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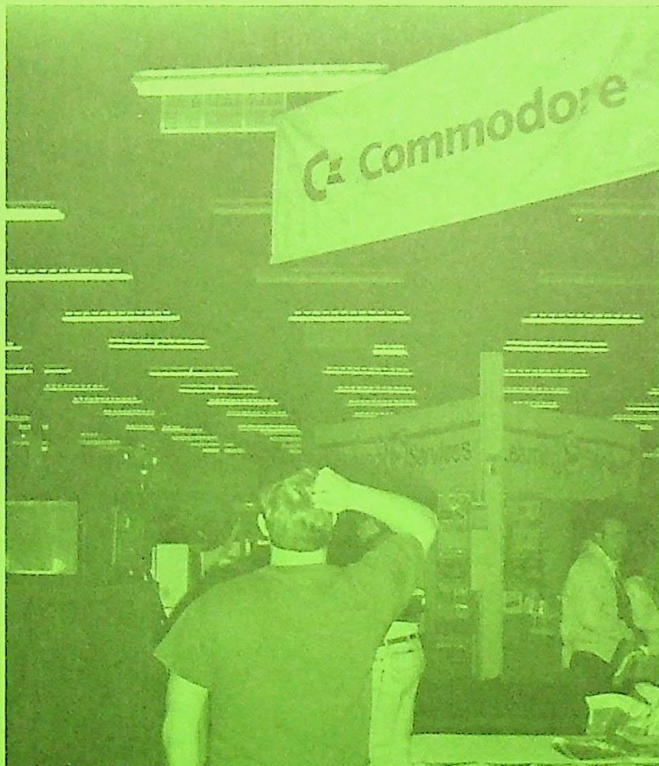
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**May
June
1990**

The *First* Apple IIgs Magazine + Disk Publication!

**Volume 1
Number 5**

APPLEFEST?



In This Issue:

- Our AppleFest Report
- Beginner's Guide to System Disks
- PreFixer - An introduction to GS/OS prefixes, and a new CDev

Reviews:

- GraphicWriter III
- CMS SDRM 45MB Removable Hard Drive
- DataLink Express
- Visionary GS
- McGee
- Math Blaster Plus
- The New Talking Stickybear Alphabet
- S&S Ram Card
- ZapLink

ALSO

The Return of The **GS+** Compatibility Guide
More Juicy Rumors
More Icons
A Sneak Peek At The Zip GS

Plus Much, Much More!

WRITER'S BLOCK

AppleFest!

Don't let our cover fool you, this was indeed an APPLEFest. Even though Commodore and IBM were there (and Apple wasn't...), the main focus of the show was the Apple II. For our complete report on the show, and information on what *you* (yes, *you!*) need to do to make sure that this nasty ComputerFest business does not happen again, check page 5.

We're Off On The Road To New Jersey...

And before I forget, I want to thank my three AppleFest traveling companions: Dave ("Have a nice day!") Adams, Noreen ("It only took us 7 hours to get to Roanoke! We're 30 minutes ahead of schedule!") Ribaric and Joe ("My Friend Mike said...") Wankerl. If you ever have to be trapped in a van for 30 hours with three people, these are the ones you should be trapped with. An extra thanks goes to Dave for supplying the van, and for letting us borrow his IIGS to test out all the stuff we bought at the show.

Whatta Revoltin' Development!

If you don't know by now, the Post Office "misplaced" all of the subscriber copies of *GS+* V1.N4. What this means is that instead of taking days to reach their destinations, it took each and every subscriber copy of *GS+* weeks to get where they were going. It was three weeks before the folks here in Chattanooga got their copies! I am truly sorry about the problem, but after I take them to the Post Office, there isn't much I can do about it.

However...

If you were a subscriber back then, and you *still* don't have your copy of *GS+* V1.N4, send us a letter with your name, address and customer number (it's that 5-digit number on your mailing label... Quick! Get that envelope out of the trash!), and, if we have any left, we'll send you a replacement copy. We are almost out of copies of *GS+* V1.N4 (we have about 20 left), so don't waste any time! If we *do* run out, we'll extend your

subscription for an extra issue. After all, it's not your fault we gave most of them away at AppleFest!

Hard Lessons

If I've learned anything from doing this magazine, it's that you should *never* say, "Sure, I can get that done in two months. No problem!" As a result of my not being able to keep this promise, we had to pull Fractals-GS and some of the reviews we had planned for this issue. In an effort to make sure this sort of thing does not happen again, two changes will be made here at *GS+*:

- 1) The "Next Issue" blurb will be changed to read "In a Future Issue" (Thanks to David Chesebrough of *The AppleWorks Educator* for this bit of advice.)
- 2) I hired somebody to help out with the review writing and programming chores. His name is Joe Wankerl, and he has some really *great* stuff in the works for us. He has a couple of reviews in this issue and his first program should appear in the next few months. I could give you a lot of hype about this program, but I don't tolerate vaporware from other

companies and I sure won't tolerate it from mine.

The Future

Lastly, I'd like to thank everyone that has called or written to express their support for what we are trying to do here at *GS+*. Rest assured that business is good (and getting better every day!) and we have no plans of going away or being bought out by *inCider*. (In fact, at AppleFest, Paul Statt joked that I should try to buy *inCider*. I did not have the heart to tell him I did not want it.) Keep spreading the word about *GS+* and we'll keep putting out the best magazine we can!

Diz

P.S. If you are an America Online subscriber, look for Noreen and myself in AFL Marty's Productivity Conference on June 14th at 9 P.M. We will be talking about life with AppleWorks GS v1.1 and GraphicWriter III. Also, I am trying desperately to get a *GS+* conference area on America Online. Look for it soon and be sure to write to America Online's Customer Support and tell them that you want your *GS+*!



Diz, Nory, and Joe at AppleFest

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FingerPrint GSi was used to freeze the screen so that the screen photographs could be taken.

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GS+ is published bimonthly by:
EGO Systems
4126 Mountain Creek Road #20
Chattanooga, TN 37415
(615) 870-4960

If you have a submission for GS+, send it to:

GS+ Submissions
c/o EGO Systems
P.O. Box 15366
Chattanooga, TN 37415

Subscription rates for one year (six issues) are:

Magazine only - \$15.00
Magazine + Disk - \$36.00.

Canadian and Mexican orders add \$1.

Other foreign orders add \$5 for surface delivery or \$25 for air mail.

Quantity discounts available for schools and Users' Groups.

Send subscription orders, ads, inquiries, and address changes to:

GS+ Subscription Services
c/o EGO Systems
P.O. Box 15366
Chattanooga, TN 37415
or call (615) 870-4960

GS+ is produced on an Apple IIGS using AppleWorks GS v1.1, GraphicWriter III, and an Apple LaserWriter IINT.

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LETTERS

Dear Steve,

I haven't received my March/April 90 issue [of GS+] yet. I hope nothing has gone awry with publishing your magazine - I really look forward to reading it.

Eric T. Emerson
Vacaville, CA

Nothing has gone wrong with the publishing end of things (except that we are eternally behind schedule). We took all of the subscriber copies of GS+ V1.N4 to the Post Office on March 27th. Apparently, they were promptly placed in the wrong basket and it took at least 2 weeks for them to get where they were going! Some folks here in Chattanooga did not get their copies for over 3 weeks! If you never got your copy, and would like to get a replacement copy, check out "Writer's Block" on the inside front cover.

Dear Steve,

... I had an idea yesterday and I thought that I would ask you to see what you think. As librarian to Apple Harvest User's Group, I designate what programs go on the "GS Disk of the Month." I was thinking that it might give GS+ some exposure if I either <A> designated one of the GS+ disks as the next D.O.M. (with your permission, of course) or put one of the programs from GS+ on the D.O.M. (with your permission, of course) What do you think? Be honest... if you don't like the idea, no problem. Just let me know one way or the other...

Ron Hochevar
Bloomington, CA

You are about the 10th person to ask this question. Alas, each time we have had to say no. You see, the GS+ disk is not Public Domain (or even ShareWare) so we can not give our blessing to such an undertaking. Public Domain and ShareWare software tend to spread like wildfire, and if some of our programs got out with the label "Public Domain" on

them, that would be what people would remember when it came time to pay for a subscription, and that would probably be the end of GS+!

We know everyone has heard this a billion times, but it really is true. From the folks in the Ivory Towers of Microsoft all the way down to the mud huts here at GS+: this is how we pay for food! Please don't give away copies of the GS+ disk (or any other commercial software) to anyone for any reason! If you do, GS+ will simply cease to exist!

Dear Steve,

Thanks for the sample issue, I enjoyed it enough to subscribe to your magazine and disk too. I can't believe how quickly you got back to me, I'm used to waiting for weeks for a reply to an inquiry.

Maybe you could answer a couple of my questions in your magazine. First, when the hardware requirements say 1.25 MB required, will the program run on the new ROM 03 with 1.125? Also, have you experienced any problems with the spelling checker in AppleWorks GS v1.1? Twice when I was using the spelling checker, when it came across a duplicate word and the dialog box gave me the option to delete that duplicate word, when I selected delete, the program locked up and I had to reboot. I haven't used any earlier versions of AppleWorks GS but so far I'm pleased with its performance. Do you know if the program Nucleus runs on the ROM 03 GS yet? Also, could you compile a list of programs that don't work with the new ROM 03?

I hope your magazine is a big success. I think the IIGS is a fantastic machine and wish more people were aware of it. I've had mine since Christmas after using a IIc+ for one year. I liked the IIc+, but after using a IIGS at a community college class I was taking I knew I had to have it. When I saw the ROM 03 came with a full MB I decided now was the time. So far I haven't been sorry. It does kind of worry me though when

I hear of more and more software companies drop out of the Apple II market.

What I would like to see in your magazine is more tips on using AppleWorks GS and other GS-specific productivity programs such as Medley, GraphicWriter III, etc. I like your tutorial on the Finder, so maybe more GS/OS information, maybe an intermediate guide to GS/OS and the Finder. In your review section throw in a couple of educational reviews. You're always pushing hard drives and I would really like one but I don't know enough about them to make an intelligent decision yet. How about a hard disk primer? If you have an InnerDrive that has a fan do you still need a system saver or does the drive take care of that? Also, how about some information on modems? I want to be able to use my GS to its full advantage but it's SO hard to find good useful information.

Thanks again for your rapid reply and start my subscription.

Linda J. Harding
Pittsburgh, PA

In this issue, you will find some tips on using GraphicWriter III, along with a review. You will also be pleased to find three educational reviews by the incredibly qualified (he has four kids) Greg Zimmerman. Our Compatibility Guide has returned this issue with ROM 03 compatibility listings in addition to System Software compatibility listings. Also in this issue is an article on the anatomy of a GS/OS Startup Disk and a brief tutorial on GS/OS Prefixes. How's that for speedy service?

Your memory requirements question is a tricky one. If the program in question was properly written, it should be able to run comfortably in a ROM 03 machine. However, you should always try to test a program, or at least make sure that you can return it, before you buy it. The absolute best solution is to add some extra RAM to your system.

(continued on next page)

We have not had any problems so far with the spelling checker in AppleWorks GS v1.1, although we did have some major problems with earlier versions. If you can, send us a copy of the file that causes the spelling checker to crash on you. We'll take a look at it, and if we can duplicate the problem, we'll see if we can scare up some technical support from Claris.

Nucleus does not yet run on the ROM 03 GS; however, rumor has it that Apple has donated a ROM 03 GS to FTA (the creators of Nucleus) and they are working on an update.

We will keep in mind your suggestions for an "Intermediate Guide to the Finder" and you can look for the hard drive and modem primers in the next few issues.

The fan in the InnerDrive is probably adequate in cooling the GS, but we recommend a System Saver GS for every system, no matter what setup you have. Not only does it more effectively cool the GS, but it has built in power outlets to allow your whole system to be turned on with two separate switches — one controls the CPU and monitor, the other two control peripherals.

Dear Steve,

My name is David Hildebrand. I am a 14-year-old, GS-crazed teenager! I love my IIGS, despite anything anybody says! I have spoken with you before (not really SPOKEN with you, actually I sent you some E-mail on America Online asking for a copy of GS+ Magazine). What I was expecting to get in the mail was a junky, poorly-written piece of paper—but what I got was the best magazine I have ever laid my eyes on! Your magazine is fantastic!

When I read your section ["Rumors, Wishes & Blatant Lies"], I smiled from ear to ear. Finally—a magazine which was honest! [A certain other Apple II magazine] stinks, no excuse me, reeks compared to GS+! I got tired of [that other magazine's] dull style, lame reviews, and plain dishonesty. I plan on cancelling my [subscription to that other magazine], and getting a subscription to

GS+ very soon. I can get 6 magazines and 6 disks a year, for about the same amount as my subscription to [that other magazine]. Also, if I haven't mentioned already, your magazine is a *much* better value than [that other magazine] (money and pure quality wise).

You see that the [bottom] of this letter reads "WD Software." Well, that is because WD Software is my little company! . . . I program in BASIC and I dabble in Pascal. I own 175 programs for my II (Of course most of them are IIGS ones)! I love to make music with my II, program on my II, paint on my II, play games on my II. (Have you seen Task Force IIGS? Whew!) I do reports (homework, schoolwork) on my II, I do lots of things on my II. I also belong to an Apple Users' Group in Charlotte, I am the youngest out of all the people there. . .!

I told you all that stuff about me, because I wanted to know if I would be worth anything

to your magazine. I thought that maybe I could tell you things about the computer world—from a young teen's point of view. Maybe I could give you tips, I don't know, anything! I don't want any money, I was just wondering if there is any way I could help your already terrific magazine!

David Hildebrand — WD Software
Gastonia, NC

David, thanks for the enthusiasm! It's great to know that someone out there appreciates what we are trying to do. (Actually, most folks tell us that they like what we are doing, but it's still great to hear it every couple of months!) As for your volunteering to write for us: We think a "Kids and the IIGS" series of articles is a great idea! The IIGS market needs enthusiastic young people like yourself to help give it a good kick in the pants. If you want to write a "Kids and the IIGS" article, we'll be glad to take a look at it!

Coming in a Future Issue of GS+:

Features:

More of our Beginner's Guide To System Disks

Programs:

Fractals-GS v2.0
X-fer terminal

Reviews:

Katie's Farm
Genesys
Renaissance
AMR 3.5-inch drive
Omega

Hunt for Red October
Task Force GS
Cribbage King • Gin King
BeagleDraw
Using AppleWorks GS

PROGRAMMER'S QUEUE & A

Queue:

After seeing the Finder eject 3.5" disks, I thought that it was a pretty neat idea. So, I searched through a bunch of computer material to figure out how to do it and came up with nothing. I would like to know, in ORCA/M, how to eject 3.5" disks. Do you have to be in 8-bit or 16-bit mode to do it? And, also, how can you control which drive will eject the disk?

Jon Larkowski
Chippewa Falls, WI

A:

There are a few ways to eject a 3.5" disk (or any other storage media that is automatically removable). Under GS/OS you issue a DControl call. If you wanted to eject the disk from device number 2, your parameter table for this call would look like:

```
DControlBlock anop
pcount      dc 1'5'      ;Number of parameters
dev_num     ds 2        ;Device number
control_code dc 1'$0002 ;Eject code
control_list dc 14'0'   ;Unused control list pointer
request_count dc 14'0' ;Unused request count
transfer_count dc 14'0' ;Unused transfer count
```

To get the number of the device you want, you would issue DInfo calls starting with device number 1. You then repeat the DInfo call, incrementing the device number, until you find the correct device. For more information on the DInfo and DControl GS/OS calls, you need to pick up the *GS/OS Reference, Volume 1* or Gary B. Little's *Exploring Apple GS/OS and ProDOS 8*.

Joe

Queue:

I have an interest in Microl Advanced Basic. I am writing programs in this language, and would like to see some journal space devoted to it. Not just a description or review, but problem-solving, tricks, or whatever would make the programmer's life easier or more interesting.

Robert L. Griswold
Stockton CA.

A:

Unfortunately, I have no experience with *any* Basic compilers on the IIGS. One of the reasons for this is that none of them work with the

Apple Programmer's Workshop (APW). If the Byte Works ever gets around to releasing ORCA/Basic, you can bet that you will see some programs written with it here in GS+. In the meantime, I would love to publish some programs and/or articles written with/about either Microl Advanced Basic or TML Basic. If only someone would write some and send them to us...

Diz

Queue:

How, in ORCA/M, do you enable & disable menus? I searched through some more computer material and came up with the "_DisableMItem" tool call, so I tried this:

```
pushword #3 (the "Edit" menu ID)
_DisableMItem
```

This produced a dimmed desk accessory. Since disabling the edit menu when no desk accessory is the open window is a desktop standard, I would like to learn how to do this in order to follow the Human Interface Guidelines.

Jon Larkowski
Chippewa Falls, WI

A:

This is a very interesting question. Apple didn't make a DisableMenu command, which is very odd. The call you are making, DisableMItem, disables an item inside a menu, not the actual menu title like you want. The reason you are disabling a NDA is because menu items 1 to 249 are reserved for New Desk Accessory items. The Toolbox call you really want to use is SetMenuFlag. Here's how to disable the Edit menu:

```
PushWord    # $0080      ;disableMenu value
PushWord    # $0003      ;Edit menu number
_SetMenuFlag                               ;Disable the Edit menu
```

And then to reactivate the Edit menu you would use this similar code:

```
PushWord    # $FF7F      ;enableMenu value
PushWord    # $0003      ;Edit menu number
_SetMenuFlag                               ;Enable the Edit menu
```

This information can be found in the Menu Manager chapter of the *Apple IIGS Toolbox Reference: Volume 1*.

Joe

APPLEFEST!

By the GS+ Staff

Gloom and Doom...

Three major changes were made to the spring AppleFest this year. Number one, it was moved from Boston, MA, to the Garden State Exhibit Center in Somerset, New Jersey. Number two, it was not just an Apple show—it was AppleFest/ComputerFest with exhibits for PC and Commodore users as well as Apple users. Number three, Apple Computer, Inc. was not there!

Some of you may have noticed that the brochures for this year's show were sent out a lot later than usual. Originally we were told that this was due to a printer error. However, it now appears that the real reason was because AppleFest Exposition Management had to keep changing them as exhibitors decided not to attend. Since so many exhibitors decided to drop out, Exposition Management had to do *something* to fill up the exhibit center, and so AppleFest/ComputerFest was born.

However, more than anything else, this was an AppleFest! At least statistics wise... There were about 70 booths this year (down from more than 100 exhibitors last year at Boston). Surprisingly, 21 of these booths were Apple II only booths; 23 booths had either Macintosh, IBM, or Commodore products along with Apple II products; and 18 booths were for general computer products or services. Only 7 of the booths had no Apple II products. (For a more exact list of who was and was not there, see the "Who Was There?" and "Who Was Not There?" sidebars.)

Attitude-wise, however, there was something missing. The dealers that we spoke with had a rather gloomy attitude the night before the show started, and many of the attendees that did not know that Apple was not going to be there were "Mad As Hell!", when they found out.

During the show, dealers were continually telling us that things were, "very slow," and that they were not making as much money as they expected. To us however, it was like

watching one of those movies where they drop a big chunk of meat in the middle of a bunch of sharks.

Just before leaving the show, we made one more round of the vendor booths just to see what some overall opinions of the show were. Again, the words, "very slow" were heard from vendors that had attended other AppleFests. Several companies that were there for the first time asked us, "is this all there is?"

So now, not only is Apple disgruntled with AppleFest, several dealers are less than pleased with it, and, most importantly, a great many Apple II owners are ticked off.

And that's what makes this next bit the most important part of our AppleFest report. You have to do something. You have to tell these people how you feel.

First, write or call the companies that cared enough to show up. Tell them thank you and talk them up at your Users' Group meeting. If they make a product you are interested in, buy it.

Second, write to the companies that could not be bothered to show up. Be nice, but be sure to tell them exactly what you think of their absence from the show.

Next, write to the people that run AppleFest. Vidar J. Jorgensen, the Managing Director of the Exposition Management, is the man you need to talk to here. Send your comments to: Vidar J. Jorgensen, c/o Exposition Management, 1601 Trapelo Road, Waltham, MA 02154. And please remember: be civil, be firm, and be nice!

Last, but certainly not least, write a letter to Apple Computer, Inc. They saved about a quarter of a million dollars by not attending AppleFest. If we don't let them know that they made a mistake, it's going to be awfully hard to convince them to attend future AppleFests! So be sure to write and nicely tell them that they were missed at AppleFest this year, that it wasn't the same without them, and that you hope they will be at

"Who Was There?"

America Online Forum Leaders
American Printing House for the Blind
Apple Computer Hands-on Center
AppleFest Emporium
AppleFest/ComputerFest Resource Cntr
Apple IIGS Buyer's Guide
Beagle Bros, Inc.
Broderbund Software, Inc.
The Byte Works, Inc.
CDA Computer Sales
Chip Publications, Inc.
Commodore
CompuCo, Inc.
Computer Center, Inc.
Computer Learning Foundation
Corvus Systems, Inc.
Cultural Resources, Inc.
Davidson and Associates
Digital Vision
Eastern PA Educational Computing Conference
Educational Resources
Engineered Data Products
Green Wing Software
Hyper Learning Network
IBM Computer Hands-on Center
inCider/A+
K-12 Micromedia Publishing, Inc.
Lawrence Productions
Learning Services
MacSmart Buyer's Guide
Media and Methods
Micro Mart Computer Center
Micronetworked Apple Users' Group
Milliken Publishing Co.
Mindscape
NADA-Concepts, Inc.
Network for Action in Microcomputing Education
New Jersey Association for Educational Technology
New Jersey Computer Club
New Jersey Network Educational Services
New Jersey State Department of Education
NYSC &TE
PACET/CUE of PA
PC Globe, Inc.
Peripherals Plus
Peter Li, Inc.
Prodigy Services, Co.
Quality Computers
RibbonLand
Roger Wagner Publishing, Inc.
Seven Hills Software
Shave Enterprises
Sierra On-line
Silver, Burdett & Ginn
Simple Software Systems International
Skyforms
SoftSpoken, Inc.
Software Plus
Stone Edge Technology
Sunburst Communications
Terripan, Inc.
Timeworks, Inc.
Tom Snyder Productions
Tri-State Apple Users' Group
Washington Apple Pl, Ltd.
William K. Bradford Publishing
Wolsten, Inc.
WordPerfect Corporation
Zip Technology

future AppleFests. Send your letters to: Nancy Stark or Jane Lee c/o Apple Computer, Inc., 20525 Mariani Avenue, Cupertino, CA 95014.

Well We Had Fun!

Boy did we ever! Even though some of the biggies were not there, the folks that did show up made this a really great show. Just a few of our favorites were:

Roger Wagner Publishing - They were showing HyperStudio v2.1 (we don't have our upgrade yet, sniff, sniff), using a nifty information kiosk. This kiosk, built with a IIGS, a touch screen, a video disk player and HyperStudio v2.1 was quite an amazing little piece of work. According to Roger, the entire setup cost about \$3,500. Not too bad.

The Byte Works, Inc. - Some of the nicest folks in the business, Mike and Patty Westerfield were showing off a beta copy of their new Resource creation tool, Design Master. It should be shipping in a few weeks.

Simple Software Systems International, Inc. was actually selling it's new Resource creation tool, Genesys. We bought a copy, and, hopefully, we will get our hands on a copy of Design Master in enough time to

run a comparison between these two products in a future issue of *GS+*.

Barney Stone (author of DB Master) was giving away copies of the new II at Work to everyone that wanted one. He also let Dave Westbrook from Ingenuity, Inc. pull up a chair and show folks Ingenuity's new, and as yet unavailable, "hard-drive-on-a-card" for the IIe and IIGS. This is the first time we ever really met Barney, and we just want say that it was quite a treat. He's a heck of a nice guy.

Another really nice guy we ran into at AppleFest was Dave Hill (author of the JumpStart program launcher). We hung out with Dave for most of the three days of the show, and quite frankly, it just would not have been as much fun without him.

We also spent a few minutes with a couple of guys from Zip Technology, Inc. For more information, see the "Vaporware Award" on the inside back cover.

And of course, we met lots of you, our subscribers! We wish we could name everyone here, but we might leave someone out and that would probably cause an ugly riot. So, let's just say that meeting all of you was definitely the best part of AppleFest!



Dave Westbrook showing Ingenuity's "hard-drive-on-a-card"

"Who Wasn't There?"

Apple Computer, Inc.

Apparently, Apple spends about a quarter of a million dollars to attend each AppleFest. This time around, they decided it just was not worth it. However, we did see Matt Deatherage from Apple Developer Technical Services in attendance. Remember, you need to let Apple know how you feel about their non-attendance!

Applied Engineering

This one is especially puzzling. On the one hand, AE has just begun selling to the Macintosh, IBM and Amiga markets, but on the other hand, they pull out of AppleFest to show disapproval at it not being an Apple II only show. Personally, we don't mind them selling to these other markets, expansion and diversification are a part of business, we just wish they would be up-front about it all!

Claris

As usual, Claris didn't bother to attend, but no one seemed to miss them.

Ingenuity, Inc.

They did not have a booth, but Dave Westbrook showed up to show their new "hard-drive-on-a-card" for the IIe and IIGS. We did not actually see it plugged in and running, and it's a bit pricey (about \$700 for a 40 Megabyte unit), but at least someone finally made one!

Nibble Magazine

They did not have a booth either, but Mike Harvey was present on the last day to speak at the Apple II Developer's Association Meeting.

BEGINNER'S GUIDE TO SYSTEM DISKS

Part 1 - A Brief Overview

By Joe Wankerl

You're home from the computer store with your brand new Apple IIGS computer. You set it up, as per the instruction manual. You turn it on. You get a nice error message, "Check Startup Device." Wow, you sure wasted a lot of money on a toy that can only move an apple back and forth across the screen. Or did you? What you need is a *System Disk*. Sure, sure, you got one with the computer, but do you know what goodies are on it? What it's really for? How to make the most of it? And just what is a System Disk, anyway?

Well, a System Disk is a disk that contains programs and information that your computer needs to start up and launch other programs. A System Disk is designed to let you interact with your computer and all its internal and external devices easily, as well as providing a consistent interface for desktop programs by allowing the Toolbox and ROM to be modified. Without a System Disk you would just have a toy that can move an apple across the screen.

There are three kinds of System Disks that will work with the IIGS. One kind is a ProDOS 8 System Disk, which I will not discuss since it mostly applies to regular Apple IIs, not the GS. Another kind is a ProDOS 16 System Disk, which I will not discuss since it is very outdated. The kind of System Disk I will be talking about is the GS/OS system disk. This means that the System Disk is version number 4.0 or higher. Apple currently ships the IIGS with System Disk version 5.0.2. This is the disk that I will discuss in these articles.

Most of the information on the System Disk is contained in a directory called ***:System** [See the PreFixer article on page 11 for more information on the meaning of *: - Ed.]. In fact, everything on the System Disk is in the ***:System** directory except for the bootstrap program (see "Kick Me!" sidebar), the BASIC Command Interpreter, the BASIC Launcher, and the Finder icons.

Kick Me!

Bootting is the process in which the computer loads all the necessary operating system files. A bootstrap program assists in this activity. For more information on the boot process, be sure to read the next installment of *The Beginner's Guide To System Disks*.

The ***:System** directory contains all the operating system files for both GS/OS and ProDOS 8. There are only two files that can be deleted from this directory. The first is the ExpressLoad file. This is a system program that causes certain files to load much faster. It is not necessary for this program to be on the System Disk, but I highly recommend that it stay there, as anything that speeds up GS operations is a plus. The other file that can be removed is the P8 file. This file is actually ProDOS 8 and if you don't plan to do any switching between the GS/OS and ProDOS 8 operating systems, this file can be killed along with the two ProDOS 8 BASIC support files (BASIC.System and BASIC.Launcher, both of which are on the root directory). In addition to these files, there are also many directories packed full of operating system extensions, ROM and Tool Set patches, desk accessories, and much more.

The ***:System:CDevs** directory contains Control Panel Devices which are support files for the control panel desk accessory. The control panel device files are used to control various system options such as the modem port. So, for example, if you don't have a modem, then there is really no use in keeping around the modem CDev. The CDev files are not crucial to the system and any of them may be deleted without harm.

The ***:System:Desk.Accs** directory contains the various New Desk Accessories and Classic Desk Accessories that your system automatically loads at boot time. If you don't want a particular desk accessory, feel free to delete it. However, these are the files that you will probably want to *add*, not delete. Most of your time will probably be spent debating which CDev or font to kill to

make room for the newest desk accessory you recently got a hold of. The standard desk accessory that is in this folder is the Ctl.Panel (the Control Panel NDA). This file, as well as any other desk accessory, may be deleted at will. If the Ctl.Panel file is gone, you may as well go ahead and delete the control panel initialization file (CDev.Init in directory ***:System:System.Setup**) and all the CDevs (in directory ***:System:CDevs**) as it would be pointless to have all the support files on the disk if the main program isn't there to take advantage of them.

The ***:System:Drivers** directory contains various and sundry files which GS/OS uses to "talk" to each device. Some of these files are optional, however it is not recommended that you delete them unless you know exactly what you are doing. For example, if you delete the AppleDisk5.25 driver you won't be able to use your 5.25" disk drives!

The ***:System:Fonts** directory contains the fonts that are recognizable by desktop applications such as AppleWorks GS or EGOed. You may delete any of the fonts that you don't want. However, this will limit the amount of your textual creativity. There are two files in this directory that aren't standard font files. One file is the Font.Lists file which contains information about which files are in the ***:System:Fonts** folder. It is automatically updated each time the Font Manager tool set thinks that things have changed in the ***:System:Fonts** directory. The other file, FastFont, is a preshifted version of Shaston 8 which QuickDraw II uses to make drawing faster. You may delete this font at will, but I suggest that you delete this file as a last resort since it seriously speeds up desktop drawing and the GS needs all the speedups it can get!

The ***:System:FSTs** directory contains the different file system translators that GS/OS will interact with. This folder should be left alone! Currently the only FSTs that Apple supplies are the ProDOS FST which must be available or the System Disk won't even boot, the character FST which must be active or else you wouldn't be able to take

advantage of character type devices such as modems, printers, and advanced textual entry and display, the CD-ROM FST which you don't need unless you have a CD-ROM device, and lastly, the AppleShare FST which is only used if you are on an AppleTalk network with a server. The CD-ROM and AppleShare FSTs are only needed if you have those devices, however the System Disk ships with these FSTs optional, meaning that you have to use the Installer program to install them.

The ***:System:System.Setup** directory contains the various patches to ROM and other initialization files that automatically get executed at boot time. The **Tool.Setup** file loads in the appropriate ROM patch file. The **Tool.Setup** file must not be deleted. There are two ROM patch files. One may be

deleted depending on which system you have. If you have a ROM 01 machine, you may delete the **TS3** file which contains patches to ROM 03 machines. If you have a ROM 03 machine, you may delete the **TS2** file which contains patches to ROM 01 machines. Other files in this directory are the **Resource.Mgr** and **Sys.Resources** file which must not be deleted as they are actually the Resource Manager Tool Set and the system standard resources, and the **CDev.Init** program which is used in conjunction with the Control Panel NDA. If you have deleted the Control Panel NDA then you can delete this file too.

The ***:System:Tools** directory contains all the latest and greatest Toolbox programs. You must not delete any of them unless you know for a fact that nothing you use will

take advantage of the Toolbox. It is safest to leave this directory alone.

Understanding System Disks is a fairly easy process once you have a guide to what things are. In the next installment of *The Beginner's Guide To System Disks* I will explain exactly what each file on the System Disk is for and the interrelationships between these files. I will also talk about exactly how the machine starts up and loads in all these files. There will be lots of comments on the uses of NDAs, CDevs, font files, initialization files, drivers, FSTs, and I will answer your questions as well, *so write and ask!* I won't know what kind of questions you have unless you ask me.

GS+ CLASSIFIEDS

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BRUSH WITH GREATNESS

By Michael J. Quinn

In this issue's article, instead of showing how to make a pretty picture, I'm going to explain the process in choosing colors for a picture. This is a rather lengthy process, but not too much—so don't be dismayed at the length of the article—it's fairly simple to comprehend. Included on this issue's disk is a simple picture called "FADE" (see "How To Use The GS+ Disk" for more details), that demonstrates one of the techniques in this article.

In dealing with colors on a video screen, you should always keep four things in mind: red, green, blue, and intensity. These four things are the fundamentals of color. RGB (Red, Green, and Blue) are the primary colors of *radiated* light. Don't get this confused with the primary colors you learned in grade school art classes: red, yellow, and blue. Those three colors are for working with paint, pastels, or even crayons on paper, or in other words, those are *reflective* primary colors. When working with computer graphics, the light is actually *radiating* from your picture on the computer screen as opposed to being *reflected* on a piece of paper.

All colors visible to the human eye are made up of red, green, and blue light. White is made of red, green, and blue set at equal and bright *intensities*. By the word "intensity" I mean the brightness of a color. On the GS, all colors are made up of red, green, and blue light. These primary colors are set at different intensities ranging from 0 to 15 for a total of 16 different values or intensities (0 being no light, or black, and 15 being the brightest shade of that color). Each primary color is set to one of the values between 0 and 15 and with three primary colors, you can have a total of 4,096 colors! For instance, if the IIGS could only display red (but in 16 different shades) you would have a total of 16 colors (actually, 16 shades of red, but in computer terminology, a shade of something is considered a color). If you add another primary color, say green, and the green could have a total of 16 shades, any color you made could be made of different amounts of red and

Color	Red	Green	Blue
White	15	15	15
Black	0	0	0
Red	15	0	0
Green	0	15	0
Blue	0	0	15
Brown	5	2	2
Tan	15	8	5
Yellow	15	15	0
Purple	15	0	15
Aqua	0	15	15
Pink	15	9	9
Orange	15	10	0
Grey	7	7	7
Skin	15	11	7

Table 1 - RGB Values For Some Common Colors

green for a total of 256 colors, but they would all be red, green, yellow (yellow is made of red and green—remember, we're talking *light* here), or some putrid shade of orange. Once you add a third (and last) primary color (blue) and allow it 16 shades, you now have a full range of 4,096 colors to choose from. You get the 4,096 colors by having 16 shades of red, 16 shades of green, and 16 shades of blue in any combination ($16 \times 16 \times 16 = 4,096$).

White

To create white or some shade of white (known as grey), the intensity of the three primary colors (RGB) would have to equal each other. For example, if red were to be set at value 15, and green to 15, and blue to 15, you would have a high intensity white. No color is greater or weaker than any other color, so none of the primary colors would dominate. What this actually does is create grey. When you have a bright grey (value 15 for all three colors) it appears as white. No matter what the value of the primary colors, as long as they equal each other in intensity, you will always have a shade of white (or grey).

Black

Black is, by far, the easiest color to create and to comprehend. In reality, black isn't even a

color; it's the absence of color or, the true definition of black, the absence of light. To create black on the IIGS, just set all the primary colors to their lowest values (0).

Red, Green, and Blue (RGB)

If you want a pure shade of one of the primary colors, just turn the other two colors to zero, their lowest settings and set that primary color to any value other than zero.

Saturation

Saturation is the degree of *whiteness* in a color. In other words, a pale or faint color. If you want to see an example of a saturated color, go outside during the day and look at the horizon. It's blue (if it's a clear day) but it's very close to white. Look higher up in the sky and the saturation decreases the further straight up you look and the blue begins to show more predominately. If you want to see an example of this on the computer, load the picture "FADE" that is included on this issue's disk or simply create a white color, then decrease the value of the green and the red, making sure that the green and red are always equal to each other, and keep the blue at a higher intensity than the red and green. At first, it will appear as a pale, pale blue, but then, after decreasing the red and green values, the blue starts to show up more and more, much like the colors of

the sky. You could do this with any of the primary colors.

Mixed Colors

99.9% or more of the colors you see every day are some kind of mixture of red, green, and blue. It can be difficult to replicate them on your computer screen if you don't understand how colors are mixed. Table 1 shows some common colors and how to create them on your computer.

All other colors are just slight variations of these 14 colors. For example, skin color is very similar to tan. It just have a relatively brighter value of green (which results in more yellow). If you're trying to come up with a color that's very difficult, find the color in this table that's closest the that color (no colors will be far off from these) and work from there, increasing or decreasing the amount of red, green, or blue until you have a suitable match. It may seem difficult at first, but the more you practice, the easier it will become, until one day, you'll say to yourself, "I don't understand why I couldn't do this before."

If you look closely at your color monitor (you may need a magnifying glass) you can see that everything is made of tiny red, green, and blue dots (if you have an RGB monitor) or of tiny red, green, and blue vertical lines (if you have a composite color monitor). A color television set is the same way. Whenever you see a white object on the screen (text for example) look closely and you'll see that it isn't white at all! It's those darn, tiny little red, green, and blue dots, but when you view them from a distance, it appears to be white.

I hope this helps you in developing the colors for your graphics. The main thing to remember about these 4,096 colors is that they are all made of 16 shades of red, green, and blue. Keeping that in mind should enormously increase your ability to create your own colors.

WRITER'S GUIDE

General Information

All submissions become the property of EGO Systems. If we return your submission to you, we give up our rights to it and you are free to do whatever you want with it. All submissions to *GS+* should include the following items:

- 1) A cover letter telling us who you are and what your submission is.
- 2) Return postage (if you want your submission back).
- 3) A diskette (3.5" preferred) containing your article/review/program. We can read just about any word processor format, but we would prefer that you send your submissions to us in AppleWorks, AppleWorks GS or plain ASCII text format.

Submissions to *GS+* may be made by one of the following methods:

- 1) US Mail. Send your submission to:
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c/o EGO Systems
P.O. Box 15366
Chattanooga, TN 37415-0366
- 2) America Online
Pack your submission with ShrinkIt and send it to, 'Obnoxio'.

Please don't submit stuff that you've already put in the Public Domain.

Articles

Articles should cover something that will help readers get more use out of their IGS with the lowest cost and time investment possible. That may be a bit vague, but the main point to remember is that we want all of the material we print to be genuinely useful to the largest number of readers possible. If you have an idea but aren't sure it is what we might be looking for, drop us a line through any of the means listed above and we will let you know what we think.

Reviews

Reviews should be between one and two thousand words in length and should fully describe the product and your experiences, both good and bad, with it. All reviews should, at the least, cover all of the following points:

• Introduction

What the product is, what it is supposed to do, who makes it, who wrote it, the publishers address and phone, how much it costs, and the minimum system required to use it.

• Good Points

Everything has it's good points. Tell us about them. What is it that makes this product worth buying?

• Bad Points

Nothing's perfect. Every product will have something wrong with it. We want to tell folks exactly what those things are. This includes copy protection. If the product is not copy protected, be sure to mention that too.

• Summary

Would you buy this product again? Would you advise that *anyone* buy it? If not, why not? What could be done to improve the product? Who should buy it?

Graphics

Everybody loves fabulous graphics. Send your original graphics to us along with a short letter explaining the tools and any special tricks that you used to create them.

Programs

Programs should be written in C, Pascal or Assembly Language and *must* include source code. You should also write an article explaining how to use the program. Source code should be heavily commented and structured so that folks can figure out what you are doing. Programs should follow Apple's Human Interface Guidelines.

So, what's in it for you? Well, at this point, we can afford to offer the following:

For An:	You Get:
Article	\$10 Per Full Column
Review	\$5 Per Full Column
Graphic	\$15
Program	Varies with the program.
Any of the above	Your name in print.

So, there you have it. Everything you need to know to get involved with *GS+*. So, what are you waiting for? We need your help!

ON THE RIGHT PATH

An Introduction to GS/OS Prefixes.

By Steven W. Disbrow

Did you know that GS/OS can handle up to 32 individual prefixes? You did? Well, Mr. Smarty-Pants, why don't you skip on down to the second part of this article while I explain to everyone else in the class just exactly what the heck it is I'm talking about.

Well, as I was saying, GS/OS has this wonderful capability to keep track of 32 prefixes. And... oh, there's a hand at the back of the room, yes? What's a prefix? Oh, well, that would be a good place to start wouldn't it?

What's A Prefix?

In GS/OS, every file has a name. Oddly enough, this is called a filename. Now, with GS/OS, you can have some pretty big disk sizes, and you can have a lot of files on those disks. These files may or may not have anything in common, so it makes sense that you would want to store them in a nice, logical fashion; grouping related files together. To accomplish this, GS/OS lets you store related files in folders (also called directories). These folders may contain files or they may contain other folders, allowing you to further organize your files. A pathname then, is a name, made up of the name of the disk the file is on, the names of each of the folders that you must open to get to a particular file, and the name of the file itself. For readability, each of these names is separated by a colon (:).

Example: You have a diskette named **Business**. On that disk is a folder called **Sales**, and within that folder is a file named **January.90**. The complete pathname of the file **January.90** would be: **:Business:Sales:January.90**.

Now that we know what a pathname is, we can define a prefix. As you might guess from the name, a prefix is the first part of a pathname. So, from the above

example, we can make two prefixes: **:Business:Sales** and **:Business**.

As I Was Saying...

GS/OS can keep track of 32 different prefixes. Each of these prefixes is numbered from 0 to 31. To differentiate prefix numbers from the plain old numbers, 0 to 31, they are usually written with a trailing colon. So, for example, in this article, we will be discussing GS/OS and it's use of prefixes **0:** to **31:**.

Several of these 32 prefixes have special uses and are given specific values by GS/OS when you first start up the computer (See Figure 1). Most of the remaining prefixes are left empty and can be used by applications for whatever purpose the applications creator likes. HyperStudio, for example, makes excellent use of this capability by using one prefix to store the location of graphic files, another prefix to store the location of sound files, etc.

So, What's The Problem?

Well, as you might guess, having 32 of these prefixes at your disposal would probably be a fairly powerful tool for

managing your disks, especially one of those huge, gigantic hard disks. And, as usual, you would be exactly right. Unfortunately, unless you were a programmer, there has never been an easy way to manage those prefixes. And, even for the programmer, prefix management utilities have been few and far between.

Yo! Mr. Smarty-Pants! Here's Part 2!

So, with that in mind, we humbly present, PreFixer! PreFixer is a Control Panel Device (CDev) that allows you to easily view, edit, set, save and load values for all 32 GS/OS prefixes.

The PreFixer CDev is on your **GS+** disk in the folder **PreFixer.1.0**. To install it, use the Finder to copy the file **PreFixer.CDev**, from that folder on your **GS+** disk to the **System:CDevs:** folder of your startup disk. Then, restart your computer.

When your computer is starting up, you should see the PreFixer icon (which is supposed to look like a big "*") appear near the bottom left of the "Welcome To The IIGS" screen.

Figure 1 - Standard Prefix Values

Prefix Number	Contents
*:	This special prefix contains the name of the disk that you started your computer with. You can view this prefix with PreFixer, but you can not change it.
0:	Contains the default prefix. When you specify a filename, this is the prefix that GS/OS appends to the front of that file name.
1:	Contains the path to the directory that the currently running application is in.
2:	Generally, this prefix contains the value, *:System:Libs .
3: To 7:	Empty. These can be used by applications for any purpose.
8:	This prefix is used by the Standard File Tool set.
9:	Contains the same value as 1:.
10: To 31:	Empty. These can be used by applications for any purpose.

When the Finder desktop appears, select the Control Panel from the Apple Menu. Scroll down the list of available CDevs until you get to PreFixer (they will be listed in alphabetical order). When you see the PreFixer icon, click the mouse on it and the PreFixer controls will appear in the right hand side of the Control Panel window.

Using PreFixer

PreFixer has seven controls for you to use, so let's briefly go over them in no particular order.

The Edit Box

This is the box at the bottom-right of the Control Panel window while PreFixer is selected. This is where PreFixer shows you the value of the currently selected prefix and where you type in new prefix strings. This is a regular Text Edit box. This means that you can use all of the regular Text Edit Tool Set, text selection commands to work with the prefix strings that are displayed here.

The View Menu

When you pick a prefix from this menu, it's value is displayed in the Edit Box. If a prefix is empty, the string, "<Empty Prefix>" is displayed.

The Set Menu

When you pick a prefix from this menu, it is set to the string that is shown in the Edit Box. Note that GS/OS checks the string for correctness of syntax, but no checking is done to see if the prefix you have specified actually exists.

Example: To copy prefix 0: to prefix 30: you would first select prefix 0: from the View Menu. PreFixer will then display the value of prefix 0: in the Edit Box. If you then select prefix 30: from the Set Menu, prefix 30: will be set to the string shown in the Edit Box.

The Save Menu

When you pick a prefix from this menu, it's value is saved to disk in the PreFixer CDev resource file. If you pick the "All" item, all 32 prefixes (0: through 31:) are saved to disk.

The Load Menu

When you pick a prefix from this menu, it is set to the value that is stored on disk. If you pick the "All" item, PreFixer sets the 32 GS/OS prefixes to the values that are stored on disk.

The "Pick New Default..." Button

Clicking on this button brings up a Standard File Dialog. Using this dialog, you can easily navigate all of the disks that you currently have on line. When you finally find the path that you want, click on the cancel button. Prefix 0: and prefix 8: will then be set to the path that you have selected.

The "Load Prefixes At Boot" Check Box
Placing a check mark in this box tells PreFixer that when the system is restarted, you want it set the 32 GS/OS prefixes to the values that are stored on disk.

The Next Step

Since PreFixer was shipped with a set of prefixes that make sense only with my hardware setup, the first thing you need to do is to save all of the prefixes that are used on your hardware setup. To do this, select "All" from the Save Menu. PreFixer will then replace the prefixes saved on disk with the ones that are currently set in your system.

With that little chore out of the way, what can you actually do with PreFixer? Well, the first thing you should do is get familiar with it. Go through each prefix in the View Menu just to get an idea of how prefixes are used on your system.

And Then?

After that, what you do with PreFixer pretty much depends on what you do with your IIGS.

If you do lots of programming, use some of the higher number prefixes to point to the directories that you keep different projects in.

If, like myself, you run a business where you have to do lots of data entry in AppleWorks GS, set prefix 8: to the

directory your data is in, save prefix 8: to disk, and check the "Load Prefixes At Boot" box. When you restart and run AppleWorks GS, the "Open a file..." dialog will automatically use the value in prefix 8:, and you can immediately open your data files without searching for the right directory.

Problems And Other Closing Remarks

Before we end this discussion, let me point out two programs that PreFixer has a bit of trouble with. The first of these is the Finder. PreFixer works normally with the Finder, but you *must* be certain to close PreFixer before you try to leave the Finder. If you do not, the computer will probably hang up.

The second program that PreFixer has a problem with is the ORCA/Desktop. Just don't use PreFixer in this program. Seven out of ten times, the system will lock up.

The last problem that you might have will occur only if you work with another Desk Accessory, such as EGOed, that uses the Text Edit Tool Set. If, for example, you have EGOed open, and you then open PreFixer, make sure that you close PreFixer first! By the same token, if you have PreFixer open and then open EGOed, make sure that you close EGOed first! If you remember to simply close your Desk Accessories in the reverse-order of how you opened them, you should have no problems. (For a more technical discussion of this problem, see "PreFixer Programming Particulars" on page 13.)

And that ends our tutorial on GS/OS prefixes and using PreFixer. If you are a programmer and want to know more about prefixes and how to work with them, check out the "PreFixer Programming Particulars" article on page 13.

PREFIXER PROGRAMMING PARTICULARS

By Steven W. Disbrow

This issue's feature program, PreFixer, is a Control Panel Device (CDev) that allows you to easily, view, edit, set, save and load any or all of the 32 prefixes that GS/OS maintains. (For more information on how to actually install and use PreFixer, see "On The Right Path" on page 11.)

In this article, we will look at how PreFixer accomplishes these tasks and discuss the particulars of working with prefixes and writing CDevs in ORCA/Pascal. What we won't do is show lengthy bits of program code. This article was written to be read along with the PreFixer source code. If you want to look at the source for this program, it's on your GS+ disk, in the file PreFixer.Pas, in the folder PreFixer.1.0.

ORCA/Pascal?

Yes, PreFixer was written with ORCA/Pascal version 1.2. Several of you asked for some programs written in ORCA/Pascal, so here you go!

The first thing you need to know about using ORCA/Pascal for writing a CDev is that it needs to be written as a unit with a single function inside. Why a single function? Well, I really can't say, but, if you try to put more than one function inside the unit (at the Implementation level, *not* the Interface level!) the Control Panel gets very confused and, more likely than not, it will crash. For PreFixer, the declaration of that single function looks like:

```
Function PreFixer(  
    message : Integer;  
    data1,data2 : LongInt)  
    : LongInt;
```

The PreFixer Controls

PreFixer makes extensive use of two of the newer System 5.0 controls: Pop-Up Menus and Text Edit controls. Every desktop program starts up all the tools needed to support Pop-Up Menus, so that is no problem. The Text Edit control that PreFixer uses to display prefixes is another story though!

In order to use a Text Edit control, PreFixer must make sure that the following tools have been started when it is passed the CreateCDev message: Integer Math, List Manager, Font Manager, QuickDraw II Auxiliary, and Text Edit.

(Actually, some of these tools are required only for certain calls, but, as always, it's better to be safe than sorry.)

The fact that you have to start up so many tools just to support the use of one control brings up a very important problem with the way tools are handled on the IIGS and a very important point about Desk Accessory design.

If for example, I open PreFixer inside an application that does not start up the Text Edit Tool Set (the Finder is an excellent example of just such an application), PreFixer must start up the tool itself. If I then open another NDA that uses a Text Edit

Control, it will check to see if it needs to start up the Text Edit Tool Set. Since the Text Edit Tool Set has already been started by PreFixer, the other NDA will not bother to start it up and will proceed as if the application had started all the necessary tools.

Now, if I then close PreFixer, it will see that it started up the Text Edit Tool Set itself, and will then shut down the Text Edit Tool Set. In the meantime, our other Desk Accessory has no idea that the Text Edit Tool Set has been shut down, and so, the next time it makes a Text Edit Tool call, the system will crash.

Because of this problem, Apple recommends that NDAs only start up tools when they are needed and then shut them down immediately after they have served their purpose. Unfortunately, this means that most of your more useful NDAs, i.e. ones that use some of the more powerful Tool Sets, would have to be written to run from Modal Dialogs. In my opinion, this is not a great answer to this problem.

The most obvious solution is to ask that every desktop application start up every Tool Set. While this would be the easiest thing to do (i.e. it would require no action on the part of Apple Computer, Inc.), it certainly would expand the memory requirements of almost every program on the market.

What needs to be done is to find a method whereby the Tool Locator would monitor requests for Tool Sets, and then start them up for you. That way, each NDA could post a request via the Message Center, perhaps passing a handle to a Tool Table from the DAOpen procedure, for the tools that it needed, and the Tool Locator would start up those tools. When a NDA finished using a Tool Set, it could pass another message, in the DAClose procedure perhaps, that would tell the Tool Locator that it was finished with its tools. As things progress, the Tool Locator would keep track of how many requests had been made for a particular Tool Set and how many NDAs had finished using a Tool Set. So, when all NDAs had finished with a particular tool, the Tool Locator could

Figure 1.

```
#define rInteger 0x0001  
/*****  
/* This defines a resource of type rInteger as a single */  
/* integer. Max and Min can be used in subsequent resource*/  
/* statements to represent the values 32,767 and -32,768, */  
/* respectively. */  
/*****  
type rInteger {  
    integer Max = 32767,Min = -32768;  
};
```

then shut it down. Perhaps one of our readers at Apple Computer, Inc. will give this some thought...

However, there is one place in PreFixer where it is possible to do things the way Apple recommends. The only time the Standard File Tool Set is needed is when the user clicks on the "Pick New Default..." button. So, when the user clicks on that button, we check to see if Standard File needs to be started, and if it does, it starts it. Then we display the Standard File Dialog. When the user gets finished, Standard File automatically sets prefixes 0: and 8: to the path that was selected, and all we have to do is shut down the Standard File Tools (but only if PreFixer started them).

The only thing special about the Pop-Up Menus is that their values are saved to the PreFixer resource fork. That way, when PreFixer receives the InitCDev message, it can load in these values and reset each menu to display the last selection that the user made.

The same idea is used in the "Load Prefixes At Boot" check box. When the system is restarted and the CDEV.Init file calls PreFixer with a message of BootCDev, PreFixer loads the value of the check box from its resource fork. If the value is 0, PreFixer does nothing, if the value is nonzero, PreFixer loads in the 32 prefixes stored in the resource fork and sets each GS/OS prefix appropriately.

It should be noted that all of these values (for the menus and the check box) are stored in a custom resource type: rInteger. As you might expect, this is a resource that contains an integer value. Defining and using custom resources like rInteger is a very simple process.

First, you decide on a resource type number. This must be a number between \$1 and \$7FFF hexadecimal, numbers greater than \$7FFF are reserved for use by the system. Then, using Apple's REZ language, you write out the declaration for the new resource type. You can then use your new resource type just as you would any other resource. The code that defines the rInteger resource type is shown in Figure 1.

Getting and Setting Prefixes

As was said earlier, GS/OS keeps track of 32 different prefixes. In order to maintain all of those prefixes, GS/OS provides the GetPrefix and the SetPrefix calls. To use these calls, you set up a parameter block, and then you call the routine with a pointer to that parameter block. Basically, these parameter blocks contain a parameter count (to tell GS/OS how many parameters you are sending it), the number of the prefix that you want to get or set, and a pointer to either a string you want to set that prefix to (in the case of SetPrefix), or a pointer to a buffer which will hold the prefix you want to get (in the case of GetPrefix).

PreFixer makes the GetPrefix and SetPrefix calls using the prefix number that the user has picked from one of the Pop-Up menus. In the cases where PreFixer must get or set all 32 prefixes, a simple for-loop is used. The section of code you need to study here is the code that is executed when PreFixer is passed the HitCDev message.

Tricks?

About the only real "trick" that PreFixer uses is in the way that it stores the actual prefix strings in the resource fork. GS/OS allows prefixes up to 8K in length. At this point, however, the functional limit is about 500 bytes. PreFixer has the capability to set and get prefixes that are 508 bytes long, however, it would not be a good idea to store them all that length. Storing 32 prefixes at 508 bytes each would automatically take up about 16K of disk space! Much, much too big.

So, when a prefix is picked from the Save Menu, PreFixer performs a GetPrefix with a 508 character result buffer. It then looks at the size word in the resulting prefix string and allocates a new handle just big enough to hold that prefix string. Then PreFixer makes a second call to GetPrefix using the newly allocated handle as the result buffer. The old resource for storing that prefix is then removed from disk and the new prefix is then saved to disk. This saves an enormous amount of space, especially when writing out empty prefixes.

There You Have It

That's about all there is to PreFixer. If you have any questions about it or, if you have any suggestions for features you would like to see in a future version of PreFixer, be sure to write to me here at GS+ and let me know!

Product Information

Programming Tools & Interfaces for APW Version 1.1 - \$50
Order Apple Part Number A0228LL/A
Apple Programmers and Developers Association (\$20/Year Membership Fee)
U.S.A. (800) 282-2732
Canada (800) 637-0029
International (408) 562-3910

ORCA/Pascal - \$150
The Byte Works, Inc.
4700 Irving Blvd. NW, Suite 207
Albuquerque, NM 87114
(505) 898-8183

For More Information on GS/OS and its use of prefixes, be sure to check out the following books:

GS/OS Reference, Volume 1 (Beta Draft) - \$35
Order Apple Part Number A2F2037
Apple Programmers and Developers Association (\$20/Year Membership Fee)
U.S.A. (800) 282-2732
Canada (800) 637-0029
International (408) 562-3910

Exploring Apple GS/OS and ProDOS 8
- \$21.95
By Gary B. Little
Addison-Wesley Publishing Company

RANDOM IIGS PROGRAMMING NOTES

By Steven W. Disbrow

With this issue, "Random IIGS Programming Notes" becomes a regular department. In this department, we will discuss any changes or corrections to programs and/or programming articles that have previously appeared in *GS+*. In this issue's installment, we'll clear up a small omission from last issue and discuss the latest update to EGOed.

Closing CDEV's

Last issue's "Programmers Aid Cut-Out" on CDEV Message Codes ("How To Write A Control Panel Device", *GS+* V1.N4) had a small omission in the description of the CloseCDEV message on page 11. The description states that the CloseCDEV message is passed to a CDEV when the Control Panel is being closed. While this is true, it should be further explained that the CloseCDEV message is also passed when the CDEV itself is closed. For example: If you are working with the PreFixer CDEV and then click on the Time CDEV, the CloseCDEV message will be passed to the PreFixer CDEV *before* the Time CDEV is opened.

EGOed Update - Version 1.21

And now for what everyone has been waiting for, the new EGOed update! This new version (1.21) has several changes, bug fixes, and new features that are sure to please most everyone.

If you are new to *GS+* Magazine, and you don't know what EGOed is... EGOed is a New Desk Accessory (NDA) Text Editor that allows you to create, edit, and print plain text and AppleWorks Classic Word Processor files from within any application that supports NDA's.

The first change is that this version of EGOed is 5K smaller than the previous version. This was accomplished by running the EGOed NDA created by TML Pascal II through the APW Compact utility. Of course, when you do this it strips off the Resource Fork, so you have to recompile the EGOed.rez code using the APW REZ compiler. However, the 5K savings and the faster loading time are definitely worth the extra trouble.

The second change is that the Info item has been moved almost to the bottom of the menu, just above the About EGOed item. Why? Well, according to Apple's Human Interface Guidelines, the New and Open items should be the first items in the File menu. Thanks to Jeff Hartkopf of Louisville, Colorado for pointing out this look-and-feel faux pas!

In the last EGOed update, I added the ability to read and write AppleWorks Classic word processor files. Along with this ability, I included several very strongly worded warnings that when you save a file in AppleWorks Classic format, you **LOSE ALL FORMATTING!** At AppleFest, Dave Hill (author of JumpStart and a heck of a great guy), made me realize that warnings in the magazine just are not enough! So, a dialog box has been added that *always* warns you of the potential danger whenever you save a file in AppleWorks format.

Our second "bug" was first reported, in part, by Robert Deichert of Bronxville, New York. The problem that Robert reported was that you could not use EGOed to save an empty file. Since that was the way I designed it, I put this problem on the back burner.

A few weeks later, Dino Bagdadi of North Miami Beach, Florida, called to say that when he tried to print an empty file, he got error \$2209. So, I consulted the *Apple IIGS Toolbox Reference, Volume 3* and found out that error \$2209 is a Text Edit Toolset error that, in a nutshell, meant that the EGOed print routine had tried to print a line of text that did not exist.

Neither of these things was actually a serious problem: I never intended EGOed to be able to save empty files and I never considered that anyone would try to print an empty file. Also, neither of these problems would cause EGOed to crash the system. However, when a program does not do exactly what you expect, it sure *does seem* like a bug doesn't it?

In a case like this, the thing that needs to be done is to more clearly define what the program can do. So, with that goal in mind, EGOed now disables certain menu items depending on whether or not there is any text in the EGOed window. For example, when the EGOed window is empty, the following items are disabled: Save, Save As Text, Save As AWP, Cut, Copy and Clear. After you type a character, these items become enabled again and you can use them normally.

Another of the most requested changes to EGOed has been Command (Open-Apple) key equivalents. You really want 'em? You got 'em! Figure 1 lists the new Command key equivalents for EGOed v1.21.

As usual, this new version of EGOed (complete with heavily commented source code) is on your *GS+* diskette. For more information, see "Using The *GS+* Disk", on page 20.

That's all for this time, but, if you can stick around for the next issue of *GS+*, I promise lots more neat additions to EGOed, a Desk Color update, and, if I have time, a PreFixer update!

Figure 1. EGOed v1.21 Command Keys

File Menu	Edit Menu
Open-Apple-N for New...	Open-Apple-X for Cut
Open-Apple-O for Open...	Open-Apple-C for Copy
Open-Apple-S for Save	Open-Apple-V for Paste
Open-Apple-P for Print...	Open-Apple-Y for Choose Font...
Open-Apple-I for Info...	Clear (on numeric keypad) for Clear
Open-Apple-? for About EGOed...	

GS+ BACK ISSUE INFORMATION

September/October 1989 (Volume 1, Number 1)

\$4 magazine only
\$5 disk only
\$6 magazine + disk

- System Software 5.0 Compatibility Chart
- NoDOS - A file utility New Desk Accessory complete with ORCA/C source code on disk
- Graphics Galore - Drawing "how-to" with 3 pictures on disk
- Reviews of Arkanoid II (new custom levels on disk), Crystal Quest, ORCA/C, Rocket Ranger, Silpheed, Test Drive II, TransWarp GS, Turbo Mouse ADB

PLUS: Icons, Rumors, and more!

November/December 1989 (Volume 1, Number 2)

\$4 magazine only
\$6 disk only
\$9 magazine + disk

- Beginner's Guide to the Finder - Part 1: The Basics
- EGOed - An NDA text editor (TML Pascal II source code on disk)
- Update Info - AWGS v1.1, HyperStudio v2.0, System 5.0.2
- Brush with Greatness - Tips on drawing faces .
- Reviews of TML Pascal II, Source Code Library II, Cutting Edge Keyboard, Battle Chess, Dark Castle, Dungeon Master, Neuromancer, Laser Force

January/February 1990 (Volume 1, Number 3)

\$4 magazine only
\$6 disk only
\$9 magazine + disk

- Beginner's Guide to the Finder - Part 2: Mousing Around
- Rotator - A beginner's desktop programming tutorial and program w/source code written in ORCA/C
- Winning Arkanoid II Levels
- Brush with Greatness - Space graphics
- Reviews of HyperStudio v2.0, Graphic Disk Labeler, Programmer's Online Companion, Xenocide, Keep the Thief, Life & Death, The Three Stooges

March/April 1990 (Volume 1, Number 4)

\$4 magazine only (SOLD OUT!)
\$6 disk only
\$9 magazine + disk (SOLD OUT!)

- Beginner's Guide to the Finder - Part 3: All About Icons
- All About Control Panel Devices - with Desk Color CDev and ORCA/C source code on disk
- Brush with Greatness - Architecture on your IIGS with pictures of the CitiCorp building and Frank Lloyd Wright's house on disk
- Reviews of InnerDrive, Vulcan, Salvation - Guardian, ORCA/Dissembler, Computer Eyes (pictures on disk), Jam Session (songs on disk), Ancient Land of Ys, Tunnels of Armageddon, Where in the World is Carmen Sandiego

CONTEST #3 UPDATE

Boy are we dissapointed! Here we go and have this great contest, wherein all you have to do is come up with a nifty HyperStudio stack... and only 1 person enters!

Sheesh! What do you want? A longer deadline? A \$100 first prize? A \$50 second prize? A \$25 third prize? OK. You got it. As of this moment, the deadline for Contest 3 is midnight, August 31st, 1990. First prize is \$100. Second prize is \$50 and third prize is \$25.

All you have to do is send us the very best HyperStudio stack that you can come up with. It has to be your own work and it has

to be original. No Public Domain or ShareWare stacks will be considered for any of the prizes.

Got it? Good. Now, read the rules below and get busy!

The Rules:

- 1) Send your entries on a diskette (3.5" preferred, but not necessary) to the following address:
GS+ Contest #3
c/o EGO Systems
P.O. Box 15366
Chattanooga, TN 37415

2) Or, pack your entry with ShrinkIt and send it to 'Obnoxio' via America Online.

3) Entries must be postmarked no later than August 31st, 1990.

4) Be sure to include a phone number we can reach you at (an address will be fine).

5) Stacks submitted should not be password protected.

That's all there is to it! So what are you waiting for? Enter now!

RUMORS, WISHES & BLATANT LIES... THE KEY!

Here it is! The key to our first Rumors, Wishes & Blatant Lies Pop Quiz! If you have not yet read this issue's installment of Rumors, Wishes & Blatant Lies, turn to page 24 and read it before you look at these answers.

For those of you that can't wait, lets recap this issue's rumors:

1) Apple IIGS Dumps On The PC!

Is it true that Dragon Wars for the IBM PC was originally written on the IIGS?

Yes! Dragon Wars was indeed created on the IIGS.

2) Mr. Busy Signal Takes A Vacation

Did Applied Engineering really hire three new technical support personnel?

Yes! And it certainly has been easier to get through to them lately.

3) Hopefully, He'll Take The Conserver With Him...

Is Applied Engineering not telling the whole story in it's Conserver ads?

The story that is the basis of this item is indeed true. There are hidden costs in the Conserver. Over the past few years we have noticed a disturbing trend in Applied Engineering's advertising where they seem to leave out very important details such as this one.

4) Hulk Hogan Eat Your Heart Out!

Is Sinbad and The Throne of The Falcon ready to ship? Are the guys at Cinemaware really lonely and bored?

Yes, Sinbad and The Throne of The Falcon has been ready to ship for quite some time. This will probably be Cinemaware's last IIGS product. As for the second question, no comment.

5) Stattus Whoa!

Do we really give a darn about Paul Statt?

Yep. He's a hell of a nice guy.

And yes, we really did do all those things at AppleFest! Well, OK, we did most of them. But we sure thought about doing all that other stuff! If those cops hadn't shown up...

So there you have it. The real scoop about all the Rumors in this issue of GS+!

COMPATIBILITY GUIDE

Compiled by: Joe Wankerl &
Steven W. Disbrow

After being away for far too long, the *GS+* Compatibility Guide is back! This time around, we not only tested our software for compatibility with the latest System Software, we also tested it for compatibility with the ROM 03 IIGS. So, without further ado, let's get right to the compatibility lists.

All of the titles shown below were tested on a ROM 03 IIGS, running System Software version 5.0.2, with 1.5 Megabytes of memory and a CMS SDRM 45 Removable Hard Drive with a CMS controller card.

Key

- * An update to this product is in the works (see "Product Updates" on page 36).
- † Not all program features may work correctly on ROM 03 machines.

Programs That Work With Both System 5.0.2 and ROM 03

- AppleWorks GS
- APW Development System
- Arkanoid
- Arkanoid II
- Computer Eyes
- Cribbage King
- (1) DeluxePaint II
- Disk Access NDA
- Genesys
- GraphicWriter III
- HyperStudio v2.1
- Instant Music
- Jam Session
- JumpStart
- Mean 18
- (2) Music Studio 2.0
- ORCA Development System
- Reach For The Stars
- Salvation: Guardian
- Salvation: Renaissance
- Shadowgate
- Shanghai
- Softdisk G-S
- SoundSmith
- Star Saga One
- TML Pascal II
- Tunnels Of Armageddon
- Visionary GS
- War In Middle Earth
- ZapLink

Works With System 5.0.2 But Not ROM 03

- (3) Gin King

Works With ROM 01 & ROM 03 But Not System 5.0.2

- Alien Mind
- Ancient Land Of Y's
- * Battle Chess
- † ChessMaster 2100
- * Neuromancer
- † Tomahawk
- Tower Of Myraglen
- Zany Golf

Does Not Work With Either ROM 03 Or System 5.0.2

- Nucleus Demo
- Photonix Disk Copier

If you have a program that you would like compatibility information for, or if you have some compatibility information that you would like to share with other readers of *GS+*, let us know! Write to:

GS+ Compatibility Guide
P.O. Box 15366
Chattanooga, TN 37415-0366

And be sure to tell us what kind of hardware you are using!

Notes:

- (1) Works if you have at least 1 Megabyte of RAM. Must be deprotected with Copy II+.
- (2) Tools 18, 25 and 32 must be present in the `:System:Tools` folder of your Startup Disk.
- (3) This is especially disappointing because Gin King comes in the same package with Cribbage King!

THE MOLEHILL

By Joe Wankerl

Brunch With Greatness

In keeping with this issue's AppleFest theme, I will now give you many many reasons why to attend such a fiasco. First and foremost, you can find the answers to many a problem. This is, after all, what the molehill column is all about. While I was at the fest, I met many people... not the least of which was Matt Deatherage of Apple Computer, Inc., Mike Westerfield of the Byte Works, Roger Wagner of Roger Wagner Publishing, Inc., Andy Nicholas of ShrinkIt fame, and even the guys from Zip Technology and Ingenuity! What does this very incomplete list of people have to do with a problem you may have? These are the people who sit down and make the products that you use. They know them inside and out. Have a problem with ORCA/Pascal? Go ask Mike. Have a problem with HyperStudio? Go ask Roger. It's that simple. These are real people that cared enough about the GS to make products for it, so naturally they will care what the people that use their products think and what problems they have. Most often they will be glad to help you with your problems and perhaps you could give them a new insight into how things could be done better.

Well now let's assume that you are perfectly happy with everything you have and nothing is giving you problems. You lucky devil, you. Why should you still attend AppleFest? If you go, then when you finally do have a problem, you will know who to go to for help. Forming contacts with knowledgeable techie-types is a good way to stay up to date on your favorite program, too.

If you don't have any problems with anything and you know everybody there is to know, why should you still attend AppleFest? There are many conferences going on at the fest where you can congregate with people of similar interests and learn something new to boot. Conferences range from AppleWorks to HyperStudio to Telecommunications. If you think you know all there is to know about that program you're using, you might want to think again. There are usually a few hidden

features that the documentation doesn't describe and there was probably something you skipped over when you read the documentation as well. These conferences can really help you to get more out of your computer than you thought possible.

If not for any other reason, you should attend the AppleFest to let Apple Computer, Inc. know that people out there are interested in Apple II computers!!! It's sad that Apple was absent from the fest, after all, the fest is named after them. To not attend, Apple figured that they would have to spend more money to go than they would get from selling products and influencing people to buy their products. One reason Apple thinks this way is because not many people were forecast to attend. You can help change this by attending and by telling Apple that you care about your computer and you wish they would too.

AppleFest is a wonderful event which should not be passed up! Even though this past one was not as big or glorious as previous fests it is still worth the time, effort, and money to attend.

Modifying GS/OS

The other day I tried to plug my Vulcan hard drive into a ROM 03 machine. It started to boot GS/OS beautifully and then BLAM it crashed to the monitor. "No problem," I thought to myself, "I just have a DIP switch set wrong." So I doublechecked the switch settings... and they were correct!! Uh oh. Does the Vulcan not work on a ROM 03? After much toil flipping switches and swapping slots and computers I still couldn't get it to boot on a ROM 03, but it worked without a hitch on a ROM 01. So I decided to call up the AE guys.

When I finally got through, I learned that AE uses modified P8 and START.GS.OS files that I had replaced with the normal ones that Apple ships with their system disk. It sure was nice of AE to make me pay for a phone call to find this out instead of putting it in their Vulcan manual.

AE makes nice products, however their documentation usually leaves a lot to be desired. One thing they do have in their favor is their technical support phone number (which seems to constantly be in use). So whenever you have a problem with AE, give them a call. The people on the other end are fairly nice and glad to help out. Even though their answers are not always what you want to hear at least they are there to help you out.

Command Key Equivalents

In another G-S magazine, I found a nice article describing that Open-Apple-Control-2 will bring up the About... menu item on any desktop program. Well, this is not exactly true. Although it will work in most cases, it will not work in all cases. Here's why (technical information follows, all faint-hearted, pregnant mothers, people under 5'1" please go on to the next ride):

The Menu Manager stores menu items with no command key equivalents with a command key equivalent of ASCII NUL ('\0' to C programmers, CHR(0) to Pascal programmers, dc h'00' to assembly programmers). It just so happens that Control-2 maps to ASCII NUL. When combined with the Open-Apple key, the Menu Manager begins its search through all the menu items to try and find a match to the key you pressed. So the first item without a program defined command key will match the ASCII NUL, and that item will be selected. As is common with most desktop applications, that first item is the About... item, but it doesn't have to be.

For example, try Open-Apple-Control-2 with EGOed version 1.21 (supplied with this issue - see "How to use the GS+ disk" on page 20) as the front window. You will not get the About... item. You will not even get the first item in the first menu. What you will get is Save As Text..., the first item that does not have a command key equivalent. I don't believe that Apple documented this anywhere. I found this information out through reading the Info-Apple electronic newsgroup (see previous Molehill column to learn about Info-Apple). As you can see, it pays to read GS+ to get the real scoop on tech issues.

HOW TO USE THE GS+ DISK

The first thing you need to do is **MAKE A BACKUP COPY OF YOUR GS+ DISK WITH THE FINDER!!!** Next, put the original in a safe place. If you have a problem making a backup copy, give us a call at (615) 870-4960. If your disk is damaged, we'll get a new one to you as soon as possible.

There are seven folders on this issue's disk. In alphabetical order they are:

BWG

This folder contains the picture, **Fade**, which is discussed in "Brush With Greatness" on page 9. This picture is stored in Apple Preferred Format to save disk space, so you will need a program that can read Apple Preferred Format graphics to view this picture.

Compat.Guide

This folder contains the complete text of the previous installments of our Compatibility Guide department. These two files, **V1.N1.Compat** and **V1.N2.Compat**, are plain text files that you can read with EGOed or any other program that can read text files.

EGOed.1.21

The EGOed update is in the folder named **EGOed.1.21** on your **GS+** disk. There are four files in this folder:

EGOed

This is the EGOed NDA.

EGOed.p

This is the TML Pascal II source code for EGOed.

EGOed.r

This is the TML Pascal II resource file for EGOed.

EGOed.rez

This is the REZ language file that is used to create the file EGOed.r.

EGOed works only with System Software v5.0 and later. This means that your system must have at least 512K of memory (but

more is better). It *will not work* with System Software v4.0! This is because several of the tools required by EGOed (the Text Edit Tool Set and Resource Manager in particular) do not exist in System 4.0. To install EGOed, use the Finder to copy the file EGOed from the **EGOed.1.21** folder on your **GS+** disk to the **System:Desk.Accs:** folder on your startup disk. Do NOT rename the EGOed file! Once you have the file copied, you must restart your IIGS to make EGOed available from the Apple menu.

Icons

This folder contains the Finder icons discussed in the "Icons" column on page 21. To use them, copy them into the **Icons** folder of the disks that you run each of these programs from. The next time you are in the Finder, you should see the new icon for the program.

PreFixer.1.0

This folder contains 9 files:

PreFixer.CDEV

This is the PreFixer Control Panel Device. Using the Finder, copy it into the **System:CDevs** folder of your startup disk. It will then be available from the Control Panel NDA.

PreFixer.Pas

This is the ORCA/Pascal source code for PreFixer.

PreFixer.REZ

This is the REZ language code for the PreFixer CDev.

PreFixer.Icon

This is the Finder icon file that was used to generate the **PF.Icon.asm** file.

PF.Icon.asm

This is the ORCA/M code that later becomes the definition for the PreFixer icon resource.

Make, Make2, Make3 and Make4

These are ORCA EXEC language files that are used to compile and link PreFixer.

Visionary.Rev

This folder contains several pictures that were captured during our review of the Visionary GS. These pictures have been stored in Apple Preferred Format to save disk space, so you will need a program that can read Apple Preferred Format graphics to view these pictures. As opposed to discussing these pictures here, Joe Wankerl has prepared a text file called **PictureNotes** that describes various points of interest about each of these pictures. **PictureNotes** is in the **Visionary.Rev** folder. Use EGOed or any other program that can read text files to read or print this file.

Writers.Guide

There is only one file in this folder: **Writers.Guide**. This is a plain text file that tells you what you need to do to write reviews, articles, programs, etc. for **GS+**. This file is slightly more detailed than the **Writer's Guide** on page 10. Use EGOed or any other program that can read text files to read or print this file.

Remember, the contents of the **GS+** disk is not Public Domain or ShareWare! Please do not give away copies of it or any of the programs on it. If you do, we will not be able to stay in business. It really is that simple!

ICONS

By Steven W. Disbrow

Once again, we have some great icons for all you fans of the Finder. These icons are in the **Icons** folder on your **GS+** disk. To use them, just use the Finder to copy them from the **GS+** disk to the **Icons** folder of the disk that you run the program from.

The first of this issue's icons come to us from Dino Bagdadi of N. Miami Beach, FL. Dino used IconEd to do the following icons:

NewDir.Icon

This is a replacement for the old folder icon.

Orbizone.Icon

This is an icon for the great ShareWare game, **Orbizone**.

RamKeeper.Icon

This is an icon for the RamKeeper CDA. If you have a RamKeeper, copy this icon to the **Icons** folder of your Startup disk.

TScanGS.Icons

This file contain a couple of icons for ThunderScan GS.

We also have another icon from our good friend Jami Lowery of Chattanooga, TN. Her latest, **RHD.Icon** is an icon for those of you with removable hard drives.

Joe Wankerl did the **GS.Plus.Icons**. But, I could not leave well enough alone, and so, this time around, it is black and white instead of multi-colored.

And last, and certainly least, I have once again tried to put together an icon for you. The file, **Visionary.Icons**, contains icons for the Transition and Perfect View programs that come with the Visionary GS.

If you have any icons of your own that you would like to share with our readers, send them to us here at **GS+**!

DISKLESS?

If you did not receive the disk with this magazine and have decided you would like to have it, just send a check or money order for \$6.00 (\$5.00 plus \$1.00 shipping and handling) to:

GS+ V1N5 Disk Offer
c/o EGO Systems
P.O. Box 15366
Chattanooga, TN 37415-0366

Or, call us at (615) 870-4960 to bill it to your MasterCard or VISA.

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LRO Computer Sales

Memory

GS-4

0k - \$60; 1 meg - \$125; 2 meg - \$190;
4 meg - \$305

Chinook RAM 4000

0k - \$90; 1 meg - \$145; 2 meg - \$210;
4 meg - \$335

GS-Sauce SIMM board

1 meg - \$150; 2 meg - \$220; 4 meg - \$350

Checkmate Memory Saver

- \$119

1 meg 80ns expansion sets for GS Ram Plus,
Chinook RAM 4000, and many others
w/ 5 year warranty

- \$ 67

256k 120ns expansion sets for most
Apple IIc/c/gs Exp. boards w/ 5 year warranty

- \$ 18

256k expansion sets for GS Ram Ultra
and Ram Pack4GS

- \$ 19



Salvation GS - \$37

GS Numerics

A complete mathematics program for high school and
college students and working professionals.

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Increases Read/Write speed of Inner/Overdrives
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GS Starter System

Apple IIgs with 1 meg CPU, Mouse & Keyboard
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AMR 3.5 Drive
Mouse Pad
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Apple IIgs 1 meg CPU, Mouse & Keyboard
Apple Color RGB monitor
Apple Imagewriter II color printer with color ribbon
AMR 40 meg GS Partner HD
Apple High-Speed DMA SCSI interface for GS Partner
Chinook RAM 4000 with 2 megs 80 ns
AMR 3.5 Drive
Box of 10 Maxell 3.5" Diskettes
Mouse Pad
- \$2959

Software

Utilities

Copy II Plus 9.0 - \$25
Vitesse Salvation series:
Guardian - IID backup - \$31
Renaissance - Storage Optimizer - \$31
Exorciser - GS Virus destroyer - \$26
Print Shop GS - \$27
Prosel 16 - \$66
Programmer's Online Companion - \$37.50

Business

AppleWorks GS - \$212
Manzanita Businessworks - \$294

Education

Designasaurus GS - \$33
Geometry GS - \$56
Talking Once Upon a Time - \$34
StudyMate- The Grade Booster - \$33

1-800-869-9152 M-F, 9-6. Sat. 12-4

More Software...

Games

FuturePad Entertainment

system	- \$54
Heatwave Offshore Superboat Racing	- \$37
The Duel: Test Drive II	- \$34
Grand Prix Circuit	- \$36
Blue Angels Formation Flight Simulator	- \$37
Third Courier	- \$36.50
Jam Session	- \$35.25
Task Force	- \$29
California Games	- \$14.50
Hometown USA	- \$26.75
Qix	- \$25
Rastan	- \$25
Arkanoid I or II	- \$25
Chessmaster 2100	- \$37
Tunnels of Armageddon	- \$32

Graphic Disk Labeler v2.0
Print Color Disk Labels on your IW II!
Now with 640 and 320 modes

\$24

Accessories for the GS

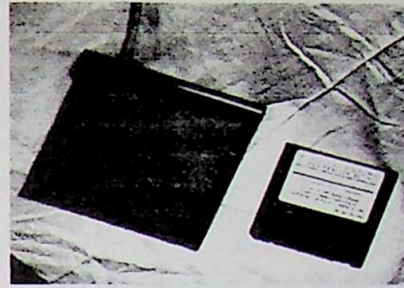
Transwarp GS	- \$289
Sonic Blaster GS stereo board	- \$ 96
Sound System II speakers for GS	- \$ 99
Visionary GS realtime color digitizing board	- \$279
Quickie Hand Scanner (400 DPI)	- \$196
Conserver GS	- \$ 89
System Saver	- \$ 69
A+ Optical Mouse ADB	- \$ 87
Cordless Mouse	- \$109
Nite Owl clip-on GS battery	- \$ 14
Applied Ingenuity VCR backup	- \$174
RamFast DMA Cache SCSI	- \$199

2 - 6 times faster than Apple H-S DMA SCSI!

Cables

//GS to Modem	- \$ 15
//GS to IW II/LQ	- \$ 16

Order by FAX!
(815) 338-8597



FutureShock 2.0 - \$54

Modems

USR 14.4 Kps Courier HST w/ cable	- \$594
USR Dual Standard w/ cable	- \$999
Prometheus Promodem 2400G internal	- \$144
Cardinal 2400 baud with DSP and cable	- \$134
Supra 2400 w/ cable	- \$137

Individual GS Hardware

Apple IIs 1 meg CPU with Keyboard and Mouse	- \$849
Apple Color RGB monitor	- \$479
Magnavox RGB monitor	- \$319
Apple ImageWriter II color printer w/ cable	- \$465
Fortis ImageWriter-compatible printer w/ cable	- \$229
Apple II DMA High-Speed SCSI	- \$106

Drives

Unimac 105 meg HS 24ms	- \$639
Chinook 105 meg HD 19ms Connor	- \$780
Chinook 40 meg HD 24ms Connor	- \$600
CMS 44 meg Removeable HD	- \$869
AMR 100 meg GS Partner 0 footprint HD (12 ms)	- \$869
AMR 60 meg GS Partner 0 footprint HD (28 ms)	- \$629
AMR 40 meg GS Partner 0 footprint HD (24 ms)	- \$549
AMR 100% Apple compatible 3.5 in. Drive	- \$189
AMR 100% Apple compatible 5.25 in. Drive	- \$149
Apple 3.5 in. Drive	- \$324

All drives come preformatted with GS/OS 5.0.2. With the purchase of a HD, the Apple H-S DMA SCSI is only \$99.

LRO Computer Sales
665 West Jackson Street
Woodstock, IL 60098

(815) 338-8685
(800) 869-9152

Visa / Mastercard / Check / COD. Prices subject to change without notice. Illinois residents add 6.5% sales tax.



1-800-869-9152 M-F, 9-6, Sat. 12-4

RUMORS, WISHES & BLATANT LIES

(Designed to stir up controversy and increase the circulation)

As hoped, "Rumors, Wishes and Blatant Lies" has become one of the most popular features in *GS+*. Unfortunately, some people still have trouble determining which items are true and which are the result of a young mind being sadly twisted by the indifference of a cruel world. For those people, we introduce in this issue, "Rumors, Wishes and Blatant Lies - The Pop Quiz!" How does it work? Glad you asked! Each item will be one of the following:

Rumor - This is only a rumor. It is unproven and unlikely.

Wish - This is something that we wish would come true.

Blatant Lie - This is a blatant lie. We should go to jail.

Joke - It's only a joke! No legal action required!

True - This is the truth! Honest!

On page 17, we have a key showing the correct answers. You can keep score if you want, but that would be pretty silly now wouldn't it?

1) Apple IIGS Dumps On The PC!

If you have a friend with an IBM PC (or a clone) and a copy of Dragon Wars, get him to try this:

- MAKE A BACKUP COPY of the file DRAGON.COM.
- From the DOS Prompt, type "DUMP DRAGON.COM".
- Look at the program dump carefully. In the first 512 bytes or so, you should see the string, "Written on an Apple IIGS. Apple II Forever!"

2) Mr. Busy Signal Takes A Vacation

Believe it or not, Applied Engineering has hired three new humans to help out their #1 Technical Support representative, Mr. Busy Signal. Not to worry though, you can still

get through to Mr. Busy Signal with very little effort. You just won't get to talk to him as often.

3) Hopefully, He'll Take The Conserver With Him...

Speaking of AE, did you notice in their ad for the Conserver fan unit, that they say "... the unit was cleverly designed to house two 3.5" disk drives..."? The setup is actually more clever than the unsuspecting buyer knows. To fit two 3.5 drives in the unit, you need a special cable that doesn't come with the Conserver. After you spend some time trying to fit your two drives into the unit as the ad claims you can, call AE sales and ask them if they will be kind enough to SELL you the cable that you need to get the unit to function in the manner that the ad claims. Very clever, but hey, it's only another \$19, and if you have a credit card number handy to give them over the phone, they'll ship the thing right out. Oh, almost forgot. The cable they send you is merely a regular cable with the rubber cut away from the plug area, so that the wires are exposed. (Does the FCC know about this?) Without the constriction of the rubber safety coating, the wires can then be BENT to fit in behind your drive. Of course, this is not actually AE's fault. They did not invent the Conserver, they just bought it from the now forgotten MDIdeas company. Never heard of MDIdeas? The Conserver is one of the reasons MDIdeas is now forgotten. Here at *GS+* we use only the Kensington System Saver. It's simply a better product.

4) Hulk Hogan Eat Your Heart Out!

At this point, Cinemaware's last IIGS product, "Sinbad and The Throne of The Falcon," is ready to go. All they need is for someone to order a copy. After that, Cinemaware plans to continue work on its popular "TV Sports" series for the Amiga. The next title in the series will be, "TV Sports: Nude Female Midget Mud Wrestling." Hubba, Hubba!

5) Status Whoa!

OK, we admit it. We've been giving *inCider* editor Paul Statt a hard time. The truth is, he is a hell of a nice guy and he certainly does not deserve all of the abuse we have heaped upon him. We here at *GS+* sincerely hope we did not cause him any ulcers or other gastro-intestinal disorders that could ruin both his professional and social life. Honest!

The Top 10 Things We Actually Did At AppleFest

- Avoided Paul Statt.
- Cruised New Jersey bars looking for cute chicks who'd never used a computer.
- Ignored every single Macintosh on the premises.
- Made up lots of new products and stupid Star Trek® jokes and pretended we were Applied Engineering representatives.
- Asked Tom Weishaar if he and Don King had the same barber.
- Cruised New Jersey bars looking for cute guys who'd never used a computer (Noreen only).
- Stole 756 jelly bean packets from the Commodore booth.
- Accepted verbal abuse from several companies that did not agree with our reviews of their products.
- Laughed in the face of this guy that said, "Great magazine! Is there an IBM PC version?"
- Shook the hand of the guy that stole that damn air-horn out of the *inCider* booth!

If you have a rumor, wish, or blatant lie that you would like to spread, send it to:

GS+ Libel Department
c/o EGO Systems
P.O. Box 15366
Chattanooga, TN 37415

REVIEWS

CMS SDRM 45 Megabyte Removable Drive

Retail price - \$899

Extra 45 Megabyte Cartridges - \$150

CMS Enhancements
1372 Valencia Avenue
Tustin, CA 92680
(714) 259-9555

Reviewed by Steven W. Disbrow

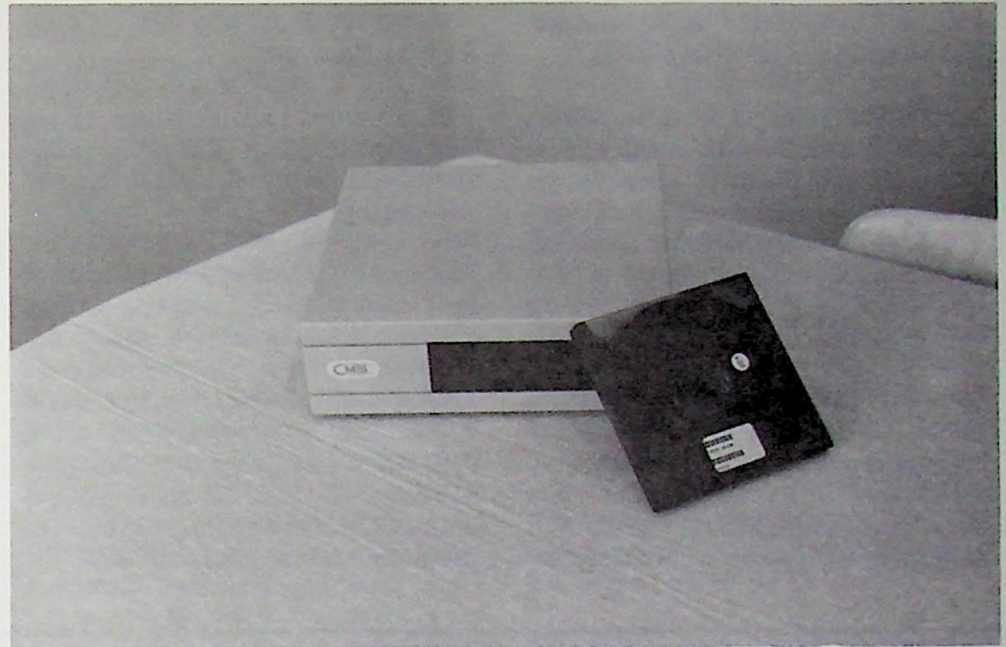
In General...

A hard drive is a hard drive, right? Wrong! The CMS SDRM 45, while it is indeed a hard drive, is a very special kind of hard drive. It's a removable media hard drive. What that means is that the hard disk platters are stored in a cartridge that you can actually remove. Sort of like a very expensive, very fast, and very high capacity floppy drive. Removable media hard disks are also called removable hard drives, because removable media sounds so weird.

Right off the bat, it's pretty easy to see several advantages to removable hard disks. The first of these advantages is that it is a hard drive. That means that you get huge amounts of data storage on each disk cartridge and you can access that data at high speeds.

The second of these advantages is price. Now, \$899 might sound like a lot of money for a measly 45 Megabytes of storage, but you have to remember that a large percentage of the cost of any hard drive is due to the mechanism that supports the reading and writing of the data to the disk media. This includes the case, the power supply, the fan, the read/write heads, and various other items that are required to keep the disk media from being just another copper Frisbee®. Once you pay the initial money for the hard disk mechanism and your first data cartridge, the cost per megabyte ratio decreases dramatically with each new cartridge you buy.

The third advantage is that removable hard drives give you wonderful data security. Don't want your kids messing with your



spreadsheets? Set up a cartridge for the kids, with educational programs and games on it, and set up a second cartridge for yourself. When you finish using the computer, remove your cartridge and lock it in the filing cabinet.

There are lots of other advantages to removable hard drives in general, but we need to talk about the CMS SDRM 45 in particular.

In Particular...

The best thing about the CMS SDRM 45, is that it works with the Apple II and CMS supports it's use with the Apple II! [Only one other company that we know of (AMR) actually sells a removable hard drive to the Apple II market. A great many removable hard drives for the Macintosh will work with the Apple II, but most companies don't have the guts to admit it, and they probably won't give you any support if you get into trouble. - Ed.] If you have trouble, a simple phone call to CMS' technical support line will put you in touch with one of their Apple II experts. The only problem here is that they only have two or three Apple II experts. However, this can actually work in your favor. On the three occasions that I called

CMS' technical support, they took my number and called me back within the hour! Now that's good phone support!

Another advantage of the CMS SDRM 45 is that it is fairly fast. While not quite as fast as any of the high speed internal drives for the IIGS, it keeps up a pretty respectable clip for an external drive with no custom GS/OS driver.

The last advantage I can give for this drive is its reliability. We've been using it here at GS+ for about the last 6 months and not once has it given us even the least amount of trouble. CMS has been in the hard drive business for quite a while now, and it really shows in this product.

Unfortunately...

CMS has been out of the Apple II hard drive business for a while, and it really shows in this product. For example:

The CMS SDRM 45 does *not* work with the Apple II Revision C SCSI card! You have to use the CMS controller card that comes with the drive. This card works via ProDOS 8 disk calls, so, among other things, this means that you can not include the CMS

SDRM 45 in a daisy chain with other Apple SCSI compatible devices! One of the reasons that I bought this drive was so that I could carry it around to each of our IIGS's and use it to make quick backups. Unfortunately, that just is not possible.

Another side effect of using the ancient ProDOS 8 drive protocols is that you can only have two partitions on any given cartridge and you can not swap data cartridges at will. If you want to switch cartridges, you must either reboot the system or run a special ProDOS 8 utility provided on the CMS utilities disk.

To be fair, CMS is planning on correcting all of this. During my calls to CMS technical support, I was told that sometime this summer, CMS would have an upgrade for the drive that would make it Apple SCSI compatible and contain a custom GS/OS

driver. If that actually happens and the upgrade is reasonably priced, the conclusions you are about to read will, for the most part, be null and void.

So Who Needs It?

Well, if you run a small business and you need lots of fast, secure data storage from a name you can trust, this might be the drive you want to get.

However, if you already have an Apple II Revision C SCSI card with one or more devices attached, or you are about to buy your first hard disk and you think you might someday need to hook additional devices to it, you should probably steer clear of the CMS SDRM 45. While it is a reliable drive and a fast performer, the lack of Apple II Revision C SCSI compatibility is a serious flaw in this otherwise excellent product.

Stop Press!!!!

Just before we went to press, we spoke with Bill Stoker at CMS Apple technical support, and he had some very exciting news about CMS Hard Drives and the Apple II.

First, all CMS Hard Drives are 100% compatible with the new Apple II DMA SCSI card. Second, CMS is now shipping all of it's Apple II controller cards with a new ROM that more closely follows Apple SCSI standards. Third, CMS will very shortly be releasing a custom GS/OS driver for all of their drives.

Unfortunately, we could not get hold of a DMA SCSI card to test this and, at this point, the GS/OS driver is vaporware. However, we will be obtaining a DMA SCSI card while this magazine is at the printer. So, be sure to check the a.Read.Me file on your GS+ disk for any last minute information on this.

S&S-RAMCard

Retail price for 0 MB - \$69
S&S 1 MB DRAM kit - \$149
S&S-ROMCard 0 MB - \$59
S&S 512K EPROM kit - \$79

Silicon & Software
18004 Sky Park Circle, Suite 240
Irvine, CA 92714
(714) 250-8101
FAX: (714) 250-8969

Reviewed by Jerry J. Park

Introduction

There is a newcomer IIGS memory expansion card on the scene. This new card comes to us courtesy of a relatively new company called Silicon & Software (S&S) and promises to offer a couple of unique features and a high performance/price ratio. Some of you out there may be leery of a new company having sufficient prowess in the Apple specific arena. Well, fear not, these folks were at one time responsible for the design of Apple II peripherals for AST Research. As proof, they have delivered a robust and useful product at a very good price.

I spoke to a very pleasant person named Trish Moery at S&S on several occasions both before and after I bought the card. It would appear that S&S is primarily selling its products by direct marketing (mail order), with the exception of the S&S-VisonPlus card, which is also distributed by Virtual Realities as the Visionary GS card (see review on page 29).

Product Features

As a memory board designed to closely adhere to the guidelines outlined in the Apple IIGS Hardware Reference (i.e. it has only 4 banks of memory), it offers full DMA compatibility in all banks as Ingenuity, Inc's GS Juice Plus and Applied Engineering's GS-Ram Ultra do. DMA compatibility is evolving into a very desirable feature as more products such as the MultiCache and the new Apple DMA SCSI card are introduced. In fact, it may be difficult to live without it! If you absolutely must have that 6 or 8 megabyte card, you should realize that some sacrifices will be made in the area of DMA compatibility.

The hardware itself is a beautifully-designed gem that is both clean and simple. The card is a rigid four-layer design and the soldering

is flawless. If looks can inspire confidence, then this product certainly qualifies. It looks like it was designed by a German fanatic who absolutely demanded Teutonic simplicity and precision.

Using the S&S-RAMCard

The first thing that a user must do is to plug RAM chips into their sockets. Now, with that step completed, configure the card for the memory available by setting two jumpers located below the #2 memory bank. The process is straightforward and the clearly-written manual leaves no doubt about achieving the correct settings. The card can be expanded to 1 megabyte, 2 megabytes, and finally 4 megabytes. And with the DRAM prices being what they are today, it is very practical to buy a 0K card and populate fully to 4 megabytes for just a little over \$300. A far cry from the \$800 I spent to populate my GS-Ram card with a (now) puny 1.5 megabytes!

With the card populated to the desired capacity, it is simply inserted into the memory expansion slot and ready to be tested with the testing software supplied on a 3.5-inch disk. On the diskette is a program called RCTest, a GS/OS program that,

appropriately enough, tests the RAM chips on the card for proper operation. It uses the 640 by 200 graphics screen and presents a dialog box upon launching, requesting to know how much memory is installed. After clicking on the proper radio dial with the mouse, click on OK and the program proceeds to a graphic representation of the card and memory chips. The memory chips being tested blink and stay black if good, or clear if bad. Simple, huh? Run the test a minimum of two times for each bank, and click on the mouse to terminate the test. The manual suggests running the test overnight to weed out any chips that fail under thermal effects, a very good suggestion since heat-induced failure is a common problem with modern solid-state electronics. [Remember that Apple recommends (and so do we!) that you buy a fan if your IIGS has more than 1 Megabyte of memory - Ed.]

The manual itself is a small, 13-page booklet that is clearly-written, and contains several good illustrations to help clarify any steps that may require visual aid (i.e. setting the jumpers). The manual also gives a list of recommended RAM chips to use on the last page, and a short tutorial on how to properly seat memory chips into their sockets.

Once everything has been tested, nothing appears to have changed, and yet a great deal has changed! I found that I could now open multiple documents with GraphicWriter III without having to deal constantly with the dialog box telling me that I should save my work as I was out of memory. And though I

was shy about purchasing AppleWorks GS in the past, due to its reputation for voraciously eating up RAM, with over 4 megabytes of memory available, a upgrade to AppleWorks GS is now an attractive option.

Areas of Improvement

They say that nothing is perfect. The truth of the matter is that there is very little to pick at with the S&S-RAMCard. But in my relentless search, I have uncovered a single major potential drawback that may drive many consumers away.

The company is currently offering a 150-day warranty on this product. The product is well-made and probably will last for years to come if it survives the first 10 days or so. And yet it is a fact of life that warranties of 1 year to 5 years are pretty much a standard with peripheral manufacturers. In this day and age, the warranty should be lengthened just to meet the norm. The length of the warranty is, after all, the only indicator that many consumers look at for product reliability.

Software in the form of a disk cache could be really useful, as well. All this memory could lend a helping hand to those who don't have a hard disk or a MultiCache card to reduce the disk access bottleneck.

Closing Remarks

The S&S-RAMCard offers something fairly unique in its genre in that it has a socket to

plug in a ROMCard daughterboard as an option. This is not a battery-backed RAM scheme as used in the RamKeeper or the MemorySaver, it is a true EPROM card. For those customers that do not have access to an EPROM burner, S&S has plans to implement an EPROM programming service. At this time however, the plan is in its infancy, and the details on this service, including cost, were not yet available.

For those of you waiting for the ROM burning service, I have a hunch that it may be quite a while before the process is fully implemented. I get the impression that S&S is a small company that is devoting most of its energy to the marketing and refinement of the VisionPlus card. This is pure conjecture on my part, but I have reached this conclusion from the fact that a digitizer is infinitely more complex piece of equipment requiring a great deal of software and user support than a RAM card.

Overall, the product is solid, and more than fairly-priced. A true winner as far as its design and manufacture is concerned. And yet the single most significant reason that I chose this card from a new and obscure company was due to my interaction with Trish Moery. She answered my initial letter of inquiry within days, and all phone conversations were both pleasant and informative. She always sought to answer my questions to my satisfaction, and went so far as offering to ask the engineers about the most technical details of the hardware. A truly refreshing experience.

MOVING?

Well, don't forget to tell us! Simply remove your mailing label from a previous issue of *GS+*, affix it to a change of address form (available at your local post office), write in your new address, and send it to us at:

GS+ Subscription Services
P.O.Box 15366
Chattanooga, TN 37415-0366

DataLink Express

Retail Price - \$249

MNP Option - \$79 + \$5 Return Postage

Send FAX Option - \$79

Applied Engineering

P.O. Box 5100

Carrollton, TX 75011

Sales: (214) 241-6060

Tech Support: (214) 241-6069

Reviewed by Joe Wankerl

The DataLink Express is a 2400 baud external modem from Applied Engineering. It is the only external modem that Applied Engineering makes. It comes with software for the Apple II, Macintosh, and IBM computers, so that almost anyone can use this wonderful product.

On the back of the modem, there are ports for line-in (the telephone line that goes from your wall phone jack to the modem), phone-line (the line that goes from the modem to your telephone handset), a mini DIN-8 serial I/O port, a DB-25 serial I/O port, and a port for the power supply to juice up the modem. Also on the back is a power switch. The two modular telephone jacks on the back are standard, but the two different I/O ports are a very convenient and brilliant way to allow the modem to interface with different types of computers with all the different strange cable "standards" floating around.

What sets this modem apart from others is its ability to use add-on options such as MNP error correction and send FAX. To add the MNP option, you originally had to take a screwdriver to a couple of screws on the modem's case, slide the modem innards out of the case, and then plug in the option. This would only work for the MNP class 4 option (which will never be available, but AE had thought about selling it for a while). For a few extra bucks and some time apart from your beloved modem, you can add on a spiffy class 5 MNP error-checking and correcting protocol. This will help alleviate the problems of line noise and other nasty problems that come with bad modem connections. But to add this option on, you have to send your modem back to AE with \$79 for the class 5

equipment and \$5 for return postage (and a note telling them that you want the MNP class 5 option installed). When AE first came out with the modem they thought the option could just be plugged right in, but it turned out that there had to be a few more modifications than an end user could do so they are requiring the modems to be sent back. Applied Engineering has also promised a send FAX option. When it becomes available, you will be able to create documents on your computer and FAX them at 4800 baud to any waiting FAX machine. Note that this is only a send option. You won't be able to receive any FAX transmissions directed to your phone line unless you also possess a real FAX machine. Also note that the FAX option is done totally through software. If you get the modem then you can FAX things as soon as the software becomes available. The nice folks at AE told me that it should be ready in a couple of weeks for about \$79... so expect it sometime this summer.

Another nice feature of this modem is its ability to customize its signals, such as DCD (Data Carrier Detect) and DSR (Data Set Ready). By rearranging 4 jumpers inside the modem (after removing the case), you can select from 6 different DCD and DSR characteristics. Normally you won't have to mess with these, but some BBS packages require different DCD and DSR settings and the DataLink Express will allow you to easily create these custom configurations.

The DataLink Express comes with lots of lights to display the modem status, as one would expect with an external modem. There are the normal ones such as power, transmitting data, receiving data, carrier detected, auto answer on, and data transmission speed as well as some nifty extras such as modem is ready, terminal is ready, as well as line engage which shows the status of the phone line as being hung up or picked up. There are two additional lights for the MNP option which show if the protocol is being used and if there has been an error that the option is correcting. I find the line engage light very useful since I live in an apartment with other people who like to use the phone—it shows me if they're on so I don't interrupt

a conversation. What this light doesn't do is prevent someone from picking up on me during one of my many calls. Now that would be a nice trick for AE to build in to a modem!

Another feature that isn't really useful for people who have terminal programs that set the modem parameters and remember phone numbers is the DataLink's nonvolatile memory. It saves two default configurations to be used on start-up as well as 4 phone numbers.

The manual doesn't really explain every feature of the modem clearly. It assumes that you have used a modem before, and it only gives a quick run down on the Hayes AT command set. A chapter on how these options can be used to enhance the use of the modem is blatantly missing from the documentation.

Something else that is missing from the DataLink Express is a good communications package. AE sends its own ONLINE-64 software for the Apple II which supports simple terminal emulations (not anything amazing like VT-100 or Tektronix) and only a Xmodem transfer facility. No GS-specific software is included. I'd like to say more about this software, but I got extremely fed up with it after messing with it for only 2 minutes. You can't even change parity or stop bits with it. I give it a definite two thumbs down. The DataLink Express tries to be all things to all people with providing sample communications software for a lot of different computer platforms. Unfortunately, the quality of the Apple II software is drastically lacking. The first thing you will probably do with your modem is download a nice terminal program from a local BBS anyhow, so the provided software at least gives you that capability.

While I highly recommend this modem, I must say that in essence that's all that it is—a modem. You can most likely get by with the el cheapo \$80 discount modem [Our pro-gsplus BBS does - Ed.] just about as well as you can with the DataLink, but what you won't get is terminal software, expandability, and a company ready to back you up if you get into trouble.

Visionary GS

Retail price - \$349

AST VisionPlus upgrade - \$149

Computer Eyes trade-in - \$50 off

Virtual Realities, Inc.

1650 Spruce Street, Suite 209

Riverside, CA 92507

(714) 788-0176

Reviewed by Joe Wankerl

[Editor's Note - The product reviewed here was a review copy provided by the manufacturer.]

The Visionary GS digitizer is a superb product capable of generating beautiful digitized pictures in a minimum of time. Virtual Realities distributes the Visionary GS along with a "not-quite-finished-yet" version of their digitizing software. [Silicon & Software of Irvine, CA produces the actual VisionPlus card (formerly produced by AST Research.) Virtual Realities licenses the card from S&S and sells it under their own name and with their own custom software. - Ed] The card will fit into any empty slot in your GS without affecting its function (i.e. you can have the card in slot 5 and still use your 3.5-inch drives).

The 6-page upgrade kit manual was excellent in describing the installation of the Visionary GS hardware although it didn't mention the problem that the RCA jack which supposedly fits through the back panel of the GS case was too large to actually fit... a BIG oversight. The manual was almost totally lacking on information about the software and how to use it because it assumes you already have the old AST VisionPlus card and manual and know what you are doing (after all, it is only an upgrade).

The Visionary GS comes complete with three software packages. One program is a slightly modified version of the old AST VisionPlus software, which is called Transition. The second program is a ShareWare, 3200 color, slide show program. The third is a completely new program, called PerfectView, which is supposed to allow digitization in separate windows and a whole host of other glorious options.

Saying that the PerfectView software is not yet totally functional would be incorrect. It would be more truthful to say that it is totally non-functional. Each time I tried to run it, it died before it even had a chance to draw a menu bar. Virtual Realities acknowledges that the PerfectView software does not work, and they are working on a new version which should be ready soon.

The ShareWare slide show program, which has a few pictures that were digitized on the Visionary GS and then converted to 3200 colors, also has several problems. Sometimes it would display the pictures correctly, sometimes it would not.

While it is nice that Virtual Realities wanted to get this software in the hands of Visionary GS owners as soon as possible, there is no excuse for them putting such shoddy programs on their distribution disks! I certainly hope that this is not the kind of thing that we will see from Virtual Realities in the future.

Fortunately, the Transition software package almost completely makes up for the other software. For a transitional piece of software, it provides a more than adequate set of options for digitizing pictures.

All you have to do is plug in your video source, start up the Transition program, and start feeding images to the computer. The best quality digitization comes from a still

picture such as a frozen frame (pause) on your VCR or a very steady CamCorder. If at any time the video source does not provide a NTSC signal to the Visionary GS card when it is trying to digitize, then the computer will most likely die a heinous death. The loss of signal crashing the computer was a big problem with the old AST digitizer. Fortunately, the changes to the old VisionPlus card, and the Transition software have done quite a bit towards reducing the frequency of these deaths.

There are several different modes pictures can be digitized in. You have the choice of digitizing in either 320 or 640 mode. You also have the choice of digitizing in black and white, red, green, blue, or color. Color digitization can only be done in 320 mode. After you have digitized a picture, you can view it many different ways. You can set the number of grey scales present in 320 mode to 2, 4, 8, or 16 shades; but only 2 or 4 shades in 640 mode. You can also change the colors for the grey scale that the picture was digitized in. With color digitization you can view the digitization with a dithered pattern or you can select from 1 of 5 calculated palettes where dithering is not done.

There is also a zoom feature which allows you to enlarge any part of the picture. It is nice to be able to zoom, but it is fairly useless as the zoomed portion will be chunky and ugly, plus you can't edit it. A



really nice feature, however, is the Aspect Ratio option. It allows you to specify a rectangle of any size into which the entire digitized picture will be shrunk to fit. This is useful for taking your super-awesome digitized image and making an icon out of it.

When you are digitizing a picture you can control the brightness and contrast by moving the mouse. I found it rather inconvenient to control them that way because I usually stop the digitization by pressing the mouse button. While waiting for the perfect picture to appear on the screen, my hand is resting on the mouse and I can easily move it and put my beautiful picture out of the preferred brightness range. This is most annoying.

One of the best features of the Visionary GS card is its ability to digitize pictures in almost real time. In 320 mode without color, pictures are digitized at about 15 frames per second. It's virtually real time, although if there is a lot of movement, the digitized result will be a bit fuzzy and jagged. In 640 mode, pictures come in a

little less frequently (about 7 per second) so it's like watching in slow motion. In 320 color mode, pictures are digitized at the rate of about 5 frames per second. This is still not bad at all, although the quality of the color pictures leaves a bit to be desired. The dithered view seems to have diagonal lines running through the picture, and the calculated palette views never quite get the picture right because there are a lot more than 16 colors in just about every frame that you will digitize. Perhaps the best picture quality is the 320 black and white with a 16 grey scale view, because it refreshes quickly and also the color differences are more easily visible than in red or blue mode. The green mode, however, produces some nice results, almost as good as black and white.

The Transition program allows the use of New Desk Accessories (NDA's), but I don't recommend using them. The program saves a direct screen image so when you try to save your greatest picture ever, and then view it later, you will also see all the desk accessories you had open. The desktop isn't refreshed after digitization either, so if

you digitize with a NDA open it will be hidden from view by the new picture (but it's still open!), and it won't be updated. Digitizing with NDA's open is not a good idea for other reasons too, as they will intercept events (such as a key press) that should go to the digitizing software.

Another plus is that the Transition software works very well with a TransWarp GS installed. An incompatibility with the TransWarp GS was one of our bigger gripes with the ComputerEyes digitizer (See review in *GS+* V1.N4, page 31). Frames won't digitize any faster with the TransWarp, but menus and windows are sped up considerably.

In all, the Visionary GS is a superb product. Its fast digitization rate as well as the variety of modes in which to digitize and view pictures make it a must for people who are wanting to add some color to their life. And with a soon-to-be-released new software package which will no doubt be more versatile than the already nice Transition program, it would be hard to go wrong with this product.

GraphicWriter III

Retail price - \$149.95
Not copy-protected
Requires 768K

Program by Gary Crandall

Seven Hills Software Corp.
2310 Oxford Road
Tallahassee, FL 32304
(904) 576-9415 or
(800) 627-3836

Reviewed by Noreen Ribaric &
Steven W. Disbrow

[Editor's Note - This review is based on our use of GraphicWriter III to prepare the last issue of *GS+*, and our conversations (at AppleFest) with the folks from Seven Hills Software, Corp.]

GraphicWriter III (GWIII) is a WYSIWYG (What-You-See-Is-What-You-Get) page layout program that quite literally mops up

the floor with the page layout module in AppleWorks GS. Apart from the fact that it is simply easier to use, GWIII has a great many features that AppleWorks GS and other IIGS page layout programs are lacking. It has so many small, nice features that it is not easy to pick a starting point for this review. So, let's start with one of its more incredibly nice features. A feature that fixes a fundamental problem with the IIGS, a problem for which the original IIGS design team should be taken out and shot!

It's About Time...

That problem is the IIGS's screwy pixel aspect ratio. Pixels (picture elements) on the IIGS are twice as high as they are wide. This means that in most IIGS word processors and page layout programs, you must select "condensed print" in the Page Setup... option in the File menu in order for the text to be properly sized when printed. The problem with this is that the graphics get condensed too, and do not look right. So you either have to double the size

of graphic objects in order to print mixed text and graphics that look correct, or put up with either the text being too tall, or the graphic being too short. With GraphicWriter III this is not a problem. Page layouts are *always* printed condensed, and to make up for the aspect ratio problem, graphics are *automatically* displayed twice their normal height so that when they are printed, they look normal. This is a really great feature, and it is the only program we know of for the IIGS that makes up for the pixel aspect ratio problem like this! Since the condensed text is a little hard to read on the screen in a WYSIWYG program, GWIII has a Tall Text option that displays the text in a taller, more readable form (of course the graphics look stretched out now, but everything *prints* normally)! If you create a graphic in GWIII that you wish to export, there is a Half Height option to reduce the graphic to its regular size so it will look normal in other programs (but remember, if you print a half-height GWIII graphic with condensed print, it will be printed half height).

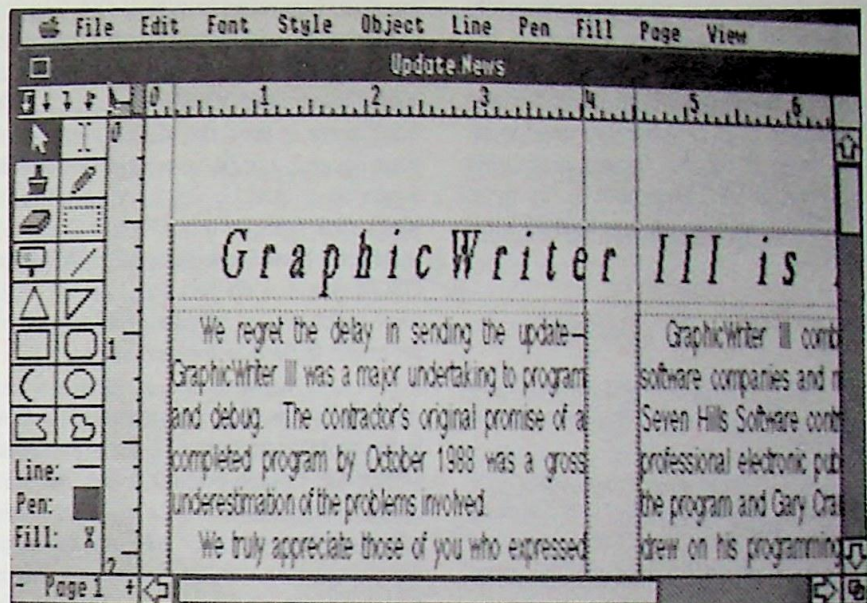
Imports and Exports...

GWIII has *translators* that allow you to import and export text and graphics in a variety of formats. Each of the translators are separate files. This makes it easy to add new translators as they are written (and more are on the way) and to remove those you will never use to save disk space. The graphic formats currently supported are Print Shop, Print Shop GS, single-, double- and super-high resolution. The next release of GWIII (tentatively set for August) will allow you to import MacPaint graphics. (Really! Noreen saw this with her own two eyes at AppleFest!) The formats currently supported for text are Classic AppleWorks (even with SuperFonts), AppleWriter, Bank Street Writer, MouseWrite, and Universal (any ASCII text file). When asked about a translator for AppleWorks GS, Seven Hills admitted that this was something that they would love to add, but Claris is reluctant to publish the format for their AWGS files. So, that particular translator will not be available for some time. Another nice thing about these translators is that they give you several options to modify the text file upon importing. For example, you can convert quotes to curly quotes, strip line feeds, convert lines to paragraphs, remove unnecessary control characters, and convert all characters to low ASCII.

Unfortunately, it is not possible to change and save the default options in any of these translators. Since we almost always deselect the same import options every time, it would be nice to be able to permanently save these changes and make the changed setup the default.

Misspelled?

One thing we don't like about AppleWorks GS (AWGS) is that once you import a file into the page layout, you cannot check the spelling. It could only be done from the word processor. GWIII, as you may have guessed, comes with a spelling checker. Seven Hills claims that this spelling checker is faster than most spelling checkers because it checks words alphabetically instead of as they occur in the page layout. However, it can become VERY confusing trying to tell exactly where you are during a spelling check because you basically pass through your text



26 times. You have the ability to check the spelling in one "story" (article) or in the whole page layout. But we must give a word of caution—this is one buggy spelling checker! It tends to highlight a lot of words that are not even misspelled! So basically, as it is now, it is pretty useless. In fact, Seven Hills suggests that it not be used until they can get an updated version of the program out! It has been known to crash the program a few times, although it has not crashed on us yet. As we write this, Seven Hills is hunting down an evil gang of "hanging pointers" in hopes of having this bug fixed in the next release.

Another incredibly logical feature that is missing in AWGS is automatic document scrolling. In AWGS, when you type past the bottom of the screen, or try to move an object outside the visible section of the page layout, the window does not scroll! You have to stop what you are doing and move the scroll bar to see that other part of the page layout. Well, you guessed it, GWIII scrolls the window for you! This simple feature, long available in page-layout programs for other computers (and in a few 8-bit Apple II page layout programs), is nothing short of a godsend for those of us that have had to put up with the "move, scroll, move, scroll, move, scroll" nonsense of AppleWorks GS!

Another flaw in the AWGS page layout module that GWIII overcomes concerns the

deletion of linked typing frames (known as text boxes in AWGS). In AWGS, if you delete a typing frame in the middle of a chain of typing frames, the TEXT in that frame is deleted too. But in GWIII, the text that was in the deleted typing frame is flowed to the next one in the link. If there is no next typing frame, you can still link another typing frame to flow the remaining text to. Also in GWIII, cutting and pasting retains the text inside the typing frame. In AWGS, if you cut a typing frame, the text is gone when you paste it back.

On the topic of typing frames, there is another neat feature in GWIII that AWGS doesn't have. If you are using the I-Beam tool to insert text in a typing frame and you decide you want to resize it, just move the I-Beam to the handle of the typing frame and the mouse pointer turns into the Arrow tool. Resize your typing frame, move the mouse pointer back into the typing frame, and it becomes an I-Beam again! Intelligent! In AppleWorks GS you would have to click on the Arrow tool, resize your typing frame, then click back on the I-Beam tool to continue typing in the typing frame.

Documentation

The documentation for GWIII is simply excellent. Not only does it include a well-structured tutorial and a comprehensive reference section, there is also a glossary, a complete table of contents, and an

exceptional index that allows you to easily find information on every aspect of the program. Want to know how to make an em dash? Look under 'E' in the index and you'll find the page number you need to go to. The only thing that would make this manual better would be a note in the front that said "Produced on an Apple IIGS with GraphicWriter III."

More Goodies...

In no particular order, here are a few of the other nice things that we love about GraphicWriter III:

- Tab leaders. Great for doing our Table of Contents! No more guessing how many periods to type to lead up to the page numbers!
- The ability to kern (set spacing between) individual characters. Again, this is a simple *necessity* for page layout that AWGS page layout just does not offer. Ever have a heading that is just one character too long to fit on one line? Well, with GWIII, you can tighten the spaces between characters to make it fit!
- The "Jump to Page..." option allows you to give titles to individual pages, so that you can mark what is on each page. No more trying to remember what page "Rumors, Wishes & Blatant Lies" is on. We just label it as we create it, and as other pages are inserted, the "Jump to Page..." option allows us to see what page we need to go to in order to add that latest rumor!
- A customizable font menu. With GWIII, you can have the font menu list only the fonts and sizes you need. No more scrolling through 20 fonts to change to Times!
- Rulers can display measurements in inches, centimeters, points, or picas.

Nothing's Perfect...

For all its good points, there are still quite a few bugs in this release of GWIII. The worst of these is the fact that GWIII will not tell you when your disk is full. If you try to save your page layout and it will not fit on

the disk, it appears to save it OK, but if you close the file and try to reopen it, the system will hang and your file will be unrecoverable. VERY nasty and VERY annoying! If you think there is even the slightest chance that your file will not fit on your disk, save it on a new one. And, if you need to initialize a blank disk from within GWIII, Seven Hills includes a New Desk Accessory (NDA) with GWIII that can do just that. Seven Hills is very much aware of this problem, and has promised to fix it in the next release.

Another bug we have encountered in GWIII is in the print routine. If, for some reason, GWIII has trouble printing a file, the system usually hangs, and again, your file is corrupted beyond repair. To get around this, we always save our files under two different names before we print them, that way if the one being printed is corrupted, we have a backup. Again, Seven Hills is aware of this and is tracking down the problem.

Something else that is either an oversight or a very confusing convention is that when printing or deleting pages, the page numbers are offsets (relative positions in the page layout), and not actual page numbers (that would get printed on each page). While this is OK if all your page layouts begin with page 1, it gets very confusing when you break big page layouts into smaller pieces to conform to memory or speed limitations. For instance, if a page layout starts with page 3, and you want to print just page 3, you have to think in terms of printing the first occurrence of a page, and enter "1" in the print dialog. Since the Delete Pages... option works the same way, you must be *very* careful when deleting pages if your page layout starts with a page other than 1. (See the "GWIII Tips" sidebar for a more detailed example).

There is also a problem when using the word wrap feature with linked typing frames. If you have linked text wrapping around a graphic, and you later move the typing frame or the graphic, the text "unwraps" and flows back over the picture. In order to "rewrap" the text, you have to click on the handle to the typing frame. Hopefully, this problem will be fixed in the next release.

Another minor bug is that right- or full-justified italic text always comes out ragged-

right, and not flush with the right margin as it should be. And if you think it just looks bad on the screen, take a look in this issue's "Letters" department and see how it looks printed!

In no particular order, here are some things that we just can't stand about GWIII:

- Double-clicking on a GWIII document from the Finder runs GWIII but does not open the document that you double-clicked on. This is a fairly simple thing to do (AWGS does it with ease), and it would go a *long* way towards making GWIII easier to use.
- The rulers are divided into *tenths* of inches instead of sixteenths or even eighths. Talk about silly!
- GWIII is very slow! Resizing typing frames, or just redrawing the screen, is noticeably slow with only 2 pages in the layout (10 seconds to resize a typing frame, and 5 seconds to redraw the screen on a non-TransWarp machine.)
- If you are used to the command key equivalents in AppleWorks GS, you know that they are not case-sensitive—both Open-Apple-B and Open-Apple-Shift-B make text bold. This is because the AWGS page layout only has 24 command key equivalents. But GWIII has 38, so they decided to make them case-sensitive to accommodate them all. The only problem we have with this is in the command key equivalents you have to use the Shift key with. They decided to make it easier to remember them by deciding on commands under the same menu. They picked the Style menu. So you have to hit Open-Apple-Shift-B to make text bold. Open-Apple-B won't do it (it will send whatever is selected to the back), *even if you have the caps lock key on!* While they *may* be easier to remember this way, we would rather have the ones more commonly used lowercase. We use the Bold and Underline commands more often than we use the Send to Back and Ungroup commands. And there are still number and punctuation keys not used (that would not require the Shift key) which could be used for the less common commands!

- If you click on an object (say a guide) and drag the mouse before the object is highlighted, the mouse pointer will move immediately, but the object won't move until it is highlighted (caused by slow processing of the mouse-click). When the object does start moving, it doesn't catch up with the mouse pointer, it stays that same distance away from the pointer the whole time you continue dragging it! So you may have dragged the mouse pointer all the way to the margin, but the object may still be a few inches away! Oops! You'll have to let go of that mouse button and reselect that object (and wait until it's highlighted this time)!
- There is no way to create a new typing frame that automatically fills the space between two horizontal and two vertical guides with one click (unless the bottom guide is the bottom margin). You can either create them one line high and stretch them, or make them extend to the bottom

margin and shrink them (see "Tips on Using GraphicWriter III" for more details).

- GWIII does not seem to correctly support the clipboard for use by desk accessories. If you open a desk accessory that supports the clipboard (EGOed, for instance) from within GWIII and try to use the copy command, it will bomb.

Wish List...

Every program can be improved on. We here at *GS+* created a list of features we would like to see in a future release of GWIII. Some of those include: the ability to import AWGS files, save import options, nudge objects one pixel at a time (like option-arrow in the AWGS paint module), more command-key equivalents (and a quick-reference card to go along with those), better grey-scales for the LaserWriter driver, Style sheets for importing files (to indicate that we want all occurrences of *GS+* to be changed

to bold italic text, for example), different line weights (a hairline, for instance), encapsulated PostScript support, a thesaurus, and (reaching for the stars) the ability to rotate text. When we spoke with the Seven Hills representatives at AppleFest, they were very open to these suggestions and even admitted that most of these are on their wish list as well!

The Wrap-up...

For all its bugs, GraphicWriter III is an excellent page layout program that has completely replaced our use of the AppleWorks GS page layout module. While we still use the other modules in AWGS (the word processor, paint program, telecommunications, spreadsheet, database), GWIII's features, and the wonderfully helpful attitude of the folks at Seven Hills Software, simply make it a better page layout program than any other IIGS-specific page layout program we have tried.

Tips on Using GraphicWriter III

Before you save your page layout, be absolutely sure there is enough room on the disk to save it (take into account any changes you have made since the last time you saved it), because GWIII will not tell you if the disk is full! If there was not enough room on the disk, it will appear that the file has been saved correctly, but if you close it and try to reopen it, the computer will hang up, and the file will be unrecoverable. If you are unsure that there is enough room on the disk to save it, insert a new blank disk. If you don't have a formatted one on hand, there is a New Desk Accessory that comes with GWIII that will let you initialize a disk without quitting GWIII.

If your page layout starts getting big, and you are working on the back half of it, redrawing the screen will start to get very slow. This is because all the previous pages are still in memory. To speed things up a little, save the page layout on the page you are working on, then close and reopen the page layout. Now all that will be in memory is the current page. Things should be a bit faster. But

remember, as you edit new pages, those will be added to memory and things will again slow down. Since it's a good idea to save the page layout after every few pages anyway, just take a few extra seconds to close and reopen the page layout. You will spend less time waiting for the screen to redraw!

If you use macro programs such as MacroMate or Diversi-Keys, they usually intercept the option key, so in order to use special option characters in your page layout (like bullets and em dashes), you will have to turn these type programs off.

If you are importing a file with special option characters, be sure you disable the "Convert all characters to low ASCII" option or you will lose all those option characters. We also disable "convert lines to paragraphs." This option converts text from line mode (a return at the end of each line) to paragraph mode (a return at the end of each paragraph). This is useful when importing files that aren't "word-wrapped" and you want the returns stripped, but if you really want them there, it will strip them unless there are two in a row (denoting a new paragraph).

A few tips on printing:

There is a bug in GraphicWriter III which may cause files to get corrupted if there is an error while printing that document. It would be a good idea to do a "Save as..." before you print a page layout and give it a different name, so if the file is corrupted while printing, you have a backup!

If you change the "Start On:" field in the Page Setup... option to a page other than 1, say 3, and you want to print the first 3 pages (pages 3,4,5) you must say print pages 1-3, not 3-5 as you would expect. The print routine recognizes the numbers as OFFSETS from the beginning page, not by the physical page number that gets printed at the bottom of the page. If you tell GWIII to print a page that doesn't exist, it looks like it's going to print, but it doesn't. For instance, if the above page layout had four pages starting with 3, and you told it to print page 5, it will try to send the page to the printer, but nothing ever happens because the page layout only has four pages, even though one is numbered 5.

The page numbering scheme for the Delete pages... option works the same way—so be careful! If you have a four-page document that

starts on page 3, and ends on page 6, and you want to delete the page numbered 4, don't say delete pages 4 to 4, or it will delete the fourth occurrence of a page, that is page 6! You would have to say delete pages 2 to 2 to delete the page numbered 4 if the page layout starts on page three. Also, if you say to delete pages 4 to 4, and there are less than four pages in your page layout, it will delete the last page instead of saying that there is no page 4.

Thing you may have missed in the manual (We sure did!):

If you are used to AppleWorks GS and the way new typing frames fill in the whole space between the left, right, top, and bottom guides; you may have noticed that when you do this in GWIII, the space is filled between the left and right guides, but you only get a typing frame one line high. There is no way in GWIII get the typing frame to fill the whole area between top and bottom guides unless the bottom guide is the bottom margin of the page. To get the typing frame to extend to the bottom margin, hold the

option key down, and click on top of the guide marking where you want the top of the typing frame to be. Nevertheless, if the bottom guide for the typing frame is not at the bottom margin, you will still have to resize the typing frame to fit vertically between top and bottom guides.

When linking typing frames together, you don't have to link the bottom handle of one typing frame to the top handle of the next—you can link using the tops only! This saves time by not having to redraw the window when moving to the bottom of the page layout to click the bottom handle, then moving back to the top to click the top handle. You can stay at the top instead!

When importing files, you don't have to have all the typing frames pre-drawn and prelinked. As long as you have one typing frame drawn, you can import into that, and by clicking the top handle of the typing frame then clicking (or option-clicking) where you want the text to flow, it will create a new typing frame and link it at the same time. Continue doing this until the entire file has been displayed.

Last of All...

As we've discovered with other page layout programs, you have to be very careful when using large fonts (18 points or larger). We've had unpredictable results, destroyed files, and wasted time when using Publish It!, AppleWorks GS, and GraphicWriter III because of too much manipulation of large fonts. Since it's happened in several programs, it is probably the printer drivers, not the actual page layout program, that cannot handle the large fonts well. In any case, use extreme caution when using large fonts!

If you experience strange problems (other than those mentioned above and in the review) with GWIII, the manual states to remove all desk accessories and add them back one at a time to determine if a particular desk accessory is causing the problem. But they failed to mention that you should not delete the Control Panel desk accessory, as GWIII needs it for page setup and printer information and will not work without it!

ZapLink

Retail Price - (see below)
Not copy-protected

The Byte Works, Inc.
4700 Irving Blvd. NW, Suite 207
Albuquerque, NM 87114
(505) 898-8183

Reviewed by Joe Wankerl

If you've ever programmed using the APW or ORCA development environments then you know how slow the linker is. You know it dies when you're in a low memory situation. You know how huge the executable file is. You know that there HAS to be a better way to do all this linking stuff. Well now there is.

ZapLink, by The Byte Works, Inc., is a replacement for the old linker. It is available separately for \$10 if you have a previous

version of the APW or ORCA shell and it is also shipping with all new versions of ORCA/M, ORCA/C, and ORCA/Pascal. It produces OMF 2.0 files and can even add an ExpressLoad header. It automatically compacts the load file, too. You can even make ZapLink produce bank-relative code—a great feature no other IIGS linker has. ZapLink is also scriptable. That's no big deal for the APW folks (you've had it all along), but for the ORCA people it's a new realm of control over the linking process.

ZapLink operates just like the old linker except that it links much faster (much, much, much, much faster!) and it has a few more options available for the more advanced programmer to take advantage of. These options are specified in the command line just like all other parameters flags to the linker. These new options are the ability to create Express loadable files (+x or -x) which take up a bit more space on disk but they load lots faster, the ability to

automatically compact the load file (+c or -c), and the ability to create bank-relative load files (+b or -b) which take up less space on disk because more of the addresses can be resolved by the linker since the file will be loaded on a bank boundary.

The new ZapLink can also automatically set the file type and auxiliary type of the resulting load file. It uses the values of the shell variables {KeepType} and {AuxType} to get these parameters. This is definitely more convenient than linking and then manually changing those values.

ZapLink is a great improvement for the APW and ORCA programming development environment. Its blazing speed alone is worth the price, but you get much more! This is truly the linker of choice for anyone even remotely interested in programming with APW or ORCA. For more information, contact The Byte Works, Inc.

Math Blaster Plus IIGS

Retail price - \$49.95

Copy-protected

Requires 512K

Program by C.K. Haun

Davidson & Associates, Inc.

3135 Kashiwa Street

Torrance, CA 90505

(800) 556-6141

(213) 534-2250 (California callers)

Reviewed by Greg Zimmerman

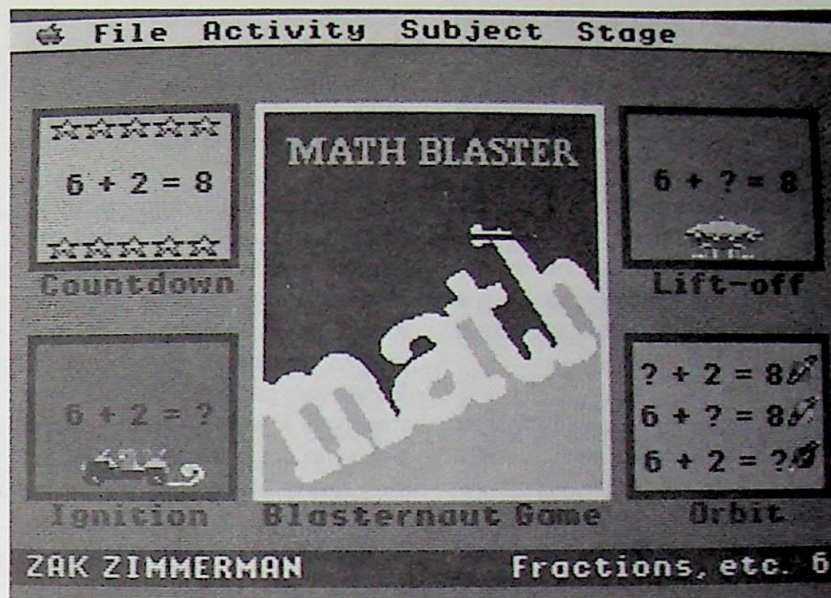
Math Blaster Plus IIGS (MB+) is an updated version of the classic Math Blaster educational program. The program combines drill and practice with a fun learning game wherein the student "shoots" or "blasts" the correct answers to math problems.

The Modules

MB+ has five learning modules that lead the student through the process of learning basic math facts. Each module can be played on of six different levels of difficulty, in the areas of addition, subtraction, multiplication, division, and fractions (which includes decimals and percents).

In the first module, Countdown, a problem is displayed with the correct answer already on the screen. Pushing return makes the correct answer disappear, then the user reenters the answer to complete the problem. The second module, Ignition, displays a problem for which the user must enter the correct answer without the benefit of being told the right reply in advance. Module three, Lift-Off, presents a problem with the correct answer, but a la Carnac, part of the question is missing, which the user must fill in. In module four, Orbit, three problems are displayed simultaneously, mixing formats from the previous two modules. The first two modules will display problems either horizontally, vertically, or a random mix of both. In each of these four modules, the user is given a second chance to enter an answer that was entered incorrectly the first time.

The last module, Blasternaut, is the game module, without which this program would have been relegated to obscurity immediately



after its release. In Blasternaut, a problem is displayed at the top of the screen, and four possible answers are also displayed. Using a series of rockets at the bottom of the screen, the user must shoot at the correct answer. Each level of difficulty for each type of problem can be used in this module.

Features

The game has a timer function and keeps score based both on the number of correct answers, and the speed at which the user shot the answer. MB+ also has voice reading of the problems and answers in the first two modules. As the problems appear on the screen, a voice reads the problems to the child. This slows down the operation of the program, but is a great way for the youngest children to learn to recognize numbers. This feature can be turned on or off from a pull-down menu.

MB+ has several other features which make it an extremely useful learning tool. While there are over 750 problems assigned to various difficulty levels built into the program, the problems can be altered on every level and problems can be added or deleted by the user, so that a particular area of difficulty for the user can be reinforced through added practice, or so that the overall difficulty of the problems is changed. The program has a record-keeping function so that progress may be tracked, and it also will print tests made up of specific problems or

randomly-generated problems. Students who do well on a particular level can print out graphic certificates indicating their achievement, and all users can print out text certificates indicating their scores. The certificates include the user's name, the date, the name of the module completed, the percentage of problems solved correctly, and the level of difficulty completed. The program has sound effects (such as the sound of rockets blasting off) which like the voice, can be turned on or off from the pull-down menus. It also has animation sequences that are displayed after a series of correct responses, which give positive reinforcement to children using the program.

MB+ is hard-drive-installable, supports dozens of printers and interface cards, and is accompanied by a well-written manual.

Good Points

MB+ performs *exactly* as advertised. It is a credible effort at making the boring chore of learning basic math facts a little easier and more interesting for young children. The user interface is extremely friendly and, in fact, the manual is not even necessary for using the basic program modules. The user selects options from pull-down menus, then clicks on the desired module to start "playing." Positive feedback, in the form of simple animation and graphic certificates, helps keep the kids motivated to get through the various levels of difficulty. My five-

year-old made a booklet out of her certificates in each subject area, and then used Dazzle Draw to make a cover and back for each booklet. This kept her motivation level up, and without any urging from us, she worked her way through the entire program. She still doesn't know how to put her clothes away properly, but she does know her math facts. The edit and record-keeping features are extremely useful in a classroom setting, saving untold amounts of teacher time.

The program is compatible with System Software 5.0.2, an important point as you'll see below.

Customer service at Davidson is also very good. I called them at their toll-free number (at 8 o'clock in the morning California time), and asked several questions about the program, as well as about printer and interface selection. The responses I got were both friendly and accurate. I was also told that they are working on an upgrade for release in December of this year.

Bad Points

I can only point to three things about the program that I consider to be deficiencies worth mentioning, and none of these are a problem for hard drive users.

First, the program is a slow-loader if you only have a 3.5-inch disk drive. It takes 55 seconds to get to the "type in your name" screen when booted from a 3.5-inch disk. This isn't exactly a Test Drive II torture, but patience is not a well-known virtue in young children. Booting from a 20-megabyte InnerDrive using the finder with System 5.0.2 reduces the above time to only 12 seconds, and booting from a 40-megabyte InnerDrive on a TransWarped GS using System 5.0.2 decreases the time to only 8 seconds.

Second, when you quit the program using a 3.5-inch drive, you get a message telling you that error #2 has occurred and that you should report this to Davidson Customer Service. I did this and was told to ignore the error, and simply reboot the machine. This is a bogus "feature" in an otherwise well-presented program. Davidson said they have no plans to fix this bug, and it does not

interfere with the operation of the program. As with the boot time, using a hard drive solves this problem, as quitting from a hard drive will return you to the finder or whatever program selector you are using.

Last, the program is copy-protected. The program disk cannot be copied using the finder. This is not only annoying, it is inexcusable for a program that is marketed for use by young children. However, the program does have a hard drive installation feature built into it (a very good point), and you do not need to have the original disk in a drive to run it from a hard drive if you have installed it using the built in installer.

Suggested Improvements

The only area that I think the program could be improved is in the game module. When this program was first designed, the level of sophistication of GS games was not what it is today. A more interesting and challenging game module could be designed, but the current one is entirely adequate.

The Wrap-up

MB+ is a good educational tool for use with young children. The ease of use, combined with the Blasternaut game, make it a fun way for young kids to learn some pretty boring material. The edit feature allows you to keep the difficulty level of the program progressing as your kids progress, and the print feature both for tests, and "reward" certificates can engender some creative uses for the program material while away from the computer. Because the drill modules will display the correct answer to a problem that the child misses, and because a voice identifies the numbers on the screen in the easier modules, parents or teachers do not have to camp out at the computer to help young children that are having difficulty. In addition (no pun intended), the few things about the program that I consider a problem are resolvable either with a hard drive, or with Copy II Plus. This program will rightfully be around for a long time, particularly if it is regularly updated. It performs exactly as advertised, and has the flexibility to grow with your children so that it does not become outdated in a short time.

ERRATA

In last issue's comparison of the InnerDrive and Vulcan hard drives, it was stated that the InnerDrive only supports ProDOS partitions. This is incorrect.

Although it is not mentioned in any of the manuals that we have, the InnerDrive does in fact come with a utility, called DOS Master, that allows you to create a DOS 3.3 partition for storing DOS 3.3 programs.

PRODUCT UPDATES

HyperStudio v2.1

At AppleFest, Roger Wagner Publishing, Inc. introduced HyperStudio v2.1. In addition to the odd bug fix, the major enhancement in this version of HyperStudio was the addition of the HyperStudio Run-Time Module that will allow IIGS owners without HyperStudio to run HyperStudio stacks. Registered owners of HyperStudio should receive this update in the mail for free. If you have not yet gotten your update, or you would like more information, contact Roger Wagner Publishing, Inc. at (619) 442-0522.

InterPlay Updates Games For GS/OS Compatibility

Interplay Productions has announced that it will be updating its IIGS products to work under GS/OS. Each update will cost between \$10 and \$15 dollars. For more information, contact Interplay Productions at (714) 549-2411.

McGee

Retail price - \$39.95
Not copy-protected
Requires 512K

Program by Frank Andrews and
James McCarthy

Lawrence Productions, Inc.
1800 South 35th Street
Galesburg, MI 49053-9687
(800) 421-4157

Reviewed by Greg Zimmerman

McGee is a new children's program for the IIGS. It is specifically intended for kids aged 2 to 6 years old.

McGee is also the program's main character, a child, who goes through his home doing things that young children do at their own homes. The program is strictly graphics, animation, and sound; therefore, it comes on two 3.5" disks. There is no text in the entire program (except the title screen), and there is absolutely no use for the keyboard. In fact, the manual recommends that you get the keyboard out of the way (not necessary), so that young children have a maximum amount of room in which to operate the mouse.

The program begins with McGee waking up in his bedroom. From here, everything that happens is under the control of your young child. Each screen has four choices at the bottom, which the child selects from using only the mouse. These four choices are represented by small pictures which are duplicates of objects that are in the large screen graphic. For instance, in the bedroom, there is a stuffed bunny rabbit puppet. If the child clicks the mouse on the small bunny picture in the lower screen area, McGee picks up the bunny rabbit in the main screen, and talks to it. The child may move McGee out of the bedroom and into another room by clicking on the small picture of the door at the bottom of the screen. McGee then heads out of the room into the hallway, and as the new screen appears, four new choices appear at the bottom. The program has excellent graphics, and

McGee sounds like a real (cute) child when he talks. There are a total of six rooms to explore, as well as a chance to go outside into the backyard.

McGee does not follow the Apple Human Interface Guidelines. There are no pull-down menus, and no traditional desktop metaphor. I usually find this objectionable in IIGS software, but for McGee, it was a great way to go. If this program followed the guidelines, then the two-or-three-year-old user would also have to be able to follow them. Instead, McGee uses a simpler approach that is much easier for young children to follow, and which is entirely adequate for the intended use of the program.

The cursor is locked into the lower screen area where the child makes the action choices by clicking on the picture of the object that McGee should interact with. This makes it extremely easy for even the youngest children to properly use the mouse and operate the program. Wherever the cursor is when the mouse is clicked, an action will occur.

The program is hard-drive-installable, is compatible with System Software 5.0.2, is not copy-protected, and comes with a very skimpy manual. But, the program is so intuitive and simple to operate, that there is very little need for a manual.

Included on the disk is a file that explains how to install the program on a hard drive (copy everything from the two disks except ProDOS and the System folder into a folder on the hard drive), and an explanation of how UniDisk users can speed up the operation of the program.

The Good Stuff

McGee is a great program for young children. It captures their attention as few programs I have ever seen for this age group do. Absolutely no parental help is required for even a two-year-old to operate a IIGS when using McGee. I know, because my two-year-old (unbeknownst to him), has been testing McGee for me every day for the last week, sometimes three or four times a day.

The graphics keep his attention. The sounds keep his attention. McGee's voice keeps his attention. The things that McGee does keep his attention. He must have had McGee feed the dog at least 100 times this week. And McGee has taken at least 50 baths at the direction of my two-year-old.

The attraction of McGee isn't just in the great sound and graphics. It took me a few days to realize it, but I finally figured out what keeps my kid glued to the computer with McGee running.

Those of you that have, or did have, young children, know that above all else, a two-year-old likes to make things happen.

When they throw their food on the floor at the dinner table, they don't do it just because they want to be removed from the table, or to get their parents upset. When they instigate their older siblings, they don't do it just because they want to get shoved across the room by a bigger kid. When they take all their stuff and throw it out of their crib so that their room looks like a hurricane just went through, they don't do it just to build up their pitching arm. They do ALL these things (and so much more) because a two-year-old likes to make things happen. They like to be able to take an action, and cause a reaction. This phenomenon is commonly referred to as the "terrible twos" (and threes and fours). A young kid will do the same thing over and over and over again, just to get a reaction. Even if it is negative reaction, or a painful reaction, it's just over and over and over again.

McGee takes this desire to cause reactions, and harnesses it in a positive way, and in such a way, that the child doesn't lose interest. And McGee makes it easy for the child to do it. He can "do it myself." The child can then relate to the things that McGee does throughout the house, because the child does all the same things. When McGee goes into his mother's bedroom and wakes her, the child can relate to that. When McGee starts bouncing the big red ball, the child can relate to that too. And most importantly, whatever McGee does, he does it at the

direction of the child. Children are always being told what to do. Every day, a zillion times, a two-year-old gets direction from somebody. But with McGee, the two-year-old is in the driver's seat (how scary).

Lawrence Productions, Inc. has a toll-free number for customer service that is staffed by knowledgeable service people. However, they probably don't get a lot of calls, because there really aren't a lot of questions that you would have to ask about the program. When I called, my biggest question was, "Will there be more IIGS programs?" The answer is "YES." A new McGee-style program named Katie's Farm has just been released, and more are on the way. Sales are going very well, and they have just signed up with a distributor so that their programs will have wider availability. This is good news for parents, and good news for the IIGS.

So What's Not to Like?

OK, what's wrong with McGee? Almost nothing, but...

When I first loaded McGee, to check it out before the kids got to it, I thought it was a little too simplistic. It reminded me of a beginner's HyperStudio stack. But as the days went by, I realized that the beauty of the program, and the attraction of the program, is in the simplicity. It wasn't made for me, it was made for my two-year-old. If it wasn't simple, he couldn't do it. So scratch that problem.

However, there are two things that are somewhat bothersome.

First, the loading time is slow. Yes, the thing is all sounds and graphics; and yes, a child waits with anticipation to see the start-up screen; but yes, it is still 50 seconds from boot (with a 3.5" drive) to the first screen (where the child sets the volume for the program). Of course, booting is a lot quicker from a hard drive. And because the program is not copy-protected, hard drive use is no problem. Loading time was reduced to only 18 seconds when booted from a 20 MB InnerDrive. This time was further reduced to 15 seconds when booting from a 40 MB

InnerDrive with a 7 MHz TransWarp installed.

The second and last problem, is that there is no way to quit the program, except to reboot the machine. Not a big problem from a 3.5" drive, but an inconvenience when you find out you are not going to be returned to your program selector on your hard drive. You must reboot after the kid is done with the program.

Of course, neither of these problems bothered the two-year-old in the least, so I probably shouldn't be too bothered either, but adding a quit routine to the program shouldn't have been too difficult. There is room on the disks for it.

Does the Child Benefit from This Program?

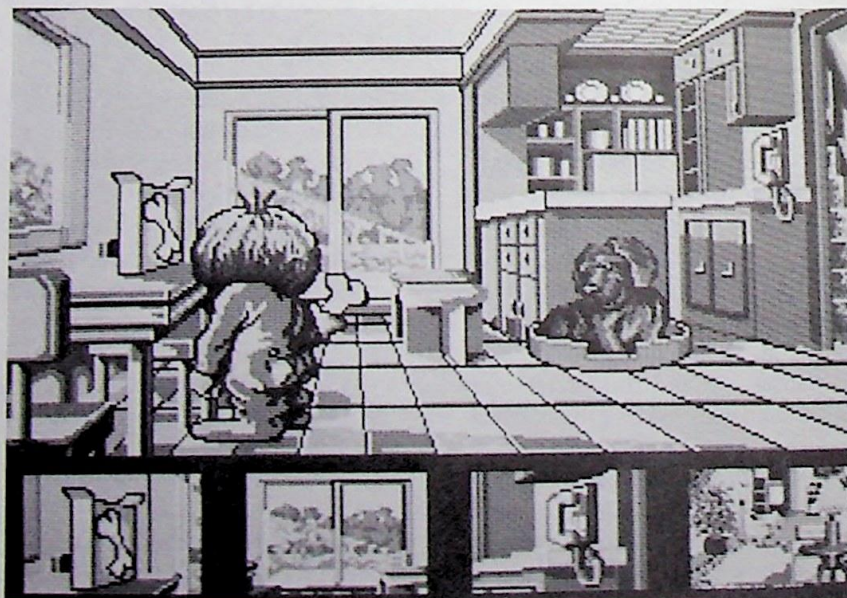
Apart from the fact that the two-year-old is using a computer, there are a number of benefits to the child playing this game. In

no particular order, they are: learning to use the mouse, the sense of accomplishment that a child gets from doing something on their own, and the self-esteem and self-confidence that comes with getting to use the same computer that mom, dad, and the older kids get to use all the time. I'd say that all these things stack up favorably as opposed to your child assuming the couch potato position in front of the idiot box.

The Wrap-up

McGee is an enchanting, attractive, easy-to-use young children's program that delivers exactly what it promises.

McGee uses the best the GS can offer, both in audiovisual stimulation and ease of use, and puts it in a package that a twenty four month old child can operate. I would strongly recommend this program to anyone with a GS and kids under the age of five.



The New Talking Stickybear Alphabet

Retail price - \$49.95
Five-disk lab pack - \$85
Copy-protected
Requires 512K

Program by David Cunningham and Susan Dubicki Beaumont
Graphics by Robert Highsmith

Weekly Reader Software
Optimum Resource, Inc.
10 Station Street
Norfolk, CT 06058
(800) 327-1473 or (203) 542-5553

Reviewed by Greg Zimmerman

The New Talking Stickybear Alphabet (TNTSA) is a GS-specific children's educational program designed primarily for kids between the ages of two and six years old. The program makes extensive use of voice, sound, graphics and animation to both enhance and reinforce the learning experience. It is one of three GS-specific Stickybear offerings from Weekly Reader Software.

The main focus of TNTSA is to teach preschool children letter recognition. Using this as a base, the program introduces perhaps a dozen concepts which will benefit youngsters in early education. Among these are differentiating between upper and lower case letters, following directions, word recognition (through sound and graphic association), and beginning keyboarding skills.

TNTSA comes on two disks, and is broken down into three activities. They are Alphabet, Letter Hunt, and Fast Letters. The child chooses from a menu at the beginning of the program from among these three learning modules. In Alphabet, the child pushes any letter on the keyboard, and an animated graphic screen (with sound) appears, depicting a thing (like an animal), or an activity, who's name begins with the letter that the child selected. Also on the screen are large upper- and lower-case representations of the child's letter selection, as well as the name of the object or activity depicted on the screen. Stickybear himself recites the letter the child selected, and the name of the animated screen object or activity. In Letter Hunt, Stickybear instructs

the child to push a particular letter. If the child selects the correct letter from the keyboard, then a graphic animation screen appears. If the selection is incorrect, the child gets a second chance after seeing and hearing the correct letter on the screen (without picture/animation). If the child can still not get the correct letter, the Stickybear once again repeats the name of the letter that is now on the screen, but then the program moves on to a new letter. In the last module, Fast Letters, the child once again is permitted to select any letter from the keyboard, and Stickybear will appear and tell the child what letter he/she selected at the same time that the letter appears on the screen.

The program has two animated graphics for each letter, and the same ones are used by both the first and second modules. All the screens in module three, Fast Letters, contain big old Stickybear himself, reciting the child's selection, along with the letter selected, on the screen.

The program comes with several small Stickybear stickers (now that's a mouthful), a poster of Stickybear, and a small but complete manual describing the operation of the program.

TNTSA is hard-drive-installable, using the "put your original disk in a drive so I know you own it" (otherwise know as the "key disk") method of copy protection. The manual does explain how to install the program on a hard drive, and even tells you how to adjust the volume on your GS. TNTSA is compatible with System Software 5.02, and there is a toll-free number to call in the unlikely event you have a question about how the program works.

The program does not follow the Apple Human Interface Guidelines. But, as with other programs designed specifically for very young children, I rate this a definite plus. Especially when the software manufacturer develops a way for the child to make selections that is easier for the child than the traditional pull-down menu and desktop setup.

Is It Any Good? Should I Buy It?

TNTSA is a very, very good program. The graphic/animation screens are bright, fresh, and creative. The sound is high-quality, and the structure of the activities is such that children at all levels of early letter recognition and early

reading skills can enjoy and learn from Stickybear. The youngest children can hit the keyboard (select a letter), and watch as the program responds, more advanced children can practice finding the letters in Letter Hunt, and all children can enjoy the great graphics and lovable Stickybear. The sound and voice reinforcement helps the kids remember what they see on the screen, and the three variations of the learning experience help keep the kids from getting bored too quickly. For children at the earliest stages of reading development, as well as those that need to get started, TNTSA is a program that introduces letter recognition in a fun and entertaining way.

For example, the youngest of children will quickly develop favorite screen animations that they want to see over and over again. The only way to get the same screen back is to remember which letter brought it up in the first place. Soon, even two- and three-year-old children learn to recognize the letters (and their location) on the keyboard and on the screen. They learn as they entertain themselves.

All four of my kids (aged 2 to 7) have used this program in the past year. The oldest got bored quickly, but the two-year-old and the three-year-old keep coming back to it. They wait with anticipation as Stickybear comes on the screen, and each of them will sit for up to half an hour exploring letters with Stickybear. The two-year-old has already learned where his favorite letters are (that is, which ones produce his favorite screens), and he knows the names of these letters and can recognize them and find them on the keyboard. This is what the program is all about. It works. It's that simple.

According to Sally Hannafin at Weekly Reader Software, the company is currently deciding whether or not to expand its GS software offerings. If you like this program, and would like to see other GS versions of the Stickybear series, give them and call and tell them about it. The call is free, and, just maybe, showing support for their efforts will produce results.

Any Problems?

When I look at what I consider to be among the best of children's educational

programming for the GS, the one thing that I consider a negative in almost all of it, is the speed at which the program loads. TNTSA is no exception. Loading time from a 3.5-inch drive to the "Hi, I'm Stickybear. Welcome to my talking alphabet" screen is 73 seconds (with a 5.25-inch drive attached). You then must swap disks if you only have one 3.5-inch drive, and wait a little longer to get to the main menu screen. This is pretty slow, however things do perk up considerably when booting from a hard drive. Using the hard drive installation instructions included in the manual, the loading time to the "Hi, I'm Stickybear" screen was reduced to 12 seconds when booting from a 20 MB InnerDrive, and to 7 seconds when booting from a 40 MB InnerDrive with a TransWarp installed. Neither InnerDrive had the new ROM chip (to speed things up) installed. Both of these times assume that you have the original disk in the drive when the program searches for it, otherwise it prompts you to put it in, which slows things down. One problem with the hard drive is that when you exit the program (by hitting escape), you are returned to your program launcher but, the screen border is black. You have to go into and out of the control panel (without doing anything except accessing it), to get the border to revert to its original color.

The last problem is that the program is copy-protected. You cannot copy the disks using the Finder. Because the program is intended to be used by extremely young children, I guess copy-protecting it is kind of a joke, or a good way to sell a lot of replacement disks. Of course, you can buy a backup set of disks from the manufacturer for \$10.

There are two better ways to avoid worrying about your investment every time your child starts handling the disks than to pay an extra \$10. One way, is to make a working backup copy of the disks. The other, is to make a copy, and then alter the copies so that the copy protection is bypassed or removed. With TNTSA, the choice is an easy one, because Copy II Plus (either version 8.4 or version 9.0) has two parameters for copying this program. One allows you to make working backup copies for loading from a 3.5-inch drive. This parameter is named (oddly enough) Stickybear Alphabet. The second parameter, Stickybear Alphabet (HD), allows you to make a deprotected copy, which you can then install on your hard drive (following the instructions

in the TNTSA manual). This is great, because this parameter gets around the protection for you, so that you do not have to do it yourself. By installing this copy on your hard drive instead of the original disk, the program will not ask you to place the original disk (or the copy) in a drive for a key disk check when you launch the program. Hard drive users do not have to waste the time making a copy of disk two, as it is not copy protected, and can be transferred directly to a hard drive from the original disk.

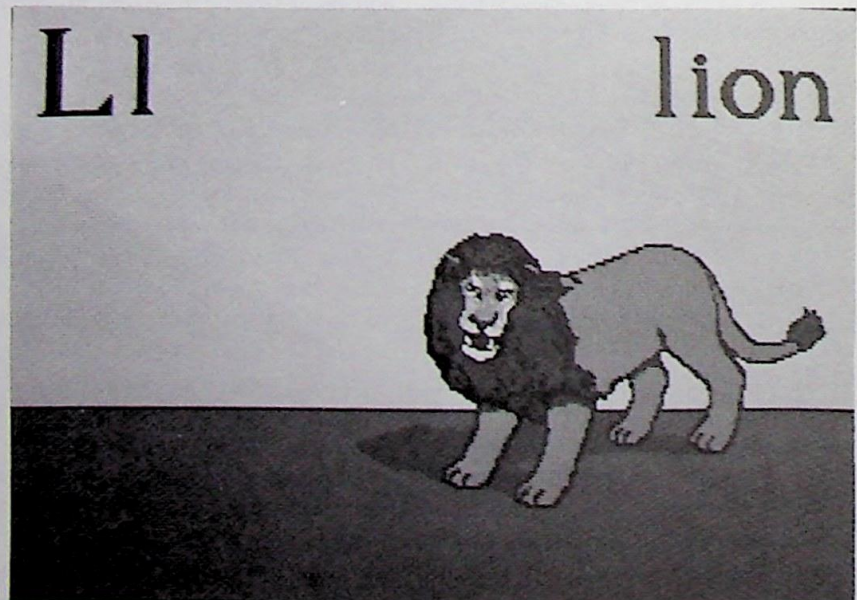
One cautionary note in the copying process—while I was able to make working copies to boot from a 3.5-inch drive using both versions of Copy II Plus, and I was able to make a copy to install on my hard drive that bypassed the key disk protection using Copy II Plus Version 9.0, I was not able to successfully make a non-key disk hard drive copy using Copy II Plus Version 8.4. The possible reasons (among others) for this may be that the manufacturer changed or relocated the protection subsequent to the release of version 8.4, it may be a peculiarity in my disks, or it may be related to my drives. I don't know, but the fact that the deprotect using version 8.4 did not work for me, does not mean that it will not work for you.

For those of you that want to deprotect the program yourself, so that it will run on a hard drive without the key disk requirement, or for those of you that do not have access to Copy II Plus Version 9.0, the edit is as follows:

On disk one, go to block FE (254), byte 20, and change the byte from 22 to 60 (I do not know the author of this deprotect, but I tried it, and it works). If you have Copy II Plus Version 8.4, the instructions for doing this are on page 90 of the manual under "How to Edit a Sector." Whatever you do, please remember to do it to a copy, not the original disk.

The Wrap-up

The New Talking Stickybear Alphabet is an excellent and very entertaining way for young children to begin learning, or to reinforce, the concepts of letter recognition. It provides a positive and fun atmosphere wherein the child sets the pace and the learning is mixed in with the fun of seeing and hearing the high-quality graphics and sounds. So, while the child is having fun, he is also learning. The more time a child spends "playing" with this program, the more the child progresses. However, as with a lot of children's educational programs, TNTSA is directed at a specific developmental level. Older children will get bored quickly, so before purchasing this program, be certain that the age and educational level of your kids fits the intended purpose of the program. The package says ages three to six, but my personal experience is two to five would be a better approximation of the right age group. Other than this one cautionary note (which applies to all kids programs, not just this one), I recommend this program without reservation. It works, and it works well.



VAPORWARE AWARD

[The following product is not yet available, so don't rush out to buy it! Normally, we wouldn't devote any space at all to an unreleased product; however, we all saw it with our own eyes, and it is such an exciting product, we just had to let you know about it! - Ed.]

Zip GS

Retail price - \$350

Zip Technology
5601 W. Slauson Avenue, Suite 190
Culver City, CA 90230
(213) 337-1313

By Joe Wankerl

There were many new products being shown at this year's AppleFest. One of the most interesting was the Zip GS by Zip Technology. I got to see one up close in action!

There we were at AppleFest minding our own business, when this gentleman came up and introduced himself as Richard L. Stivers, the President of Zip Technology. He was interested in testing his new Zip GS with currently available software, and he offered to have one of his technical experts install the prototype that they had with them in the Apple IIGS we had with us. (Thanks for the computer, Dave!) Could you refuse such an offer? We couldn't either.

Not long thereafter, Tony Vece, one of the Zip GS's designers, came by and we popped the lid off our GS. He whipped out a special tool (which will ship with the Zip GS), and effortlessly popped out the CPU chip. If you've ever had to pull a chip as big as the 65C816 then you can probably appreciate that last sentence. He then plugged in the replacement connector and then put the card in an empty slot. Yes, you heard me right, it is a card (like the TransWarp GS), not a chip. I asked why it was a card and Tony said that it is used only for interrupts and power—it will not override the slot's function. The card was *big!* It was, however, only an alpha version. Future Zip GS cards should be pretty small.

I was anxious to get to play with the thing. First we installed a CDA that would let us control the many various functions of the Zip GS. With the CDA, we could control the

speed, slot settings, and miscellaneous settings. The speed control allowed us to turn the Zip GS off or select from 16 different speeds. These speeds are actually percentages of the fastest speed the Zip GS can handle. For example, we ran a Pac Man type game at 6.25% of our alpha version's 6 MHz top speed. This set our effective system speed to about 0.5 MHz. That is *slower* than the GS at normal (1 MHz) speed! The slot setting control let us specify whether a slot was to be accessed at normal speed or at the fast speed. Some cards can only handle normal speed, some can handle both. Playing Pac Man with the speed at 100% was difficult until we turned the mouse down to slow speed by setting slot 4 (the mouse slot) to normal speed. The miscellaneous setting control let us tell the Zip GS to slow down when doing joystick reads, speaker toggles, as well as a few other technical settings such as vector delay, language card cache, and counter delay.

I learned a few interesting things about the Zip GS while talking to Tony Vece. The

alpha card that we were using was only 6 MHz. The final release version should be somewhere about 8 MHz and the Zip GS, when they go to faster designs, can effectively soup your GS up to 25 MHz! Do you believe that? One advantage that the Zip GS has over the TransWarp GS is that the Zip GS doesn't have a write-through cache like the TransWarp GS does. The TransWarp has to stop all processing when the CPU issues a write, and then write the bytes out to the cache AND to main memory. Zip GS just writes the bytes out the fast cache and then goes on. A background task then copies the bytes from the cache into main memory transparently. This supposedly makes the Zip GS more efficient than the TransWarp GS, and machines running the Zip GS at 7 MHz will be faster than a TransWarp GS at 7 MHz.

The Zip GS should start shipping within the next two months with an 8 MHz processor, and a retail price of approximately \$350. For more information, contact Zip Technology at the address above.



Joe and Tony with the Zip GS prototype

GS+ Magazine
Post Office Box 15366
Chattanooga, TN 37415-0366

TO:

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