverse the steps you took to remove the print head. If you had to loosen screws to remove the print head, you may have to adjust the print head so there is a gap between the nose of the print head and the platen. Too much of a gap and your print quality will be very poor as the pins will not be able to reach the paper; if you move the print head too close to the platen, there will not be enough room for the ribbon and paper to fit between the nose of the print head and the platen, resulting in speared print. A little trial and error should allow you to find a happy medium. Those of you who just unclipped the print head, well just clip it back.

Run a sample printout; you should see an improvement in print quality. If you don't, try adjusting the print head gap (most printers have a lever that allows you to adjust for multiple ply paper) and try again.

If the print has a slight wavy look to it, you may have a print head that has simply been worn to the point where the needles can slop around too much to produce crisp even print, time to look for a new print head (unless you like the 'wavy' look!)

Oh yes... the disclaimer. LVAC/GS, from the Editor, Officers, Members or me will not be responsible if this procedure results in smoke or other pollutants being released into the atmosphere. (PLEASE don't come up to me at the next meeting carrying a large box that rattles saying, "I read your article and now I have this problem...". I don't handle stress that well.)

Now that you are all finished, get yourself another mug of coffee... sit down, and enjoy!

Apple II History

Part 10 — The Apple IIGS

Compiled and written by Steven Weyhrich © 1991, Zonker Software

The Apple II Evolves

While the capabilities of the Apple II slowly advanced as it changed from the II up through the IIC, the one thing that remained essentially unchanged was the 6502 microprocessor that controlled it. Even though the 65C02 had more commands than the 6502, as an 8-bit processor it was inherently limited to directly addressing no more than 64K of memory at one time. (As an 8-bit processor, the 6502 could handle only 8 bits, or one byte at a time. However, its address bus was 16 bits wide, which made for a maximum address of 1111 1111 1111 1111 in binary, \$FFFF in hexadecimal, or 65535 in decimal. If you divide 65536 bytes by 1024 bytes per "K", you get 64K as the largest memory size). When Wozniak designed it, 64K was considered to be a massive amount of memory, even for some mainframe computers. (For example, the old mainframe on which I learned programming during college back in 1975 was a ten-year-old IBM 1130 with 8K of memory; this was used for both the operating system AND user programs!) Most hackers of the time would not have known what to DO with four megabytes of memory, even if it had been possible (or affordable) to install that much. Consequently, programs of the day were compact, efficient, and primarily text-based.

The non-Apple II computer world had developed and advanced, and Apple grudgingly allowed the Apple II to make its small, incremental advances. Occasionally, efforts were made within Apple to make a more powerful Apple II, but the lure of "better" computers always turned the attention of management away from allowing such a project to actu-

ally make any progress. First the Apple III, then Lisa, and finally Macintosh swallowed the research and development dollars that Apple's cash cow, the Apple II, continued to produce. The latter two computers were based around the 16-bit Motorola 68000 microprocessor, which had the capability to address far more than 64K of memory. The Apple II could make use of more memory only through complicated switching schemes (switching between separate 64K banks). Although "Mac-envy" hit many Apple II enthusiasts both inside and outside of Apple, causing them to move away from the II, there were still many others who continued to press for more power from the II.

Eventually, a company called Western Design Center revealed plans to produce a new microprocessor called the 65816. This chip would have all of the assembly language opcodes (commands) of the 65C02 through an "emulation" mode. However, it would be a true 16-bit processor, with the ability handle 16 bits (two bytes) at a time and to address larger amounts of continuous memory. The address bus was enlarged from 16 to 24 bits, making the 65816 capable of addressing 256 times more memory, or 16 megabytes. The power to make a better Apple II was finally available.

The Return Of Wozniak

Back in early 1981, Steve Wozniak was involved with several projects at Apple. He had helped write some fast math routines for a spreadsheet product that Apple had planned to release in competition with Visicalc. Also, Steve Jobs had managed to convince Wozniak to participate with his fledgling Macintosh project. Then, in early February, Wozniak's private plane crashed. He was injured with a con-

ussion that temporarily made it impossible to form new memories. He could not recall that he had an accident; he did not remember playing games with his computer in the hospital; he did not remember who visited him earlier in the day. When he finally did recover from the concussion, he decided it was time to take a leave of absence from Apple. Wozniak married, and returned to college at Berkeley under the name "Rocky Clark" (a combination of his dog's name and his wife's maiden name). He decided he wanted to finally graduate, and get his degree in electrical engineering and computer science. When he was done with that, he formed a corporation called "UNUSON" (which stood for "Unite Us In Song") to produce educational computer materials, wanting to make computers easier for students to use. He also decided use UNUSON to sponsor a couple of rock music events, and called them the "US Festival".<1> Held on Labor Day weekend in 1982 and 1983, these music and technology extravaganzas were invigorating for Wozniak, but he lost a bundle of money on both occasions. Though nowhere near drying up the value of his Apple Computer stock, he decided that he was ready to return to work. In June of 1983, Wozniak entered the building on the Apple campus where the Apple II division was housed and asked for something to do.

The Apple IIX

When Wozniak returned, he discovered the latest of the Apple II modernization projects, which was code-named "IIX". When he saw what the 65816 could do, he became excited about the potential of the new Apple II and immediately got involved. It was a tremendous boost in morale for the division to have their founder return to work. However, the IIX project was plagued by several problems. Western Design Center was late in delivering samples of the 65816 processor. First promised for November 1983, they finally arrived in February 1984—and didn't work. The second set that came three weeks later also failed.

Other problems came out of the engineering mindset that still existed at Apple at the time. Recall that people there liked designing boxes that would do neat things, but there was not enough of a unified focus from above to pull things together. The marketing department wanted the IIX to have a co-processor slot to allow it to run different microprocessors. The code name of the project by this time was "Brooklyn" and "Golden Gate" (referring to the ability to make it a bridge between the Apple II and Macintosh). The co-processor slot could allow the IIX to easily do what third party companies had done for the original Apple II with their Z-80 boards (which allowed them to run CP/M software). Co-processor boards considered were ones for the Motorola 68000 (the chip used in the Macintosh), and the Intel 8088 (used in the IBM PC). The IIX project got so bogged down in trying to become other computers, they forgot it was supposed to be an advanced Apple II. Politically it also had problems at Apple, because it was being aimed as a high-end business machine, which was where they wanted the Macintosh to go.<2>,<3> Wozniak lost interest as things ran slower and slower, and eventually the project was dropped.

The 16-Bit Apple II Returns

When the IIX project was canceled in March 1983, some of the Apple II engineers were assigned the task of reducing the cost of the Apple II. Engineers Dan Hillman and Jay Rickard managed to put almost the entire Apple II circuitry onto a single chip they called the Mega II. Meanwhile, after the "Apple II Forever" event that introduced the IIC, interest in the Apple II revived and sales were quite good. Management saw that sales of the open IIE were better than the sales of the closed IIC, so they were agreeable to the idea of another try at the 16-bit Apple II, possibly utilizing the Mega II chip. By late summer 1984 it was revived with the code name "Phoenix" (rising from the ashes of the IIX project).<3>

The Apple IIGS: Goals Of The Development Team

The people involved in the Phoenix project were very knowledgeable about the Apple II, from the days of the][through the //c. They knew what THEY wanted in a new computer. It should primarily be an Apple II, not just something NEW that tried to be all things to all people.<4> Dan Hillman, who had also been involved as the engineering manager for the IIX project, stated in an interview, "Our mission was very simple. First we wanted to preserve the Apple II as it exists today. It had to work with Apple IIE software and Apple IIC software. That was goal number 1. But we recognized that the Apple II was an old computer. It had limitations. The new machine needed to address those limitations, break through those barriers—and the barriers were very obvious: We needed to increase the memory size. We had to make it run faster. We needed better graphics. And we had to have better sound. That was our mission." Since advanced graphics and sound were what would make this new Apple really shine, the name eventually assigned to the final product was "Apple IIGS".<3>

Having learned from their experience in building the Apple IIE and IIC, they knew what would make the new 16-bit Apple II more powerful. The Apple IIC was easy to use because the most commonly needed peripherals were already built-in. The Apple IIE, however, excelled in its ability to be easily expanded (via the slots) to do things that were NOT commonly needed or built-in. Harvey Lehtman, system software manager for the project, stated, "We ... wanted the Apple IIGS to be easy to set up, like the IIC, and easy to expand, like the IIE."<3>

The Apple IIGS: Architecture

Wozniak was quite involved in designing the general layout of the IIGS. Insisting on keeping it simple, he recommended AGAINST a built-in co-processor (as they tried to do with the IIX). He also wanted to keep the 8-bit part of the machine sepa-

rate from the 16-bit part. To accomplish this, he and the other engineers decided to design it so the memory in the lower 128K of the machine was "slow RAM", which made it possible for it to function just as it did on the older Apple II's. This included the memory allocation for the odd addressing schemes used in the text and graphics modes and (which made sense in 1976, but not in 1986). The rest of the available memory space would be fast, and could be expanded to as much as 16 megabytes. With a faster micro-processor, it would also be possible to run programs more quickly than on the older Apple II's.<3>

The Apple IIGS: Graphics

One area they decided to focus on was bringing the quality of graphics on the new Apple II up to modern standards. Rob Moore, the Phoenix project hardware group manager, helped define the new graphics modes of the IIGS. Because a change that increased the vertical resolution from 200 dots to 400 dots would make the computer too expensive (it would require a special slow-phosphor monitor), they purposely decided not to go in that direction. Instead, they increased the horizontal resolution, and created two new graphics modes (called "super hi-res"); one was 320 x 200 and the other was 640 x 200. This decision also made it easier to keep compatibility with older graphics modes.<3>

As mentioned above, the text and graphics addressing on the old Apple II was odd, from a programming standpoint. When Wozniak originally designed the II, he made the memory allocation for text and graphics to be "non-linear", since this saved several hardware chips and made it less expensive to build. This meant that calculating the memory address of a specific dot on the hi-res graphics screen or a character on the text screen was not as simple as most programmers wanted. The hi-res screen began at \$2000 in memory, and the first line on the hi-res screen (line 0) started at that address. Each line on the hi-res

screen was made up of 40 bytes of 8 bits each, and seven bits of each byte represented a dot or pixel on the screen, giving a possible 280 dots horizontally. Since 40 bytes is \$28 in hex, line 0 then ran from \$2000 to \$2027 in memory. However, the second line (line 1) of the hi-res screen did NOT start at \$2028 as one would expect, but at \$2080. The hi-res screen line represented by memory locations \$2028 to \$204F was line 8, and \$2050 to \$2077 was line 16. The last eight bytes of this 128 byte section of memory was unused. The next 128 bytes were allocated to screen lines 1, 9, and 17, and so on. Because this complicated things considerably for programmers, the design team for the IIGS wanted linear addressing, which would allow the memory addresses of line 0 to be followed by the addresses for line 1, and so on. Because the graphics resolution and range of available colors planned was much greater than either of the older graphics modes (hi-res or double hi-res), they needed 32K of continuous memory to use. Because they planned on a minimum memory configuration of 256K for the IIGS as it would be shipped, they could not come up with that much memory in one single block. Engineer Larry Thompson designed a special Video Graphics Controller (VGC) to solve the problem. The chip combined two separate 16K blocks of memory and make it appear as a single continuous 32K block of memory, as far as the graphics programmer was concerned.<3>

The new super hi-res graphics modes also gave far more color choices than either the old hi-res mode (which had six unique colors) or even the double hi-res mode (which had sixteen colors). In the 320 x 200 super hi-res mode, each line could have sixteen colors out of a possible 4,096, and in the 640 x 200 mode, each line could have four colors out of 4,096. This gave graphics power that was not even available on a Macintosh (which was still black and white at the time).

The Apple IIGS: Sound

The second major area of focus

for enhancements over the old Apple II was sound reproduction. The original sound chip that had been proposed for the IIGS would have given it the sound quality of a typical arcade game. However, this was no better than what other computers in 1986 could do. Rob Moore suggested using a sound chip made by Ensoniq, one that was used in the Mirage music synthesizer. He had to push hard to get this included in the final design, but was able to convince management of its importance because he told them it would be "enabling technology" (borrowing a phrase from a Macintosh marketing book). He told them "it would enable people to do things they'd never dreamed of doing."<3>

The Ensoniq chip was capable of synthesizing FIFTEEN simultaneous musical voices. To help it in doing such complex sound reproduction, they gave the chip a separate 64K block of RAM memory dedicated specifically for that purpose.

The Apple IIGS: Memory

The 65816 is designed to address up to 16 MB of memory. The IIGS, however, was designed to support only 8 MB of RAM, and up to 1 MB of ROM (in high memory). With cards specially designed by third-party companies, up to 12 MB of RAM could be added, but the memory manager in ROM was only aware of the first 8 MB. A special patch was needed to allow the system to use memory beyond that point.

Building on the traditional memory organization from 6502 days, memory in the IIGS was usually referred to in banks, from \$00 through \$FF. Each bank refers to a 64K chunk of memory. The lowest bank, \$00, was identical to the 64K memory space in the original Apple II. The next bank, \$01, was the same as the auxiliary memory bank used on the Apple IIe and IIc. (Additionally, the super hi-res graphics display was found in 32K of the memory in bank \$00, from \$2000 to \$9FFF). The banks from \$02-\$7F were also for RAM storage, and covered things up to the 8 MB limit. Banks \$80-\$DF could be used for another 4.25 MB of RAM, but

as mentioned above they were unusable (without a patch) because the memory manager didn't know how to access it.

The memory expansion slot designed for the IIGS only had two lines to decode addresses. This allowed for direct access to each of four 256K RAM chips, or four 1 MB RAM chips. In order to make use of the next 4 MB of RAM some special logic was needed to find and use it. RAM cards with more than 4 MB were never directly supported by Apple.<5>

Banks \$E0 and \$E1 were a special part of RAM that was used to duplicate ("shadow") banks \$00 and \$01. This RAM was designed as "slow" RAM, and would better be able to run some of the older 8-bit Apple II software. When shadowing was active, anything a program did to addresses in banks \$00 and \$01 was duplicated in banks \$E0 and \$E1. Although it appeared to a program that it was running in the lower two banks, it was really running in the slow RAM in banks \$E0 and \$E1.<6>

Banks \$E2-\$EF were undefined. The last one MB from \$F0-\$FF was allocated to ROM. The lower 512K (banks \$F0-\$F7) were set aside for a ROMdisk. (A ROMdisk is just like a RAMdisk, except it will not lose its contents when power is turned off). For a ROMdisk to be installed, a device driver for the disk had to be located at the beginning of bank \$F0 (at address \$F0/0000), and the driver had to start with the phrase "ROMDISK". The most common way this was used by third-party hardware providers was to take some of the GS memory, protect it with a battery (so its contents didn't disappear when the computer was turned off), and designate it properly to the IIGS as a ROMdisk (even though it was simply protected RAM, and not true ROM).<7>

The rest of the space from \$F8-\$FF was reserved for system ROM. The original IIGS had ROM code only from \$FE-\$FF, while later versions expanded this space to include \$FC and \$FD.

NEXT INSTALLMENT: The Apple IIGS, cont.

NOTES

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- <5> Regan, Joe. *A2PRO ROUNDTABLE*, Oct. 1991, Category 16, Topic 2.
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- <7> Nolan, Sean. "GS Memory Cards Compared", *CALL-A.P.P.L.E.*, Aug. 1987, pp. 10-17.

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