



September
October
1991

Volume 3
Number 1

The *First* Apple IIgs[®] Magazine + Disk Publication!



Finally!
Fractals!

Not To Mention

Autopilot v1.1
EGOed v1.36
NoDOS v1.6

Featuring

Protecting Your Investment - A Guide To Surge Protection
A Conversation With Roger Wagner (Part 2 of 2)
Working With The Toolbox Part 4

Reviews

A Comparison Of Two 100 Megabyte Hard Drives
Nite Owl Slide-On Battery
ORCA/Integer BASIC
ORCA/Talking Tools
Storybook Weaver: World of Adventure
HyperBole
HoverBlade

Plus

The Usual Assortment Of Departments, Humor
&
Wedding Announcements

Writer's Block

By Steven W. Disbrow

It's been a busy couple of months (which is why we are behind schedule again), so let me just dive right in and tell you what has been happening.

Disconnected

First of all, our pro-gsplus BBS is no longer operating. The reason for this is that, with the exception of about 6 dedicated local users, there was almost *no* activity on the board. So, I decided that the money I spent on the board could be put to better use elsewhere in the business. The decision to stop operating the board was not an easy one. It has been up (in one form or another) for almost three years and provided me with many hours of fun... not to mention that it was the place that Joe and I hooked up! However, my main concern was that a large number of people would mistakenly think that *GS+ Magazine* was going out of operation! Fortunately, I learned a good lesson from the Applied Engineering "1-900" number fiasco and decided to get the word out to as many people as I could as to what was really going on. Joe and I posted notices on America Online, Delphi, InterNet and GENie stating the facts and, so far, we have not gotten a single call from a worried subscriber. In fact we have gotten a few subscription inquiries from people that had not heard of us before!

New Printer

Something else that happened is that I hooked up with Karen Stone. Karen is a *print broker*—her job is to find publishers the lowest price on any given print job. I gave Karen a couple of copies of the last issue of *GS+* and she found us a less expensive printer. Better yet, these folks can actually do four color process printing and a few other tricks that we will be experimenting with in the next few issues. Don't get too excited yet though, pretty pages and dazzling colors will always take a back seat to informative content here in *GS+ Magazine*.

Of course, if this new printer doesn't work out, we'll be going right back to our old printer: Greater Georgia Printers. They did a great job for us over the last seven issues

and I highly recommend them to anyone looking for a good, fast printer.

The problem with all this printer switching is that it might delay the magazine a bit as we become accustomed to what the printer needs from us. On the positive side, we might finally be able to afford to reprint some of those sold-out back issues.

Printing Schedule

Speaking of getting behind schedule, we've been picking up so many new subscribers lately, I think this would be a good time to once again explain our publishing schedule so that our new subscribers don't become *worried* subscribers.

Unlike most other magazines, *GS+ Magazine* is sold by subscription only. Most magazines are sold on the newsstand and their cover dates reflect the fact that, the longer an issue stays on the newsstand, the more copies it is likely to sell. So, if I were to go out today (in September) and pick up the latest copy of say, *Spider-Man*, it would have a cover date of November. That way, it can stay on the stands until late November or early December before it has to be returned. Since we don't rely on the newsstands for our sales, we feel it is better that the cover date reflect the period of time that the material actually covers. That's why you are getting this September-October 1991 issue of *GS+ Magazine* in late October or early November. This issue is, for the most part, what happened in the IIGS world in September-October 1991. It's a different way of doing things, but we want you to have the most current information available.

Ads

A few issues ago, I told you that we planned on advertising *GS+ Magazine* a bit more aggressively. Well, it's not exactly "aggressive," but we *have* begun advertising. The first place we focused on were user group newsletters. We have just begun to scratch the surface here and, for the most part, it has done quite well for us. We plan to keep it up for as long as there are user groups out there.

Our second big advertising push can be found in the 1991 "CarePak" that is being distributed by Nite Owl Productions. This is a direct mailing to well over 10,000 IIGS owners, which is more than 5 times the number of subscribers we have now. We have already gotten a few responses from this and I'm excited about all of the new subscribers that we should be getting.

Our next big advertising deal involves a certain accelerator company that has taken to using a quote of ours (actually Brian Winn's) in their advertisements. Nothing is finalized yet, but we should begin seeing some new subscriptions from this soon.

Of course, the best advertising partners we have are you, our readers! If it weren't for you folks talking us up at your user group meetings and on the various electronic services, we would have gone under a long time ago! Keep up the good work!

Goin' To The Chapel

That's right boys and girls, Noreen and I have finally decided to get married. After six years of dating, her parents had given up and mine had begun buying her better Christmas presents than they bought me. The last few weeks have been spent looking at rings (and I thought computer equipment was expensive!), finding the addresses of relatives that I haven't seen in years (and hopefully won't see again until my funeral), deciding what size wedding to have (big, huge or enormous), where to have it (inside or outside), when to have it (now or later), how many people to invite (100, 200, or 500) and who should pay for it (no comment).

Seriously, it's all very exciting and I'm glad that I finally had the nerve to pop the question. It's something I should have done a long time ago!

Kids?

Give us a break willya? We have trouble raising our three cats.

Diz

GS+

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GS+

Magazine

September-October 1991
Volume 3, Number 1

Publisher, Editor
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(soon to be married)

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NOREEN RIBARIC
(soon to be Noreen Disbrow)

Technical Editor
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(soon to be sick of all this wedding stuff)

Departments Editor
WILMA TUCKER
(already sick of it)

Contributing Editors
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BRIAN M. WINN
GREG ZIMMERMAN
(extremely sick of it and waiting to be paid daught!!)

On The Cover

A screen shot from this issue's feature program, FGS. This fractal was generated by using the default settings in the New dialog. The colors were changed with the FGS color editor. This same fractal is on your GS+ Disk.

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GS+ is published bimonthly by:
EGO Systems

3535 Mountain Creek Road #A-17
Chattanooga, TN 37415-6734

(DO NOT SEND MAIL TO THIS ADDRESS—USE FOR UPS AND OVERNIGHT DELIVERIES ONLY!)

Subscription rates - Magazine only:

1/2 year (3 issues) - \$8

1 year (6 issues) - \$15

Subscription rates - Magazine w/Disk:

1/2 year (3 issues) - \$20

1 year (6 issues) - \$36

Tennessee residents add 7.25% sales tax.

Add \$1.50 per issue if you want First-Class delivery.

Canadian and Mexican orders add \$1.50 per issue.

Other foreign orders add \$1.50 per issue for surface delivery or \$5 per issue for Air Mail.

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

GS+ Subscription Services
c/o EGO Systems
P.O. Box 15366

Chattanooga, TN 37415-0366

or call (615) 870-4960

Monday-Friday 9 a.m.-6 p.m. EST

GS+ can also be contacted on these online services:

America Online: send mail to GSPlusDiz
or visit our online area by using the keyword GSMAG.

Delphi: GSPlusDiz

GENie: JWankerl

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

GS+ Submissions

c/o EGO Systems

P.O. Box 15366

Chattanooga, TN 37415-0366

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

Letters

Dear GS+,

I received my first issue of GS+ and am quite happy with the contents and presentation. The feedback requested is also enclosed. However, I have a problem with the V2.N5 disk. Whenever the copy (or original) of installer is booted, the system gives a beep and goes dead, that is, the mouse action does nothing. Since the GS works just fine (as you can see from this letter), I must suspect that I have a faulty disk and would ask you to advise me what I could possibly do or to send a replacement.

At the same time, I have a question. When using the spreadsheet of AppleWorks GS, the item position moves down after an entry. What can one do to have it go sideways?

Henry Sherwood
Hossegur, France

The only thing I can think of, other than a faulty disk, is that you might be using an older version of the IIGS System Software (something before v5.0). If that is not the case, send us the disk back so we can test it, and we'll be more than happy to send you a new disk.

As for the problem with AppleWorks GS, one way to get the cursor to move sideways is to end each entry by pressing the tab key instead of the return or enter key.

Diz

Dear GS+,

I would like to comment on your GS+ Magazine. Initially, I had the opportunity to get your magazine for free when I purchased my Quickie scanner. I told myself, what the heck, it's for free, order it. Since I have been receiving your magazine, I have been provided more detailed, comprehensible, and understandable data about my IIGS than

what was available and provided through my inCider/A+ subscription. I am very pleased with your contents, reviews, evaluations and method of presentation. All data is very down to earth and not full of technical rhetoric which causes headaches and a desire to hide the magazine. Your involvement in expanding into advertising is a great idea and will clearly benefit your circulation. The direction of your magazine is perfect and should not be deviated from. I am extending my subscription for one year. I truly feel that you and your entire crew are dedicated to the IIGS and the massive capabilities which are still being discovered and developed.

I am lucky that I can play in both the Apple and IBM PC worlds. With my PC Transporter, I have yet to encounter an MS-DOS program which I could not install. Sure, there are new MS-DOS programs which are solely 386/486 dedicated but as for now, I really am satisfied with what I have. There are a vast amount of things that I can do with the IIGS (GS/OS & ProDOS) which I can't with MS-DOS. I don't have to worry or aggravate myself due to the fact that both options are available. In future reviews and articles, please provide additional information about new PC Transporter capabilities...

Continue the marvelous work and keep the IIGS alive and well.

Ricardo M. Cantu
Germany

Thanks for the comments Ricardo. I'm glad you like what we are doing with GS+ Magazine. Still, the Feedback we've been getting has told us that there is room for improvement in the "Techno-Jargon" area. So, beginning with this issue, we have begun publishing a glossary of some of the more common IIGS terminology.

As near as we know, Applied Engineering has no plans to update the PC Transporter. But if they ever do, and they let us know

about it, we'll be sure to print the information here in GS+ Magazine.

Diz

Dear GS+,

I would be interested in knowing if you can give me the name of some good places to buy software. I recently moved here from the Washington, D.C. area and here in Columbia software stores are almost all IBM... I am looking especially for Star Saga Two but also other GS software that may have been discontinued.

Leroy H. Ferguson, III
Columbia, SC

We recommend the following mail-order companies: Roger Coates (1-800-438-2883 or 1-619-274-1253), Quality Computers (1-800-443-6697 or 1-313-774-7200), and Big Red Computer Club (402-379-4680). These are companies that our readers consistently report on favorably on our "Feedback" forms. Finding Star Saga Two might be tricky though. When MasterPlay went out of business, CinemaWare took over distribution of their products. After CinemaWare went under, Quality Computers took over most of their IIGS titles, but we have not seen any mention of the titles that CinemaWare took over from MasterPlay. Still, Quality Computers would probably be the best place to start looking.

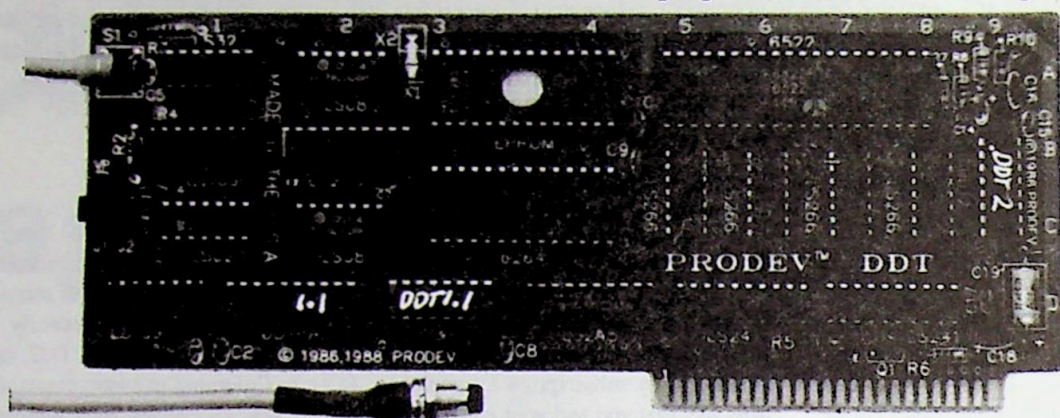
Wilma

If you have a question, comment, or criticism about GS+ Magazine, we want to hear it! Due to space limitations, we cannot answer every letter here in GS+ Magazine. If you want a personal reply, please enclose a self-addressed, stamped envelope. Please address all letters to:

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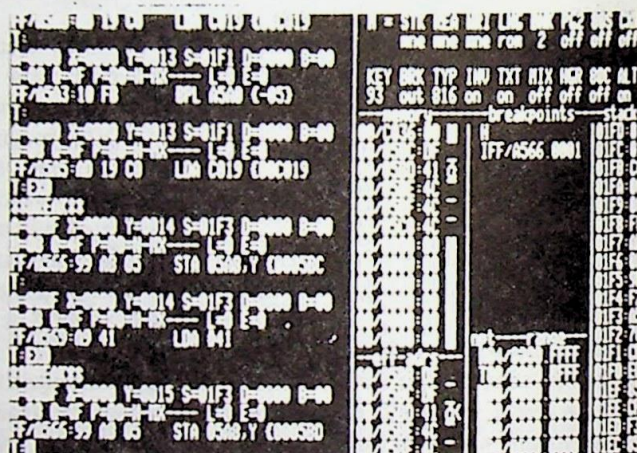
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Protecting Your Investment

By Dennis McClain-Furmanski

A computer system is a significant investment in technology. This investment needs to be understood and protected, or it can become a liability.

All of this equipment runs on microchip technology. These tiny devices are very fragile by nature. Just as a lightbulb usually burns out during the shock of being turned on, these "chips" also fail under the stress of changes in voltage. Although they're designed to accommodate the usual changes present when being turned on or off, there are times when the flow of electricity exceeds what the chips can handle without damage.

The internal construction of all electronic devices tells of their frailty. Their basic operation relies on the fact that slightly different compounds have slightly different electrical properties. One of the simplest devices, a transistor, is made of three blocks of material. Two of them with one set of properties sandwiching a third, slightly different block. As this device operates, different voltages are applied to the various parts. As you would expect with any electrical device, this causes changes in temperature and, therefore, size. And on this small scale, even the changes in the magnetic fields induced by the currents cause changes of pushing and pulling. These components are designed to take these changes millions of times a second, but only within certain limits. Too much stress, and these devices can literally shake themselves apart inside, by separating from each other at the boundary between the different compositions of the material. The situation is easy to see for such a simple component. Now multiply that situation by the thousands or millions of such devices built into every processor, RAM, ROM, or other chip in your computer.

On the average, every electronic device suffers three episodes per day of electric current beyond the rating of its components. These shocks can come in through electrical lines or, for those with communication devices, through telephone

lines. They can come from problems or voltage fluctuation on the lines, repairs on the lines, lightning, other electrical equipment on the same circuit, or even obscure sources like microwave or radio transmissions being picked up by the wires.

These stresses can be of very short duration, on the order of thousandths or millionths of a second, causing temporary scrambling of the sensitive circuits. These are not very often damaging, usually causing things like altered characters in data or making an otherwise healthy program crash. But they can cause severe problems if they occur at times such as while a computer is writing to a disk, corrupting the filing information of the disk and possibly causing loss of all data on that disk. This type of disturbance is called "line noise," because it's often visible during modem communications. However, this also can occur in the lines of any microprocessor controlled or video-based equipment.

The stresses can also be of relatively long duration, hundredths or tenths of a second. These are often more damaging, and are called "voltage surges." If they do not actually cause a chip to burn out, they tend to put enough strain on the delicate circuitry that the lifetime of the device is shortened considerably. These are frequently created by switching on and off of equipment elsewhere on the same electrical circuit, but can also be caused by the normal operation of motors, such as those in disk drives or printers.

Either of these can disrupt normal operation, or possibly ruin your information or your equipment, costing you money for lost business and for repairs.

To protect yourself from these losses, you need to protect your equipment. The cost of doing this varies with the type of equipment, from less than twenty dollars to a few hundred. But this can be the best investment you make, because it can save thousands of dollars in repairs and lost income. They are the least expensive insurance you will ever purchase.

These protection devices, called "surge protectors," are available from most office equipment suppliers. They are installed simply by plugging them into the wall, and plugging the equipment into them. Those for communication equipment will also have connections for the phone lines built into the unit. Both offer protection by providing a connection for the harmful signals to flow to the electrical ground of the wall outlet.

Finding the best protection for your equipment takes a bit of understanding of what is available. Unfortunately, many of the specifications used by the manufacturers of these devices are not standardized, and only those which look favorable may be presented. But a bit of comparison will prove helpful.

The most important specification to look at is reaction time. It should be in the microsecond range, usually abbreviated as μ sec. The smaller the rating, the better, and the best are in the single digits. Also important is the clamping voltage, the range of electrical pressure to which the device reacts. It is shown as volts, and should be in the low-to-middle hundred volts. Again, the lower the rating, the better.

The frequency range of operation is also important. A well designed device will have a range of operation from the low cycles per seconds, or Hertz (Hz) to the thousands (kilohertz, KHz) or millions (megahertz, MHz). The wider range the better. For communication equipment, megahertz is definitely preferred, as it provides protection from line noise. Of the devices I've personally used on my customers' equipment and my own, I've found that DiTek protectors are the most efficient at reducing line noise.

Perhaps more important than the specifications is the warranty offered by the manufacturer of the protection devices. Those which offer a warranty of 90 days are typically building devices based on an electronic component called a varistor. It

acts as nothing more than a sophisticated fuse. It also wears out with time and with the amount of surges it absorbs. In time, sometimes a relatively short time, it will fail, offering no protection at all. What's more, these devices will appear to be good, except under the conditions they're supposed to work. Whether these devices are simple in-line boxes that merely cover the plug, or are contained in eighty dollar multiple-outlet "power strips" with switch and circuit breaker, they cannot be trusted for long. There is no way to discern whether these are still effective without thousands of dollars worth of specialized testing equipment.

The best warranty offered is a lifetime warranty, and covers the repair or replacement of any equipment properly connected to the protection device at the time of failure. Some even offer this protection regardless of any acts of nature which may have contributed to the failure. These devices may not offer the best among the other specifications, but they're very highly ranked among all those available. Panamax is one company that offers this warranty. Their protection devices, which range from fourteen to eighty dollars are very good, and a promise of replacement of your equipment if theirs fails is hard to turn down.

Underwriters Laboratories is a well-recognized name in electrical and electronics testing and rating. Almost all

equipment will carry a UL label. However, this only means that the device has been tested to make sure it does not pose a safety hazard to humans. UL has developed a rating scheme for surge protectors that is particularly useful in determining their ability to do what you need them to. This rating is called the UL 1449 Suppression Rating.

UL 1449 rating involves testing several samples of a product by subjecting them to three surges of 6,000 volts at 500 amps, between the hot and neutral lines, and the amount of voltage let through is recorded. Then, the devices get 6,000 volts at 500 amps once, twenty-four shocks of 6,000 volts at 125 amps, and one more of 6,000 volts at 500 amps. After this punishment, the hot-to-neutral suppression is tested again as in the first test, and the voltage let-through is compared. Any device that lets through a voltage differing by more than 10% is rejected. The final voltage test becomes the voltage rating of the device. The lowest (best) rating given by UL 1449 is 330 volts, the remainder of the scale is 13 ratings, up through 6,000 volts—basically useless. Only recently has the UL 1449 rating been shown for specifications of product. It should be noted that the test does not check for surge protection on the hot-to-ground or neutral-to-ground lines. Since voltage surges can occur here also, this is a serious shortcoming. Still, UL 1449 is a

good start at a comprehensive rating of surge suppression.

There have been some devices advertised as "meet or exceed IEEE 587 rating," however this is somewhat misleading. IEEE 587 C62.41 was a set of recommendations for protection offered by these devices. As a simple recommendation, it has no set testing procedures involved, and, therefore, cannot be reliably reproduced.

To bring this all into a helpful arena for IIGS users, I've compared the ratings of the more popular surge suppressors available (see the chart below). All these ratings are taken from manufacturers' spec sheets and/or advertisements. The best rating in each of the categories is marked by an asterisk (*).

From this comparison, we can see that the devices built specifically for the IIGS are not up to par with the others I've listed. This does not mean they're no good. Rather, this represents advances in the technology since their design. My advice is, don't scrap your System Saver or Conservor. But *do* add to them.

By the specifications, the Panamax and the DiTek run about even. For EMI/RFI (high frequency noise), my experience shows the DiTek to be better. As a heavy-duty telecommunicator, I prefer this.

	Panamax Fax-Max	DiTek DT-1F	Applied Engineering Conservor	Kensington System Saver
Clamping Voltage	200 v	*130 v	175 v	340 v
Current Rating (amps) (amps)	10 a	*15 a	8 a	9 a
Energy Dissipation (joules)	*480 j	105 j	70 j	40 j
Response Time	*0	5 ns	< 5 ns	< 50 ns
Frequencies Filtered	not shown	*1 KHz- 30 MHz	1-100 MHz	not shown
Filter Attenuation	30 dB	not shown	*50 dB	not shown
Ratings Listed	*UL 1449 (330 v)	UL	UL	IEEE 587 UL

The Panamax actually tests out better than the UL 1449 rating allows for; UL 1449's lowest rating is 330 volts, and Panamax tests show their device would carry a 275 volt rating were it allowed. Plus, I've had experience with Panamax's warranty. They replaced one of my customer's units which took a direct lightning strike. It arrived in less than 4 weeks. The customer's equipment was not damaged, but the protector was destroyed.

As a professional technician, I regularly see equipment come across my bench that could still be in service, had it been adequately protected. I no more prefer to have this happen that a dentist prefers to have his patients come in with cavities. We'd both much rather have happy, healthy clients. It's a sad waste to us when a loss occurs that could have been avoided so simply.

My suggested protection plan begins with one of the less expensive varistor-type devices. Although this will require replacing every six to twelve months, it will take lightning-induced surges instead of a protection device, and will be much less expensive to replace. These are

available most anywhere, and usually cost less than ten dollars. Second, use a top quality surge protection device, whether separate, or built into a multiple outlet switch box. This will range from forty to eighty dollars. Finally, a single plug protector with an attached telephone jack for those with modems can further protect your CPU itself, while protecting the modem from phone line problems.

This additional forty dollars will bring the total cost to between ninety and one hundred thirty dollars. My IIGS with all of its peripheral equipment cost \$5,000. For less than \$100 additional, I'm confident that I'll avoid some very expensive repairs, probably any one of them being more than I've spent on the protection.

In today's service market, repairs and service contracts can run between ten and fifty percent of the cost of the equipment. Something that costs only a few percent of the cost of the machine, and can reduce the need for repair by as much as 75% is money very well spent. When it can eliminate possibly catastrophic downtime, it's invaluable. **GS+**

Product Information

Panamax Fax-Max, lifetime warranty, also covers connected equipment.

Retail price: \$49.95

Panamax

150 Mitchell Blvd.

San Rafael, CA 94903-2057

USA: (800) 472-5555

Canada: (800) 443-3291

DiTek DT-1F, lifetime, one-owner warranty.

Retail price: \$19.95

Diversified Technologies Group Inc.

Largo, FL 34634

(800) 753-2345 or (813) 535-6007

Conserver

Retail price: \$99

Applied Engineering

2310 Belt Line Road Suite 154

Dallas, TX 75324

(214) 241-6060

System Saver IIGS

Retail price: \$99.95

Kensington Microwave, Ltd.

251 Park Avenue South

New York, NY 10010

(800) 535-4242 or (415) 572-2700

Product Updates

Software Of The Month Club

Review update by Charles W. Snyder, Jr.

Since I wrote the review on Software Of The Month Club (SMC) in *GS+* V2.N4, there have been three major changes at SMC which are of interest to IIGS users. First, the IIGS subscription alternative now contains almost all *GS+*-specific programs—no mix of Apple II with IIGS programs anymore, unless there is a ProDOS 8 program that has a particular benefit to the IIGS user. This policy has been in effect since early June of this year. Since then, there have been an increasing number of HyperStudio stacks provided, most of which will run with the HyperStudio Run-Time Module which is included on SMC's "Welcome" set of disks that you get when you join. Second, the price per set of disks (three 3.5-inch disks per set) has increased from \$6.95 to \$7.95. Third, SMC is now distributing 24 sets of disks per year instead of 16, so, the estimated cost for a one year subscription goes up from \$131.15 as originally reported to \$215.75 (\$5.00 for the "Welcome" set + \$19.95 annual membership + \$190.80 for 24 sets of disks per year). Although the annual outlay has increased significantly, you are getting more disks, and now the vast majority of programs are IIGS specific. I feel the changes are well worth the additional cost. For further information, contact:

Software of the Month Club

2180 Las Palmas Drive

Carlsbad, CA 92009

Customer Service: (619) 931-8111, ext. 509

Technical Service: (619) 931-8111, ext. 515

GS+

A Conversation with Roger Wagner

Part 2

Last issue we presented part 1 of our conversation with Roger Wagner of Roger Wagner Publishing (publisher of HyperStudio). This issue we present the rest of our conversation with him.

GS+ Your name is the one that's most associated with HyperStudio and, naturally, Roger Wagner Publishing. Could you tell us about the other people involved with HyperStudio and Roger Wagner Publishing?

RW Absolutely. The main author of HyperStudio is Michael O'Keefe. Michael has been with us from the beginning and has done a phenomenal job in terms of the way he's put up with me, because I'm always calling him up and saying, "Well, that's interesting, now how about if we add this?"

HyperStudio was actually a really neat project to do, because I didn't go out and hire a bunch of programmers and put them in an office. At the time when the program was being created, Michael O'Keefe was in Boston, Eric Mueller was in Alaska, Ken Kashmarek was in Iowa, and Dave Klimas, who did the sound stuff, was in San Diego. In fact, I didn't meet Michael until we shipped the first copy, I guess it was at the Boston AppleFest. (Incidentally, I didn't meet Glen Bredon, the author of Merlin, until 9 years after I started selling his program.) Each programmer worked on the particular part of HyperStudio that reflected their particular talents. They would then send their files by modem to Michael, who integrated the various components together.

Finding the right programmers was an effort, though. I went through a list of names that I had, and for a time, on GENie and America Online I was asking seemingly vague questions about using the IIGS to see who knew their stuff. I had a list of about 50 names and I was kind of going through and interviewing people. At that time, the IIGS was still new enough that a lot of people didn't

have enough experience with the Toolbox, and that was the biggest thing that shortened the list really fast. A lot of great programmers that I talked with, at that time, hadn't spent enough time with the IIGS Toolbox. I knew it took me six months of just sitting there every day playing with Merlin and the reference manuals, and I thought if the learning curve is that large, and I want to get this thing out any time soon, I need to find people who are already using the IIGS tools, who are already up to speed.

Michael had sent us a paint program, and said, "Do you want to publish this?" And Dave was interested in sound, and Eric had just done some other work for us at the time. Ken was in charge of mainframe operating systems for the John Deere company, and was already well-known in the Apple II world through many articles in magazines.

Anyway, HyperStudio's design process was unusual perhaps because the way we did it was that I just took a blank piece of paper and wrote out menus, then sub-menus, and what each one would do, and it was all designed with this idea: "What's the expectation of a innocent IIGS purchaser?" I didn't design the program for programmers or techies. I wanted to create an essentially "Print Shop" form of hypermedia. I wanted something that would appeal to somebody who literally had just seen the machine for the first time: "Ooh, look—color, sound, graphics—this looks neat, let's buy one, and bring it home."

So what would they expect? I figure that if the program says "sound," that means if they want to add a sound, up would come a tape recorder, and the user would pick up the microphone that was in the box and record something. In designing the software, we started from that point backwards, which led to, "Oh, damn, that means that we're going to have to have a digitizer card, a microphone, and how do we make all that work?" This is a different approach (and many times more

difficult) than some software designers use, which to first write a program based on what's the most fun for the programmer (and often avoiding the problematic parts), and then afterwards rationalizing it to whoever they think should buy it.

GS+ So, how long was it from the time you had the idea for HyperStudio until it happened?

RW Actually, it was a lot longer than it was supposed to be—it was probably a year and a half from when we said, "Okay, let's start this" to when the first version was finished. We had problems in the beginning, just getting off on the wrong track. Basically, my idea was to model it on simple ideas like an Applesoft BASIC program, you've got a big chunk of memory, each card is linked to the next one, and it's an ultra-simple data structure. In the beginning, though, some of the work that the programmers were doing—well, essentially, they were trying to do resources and things before there was a Resource Manager. Some of the really elaborate data structures that were designed weren't really needed for it, and there was overkill in other places.

In the end, though, it came together pretty fast. Since its release, we've continued to invest a lot of effort into the product—we're continually adding items like clip art disks, disk commands, CD-ROMs, and LEGO robotic stuff. I can't imagine any other company that would have added that much stuff in two years and would've brought the software itself along, as well.

I was convinced from the beginning that what people would see in HyperStudio was an amazing creative environment. The great thing about HyperStudio now is that it still keeps the simplicity and accessibility of the "Print Shop" approach, and yet it has an awesome amount of depth. The scripting language [Which will appear in HyperStudio v3.0 - Ed.], and other modular aspects of the program

provide a very rich environment for anyone wanted to really explore the inner workings of the IIGS, or wanting a good development environment for a wide range of software.

GS+ I wanted to ask you about the other folks who travelled here with you. Can you tell us a little something about them?

RW Although not everyone from our company is here, the ones you're thinking of are my wife Pam, Jeff and Della Smith, and Eric Mueller. My wife and I have been working together for almost 10 years, and I think it's great. Some people say they can't work with their spouse, but this business really is my life, and sharing it is pretty important.

Jeff Smith is our Technical Support person, and he's been literally writing his HyperStudio scripting language between phone calls. That in itself probably deserves a medal! [Laughs] Eric Mueller started writing letters to us when he was 14 (we have a lot of young users out there) and we thought the letters were from a college professor. He wrote parts of HyperStudio and two of the programs on the disk, Sight and Sound and Sound Browser. At this point, he's become one of our most diverse employees by writing manuals, doing code, handling customers—he really does a wonderful job.

Della Smith is our educational representative, and she's the one who speaks with the people who call the company and want to do a workshop, or give a presentation about hypermedia on the Apple IIGS. So a lot of teachers and HyperStudio presenters know her as their main contact with RWP.

Della's position at the company is unique. Three years ago, we were looking at this program, thinking "How am I going to sell it? Nothing's happening in stores." It wasn't the Apple II itself. At that time, Apple was selling hundreds of millions of dollars worth of Apple II products a year, and yet you still got insulted when you went to buy something just like you'd been insulted in 1978. [See part one of

this interview in *GS+* V2.N6 for the full story behind this - Ed.] The products obviously weren't being sold through stores, sales representatives weren't selling them, so how was it happening that all this stuff was selling?

The answer was that when you went to educational conferences, and looked at the conference schedule, what you found was nonstop commercials for Apple computer. You'd find all these sessions where teachers got up and for an hour told you all these miraculous things they'd done in their classrooms using VCR Companion or Print Shop, or whatever the particular program was that they were doing great stuff with. So I said to myself, "If someone's going to go to an educational conference and talk about a program for an hour, it might as well be ours."

So, rather than spending tens of thousands of dollars running a lot of magazine ads that somebody just flips past, what I do is take those key teachers out there, those energizers and motivators, and take the money I would spend on advertising and pay Della to be a resource person for them. Let's say you're in a school, and you want to make a presentation on hypermedia on the IIGS, you can call us and ask Della for help. Or, if there's a conference coming up in Missouri, for example, we say, "Who do we know in Missouri that's doing some really neat stuff, or who have we talked to on the phone?" We go through our mailing list and find someone who would like to do some presentations. We call them up and send them the application forms, stack disks, and act like their facilitator or their expediter. And, at the presentations themselves, we act as their assistant. The point here, I suppose, is that I think the secret of our success is that we have made a conscious effort to focus our energies on helping people achieve their goals.

If you listen to my presentations on HyperStudio, I put most of the effort into trying to show people the entire computing experience possible with the Apple IIGS. I only spend a small fraction of the time actually discussing HyperStudio particulars. Heck, half the time, I forget to bring the HyperStudio

box with me to hold up! But it doesn't matter, because the important part is that people see what's possible with this great machine.

I learned some of this from Perry Reeves, who's the top salesman for Pioneer's laserdisc division. He uses HyperStudio as the main part of his presentations, but he also hauls in tons of stuff like touch windows, digitizers, scanners, the Apple IIGS, and other things to attach to his laserdisc players. This is unusual compared to many other vendors who sell things at shows, and clear off the table so you're not confused, and they put their product in the center of the empty table and people come by, and the problem is they're saying to themselves, "Why do I want to buy this product by itself?" If they've got a really good imagination, they can see the possibilities of the software, but otherwise, it limits the sale. Perry found out that showing the entire experience the customer is trying to reach is more effective than just showing hardware.

I really built on that concept, and that's what we concentrate on when we show HyperStudio off. We go in and say, "What are the things you want to do? Let me help you do those things." And I know that HyperStudio is going to go along for the ride, so I don't have to spend all day talking about that. What I need to do is eliminate the barriers, something that Apple Computer still has room for improvement on.

Apple has an interesting policy on RAM chips. For example, Apple's retail price on RAM chips to upgrade a 512K IIGS to a 1.25 MB is \$450. If you ask Apple why the price is so high, their response is "We're not in the RAM chip business. We want to allow opportunities for other developers." On the surface, I guess that's okay. The problem, however, is that there are people out there who aren't getting the utility out of their IIGS, because they look at the cost of Apple's RAM chips and figure that they must be that much from everyone, or they don't know to go anyplace other than their Apple dealer. (This is particularly a problem in the educational market, where all sales go

through one computer person that talks to one rep from Apple Computer.) Apple is putting barriers in their way. It's as if a car manufacturer said, "Here is your car, but we're not in the hubcap or tire business so here's your car without the tires."

The right answer for Apple to users is "Yes, we sell RAM chips at 5% or 10% above the common price, but we're going to make sure that RAM chips aren't stopping you from enjoying the computing experience." And if they want to stay out of the way of third-party products, they can do that without charging \$450. That's been our approach, as well—we don't look at something and say, "Oh, I'm sorry, the little \$15 connector cable for a laser disc player for your IIGS isn't our business. You'll just have to go and try to figure it out on your own and buy it someplace else."

GS+ I think a good example of that is the package you mail out to educators—the resource kit. [See press release in *GS+* V2.N4] Was that pretty successful for you?

RW Yes, that's exactly the idea. There's a lot of companies that say, "Our customers are our best salespeople," but surprisingly enough, not many companies treat their customers like salespeople. If you had real salespeople, wouldn't you give them sales materials, price lists, and things like that? If they were going to do a presentation somewhere, wouldn't you say, "Let's go down the list. Have you got everything you need? Here's some materials, here's some price lists—call if you need anything because this is very important and we want it to go well." And again, that's what Della does. She coordinates all that—shows, presentations, resource guides, and workshops. And it's not just a one-generation deal—the first page of the resource kit gives permission to duplicate and says, "Please give copies of this to everyone you know, and when you do, tell them to give copies to everyone they know."

Through all of this, we've ended up magnifying the ability of Roger Wagner Publishing from the half-dozen in the

office to literally hundreds of presenters. Apple has, at this time, after all the recent restructuring and reorganizations, roughly 160 sales representatives who go out and demonstrate Apple products. In our database of active HyperStudio presenters, we have 1,000 people who have HyperStudio demonstration kits who are out there on a fairly regular basis showing the software at schools and things. In a traditional sense, I can't afford to hire 1,000 people, but with this system, it's a good deal for the teachers, it looks good on a resume, they get to travel to interesting places and shows, and they get to meet people and exchange ideas on the stuff that they're working on.

The presenters don't give a canned sales pitch or anything like that. They just get up in front of the audience and say, "Here's what I'm doing..." in this particular subject area, and, invariably, five people come up at the end and say, "Wow, I'm doing the same thing," and it's a great experience all the way around. They're not up there holding up a HyperStudio box like Vanna White, saying "Please dial this phone number with your charge card number." They're simply saying, "Here's a tool that works for me," and it really is the best situation I could imagine. The important thing here is to just realize that the Apple II has always been sold by word of mouth, and that process is still going on today, and in many cases even growing. If you like what you're doing with the computer, tell other people about it!

GS+ What's the most amazing thing you've ever seen done with HyperStudio?

RW I've seen some pretty amazing things—one, just recently, was this 3-D maze program written by Jeff Smith. You go through this whole maze, and it's all on one card in a HyperStudio stack. Did you go to the HyperStudio scripting session [here at KansasFest]? Jeff, who is also the author of the new scripting language in HyperStudio 3.0, is the one who wrote this maze program. You can see where you're at in the maze, and as you go through the maze, things change, but you're not in a multi-card stack—he's having HyperStudio hide graphic objects

like wall partitions. It keeps wheeling in different props from backstage to make the scenery change, and the result is very impressive.

Actually, I can't answer that question—I can't think of *the* most amazing thing. I can give you a collection of the contenders for "best," though. *HyperBole*, the disk publication by Greg Roach is pretty amazing because it has nothing to do with computers... it's a stack-based literary magazine. [See review in this issue - Ed.] I like it just because it deserves to exist and represents human creativity at its finest. And that makes it one of the most amazing things I've seen done with HyperStudio.

In special education, there's a fellow named Tony Latess in Philadelphia who teaches severely disabled kids. They're autistic and they never speak or make eye contact. He's like a saint to dedicate his life to working with them. He has a videotape of them singing songs and saying the names of other kids in the class, while they're sitting at a screen with HyperStudio and a touch window. A lot of it has to do with the fact that interacting with a human person wouldn't have the same effect. Autistic kids will just sit and do the same thing over and over again for twenty minutes—and at some point, something good will come out of that. Most people would not have the patience to do it. The computer, on the other hand, has an infinite amount of patience. Tony doesn't think of himself as a programmer; he never even thought of himself as someone who liked computers, particularly. And yet, when he saw HyperStudio in a magazine, and told his roommate, "This is it! We're getting this because this is going to really open up things for me." I don't think people realize how big a leap there is between other hypermedia systems and what little effort it takes to customize something in HyperStudio, instantly. Somebody like Tony Latess can take HyperStudio and create 15 different programs for 15 completely different kids that serve their needs exactly and customize the programs in a couple of minutes each day. Tony's work is really neat.

One of the things I like about HyperStudio is that there are as many different ways to use it as there are people who own it. When we get mail, and we can tell there's a disk inside, we practically fight over the envelope because we get such a variety of neat things. It is a lot of fun to see the things that people have created. It's a good feeling, too, when people come up to me and say, "Did you know that such and such really made a difference for me?" A lot of people have three or four stories like that to tell, and with our presenters being teachers, they may get 30-40 stories a year like that. We hear a lot of them too, and it really is neat.

GS+ What did you think of KansasFest and the Expo?

RW I've been coming to KansasFest for three years, and I come for the fellowship. Where else can I go where there's all these people, all interested in the same thing that I am? At regular trade shows, I just don't have the time. The Expo was nice, but what I really come for is sleeping in the dorm, throwing Frisbees in the halls, and just having a good time. I think there's something about the Apple II that attracts a fascinating variety of

people. It's not like you've got 100 people who are all doing the same thing, who all have the same personality.

GS+ Is there anything else you want to add?

RW Just to tell you a bit about where we're headed as a company, I guess. HyperStudio has become the hypermedia standard in education at this point, and we want to both maintain that position and also grow into new things—in particular, using HyperStudio as an authoring environment for educational software.

If you can imagine a matrix or grid that has preschool through grade 12 across the top and every conceivable subject area down the side, and at each intersection, 5-10 possible applications that one could imagine doing at that level—I'm looking for software at each one of those spots. That's probably 500 titles, then if we throw in programming utilities, extras, and transitions, and add in supplemental material such as laserdiscs, CD-ROMs, there's lots of opportunities out there. Imagine taking a \$14.95 foreign language audio CD, and building a stack for an adventure game where you can learn a

foreign language by hearing these phrases over and over again—wouldn't that be a lot more interesting than listening to "Where is the library?" in Spanish 14 million times? If you've got an Apple CD-ROM drive and HyperStudio, you can write an application like that, and we'd bundle it and sell it in a minute. For the first time, at KansasFest, I'm in a position to be able to come and talk to all the people I like so much and say, "Bring me your programs..." and have a way of handling them all.

There is a lot more new software for the IIGS than many people realize, it's just that it's happening with hypermedia and education. If you're not aware of this, it may look to you like the software market has gone away. There are literally more projects for IIGS programmers now than there are people to fill them. I hope your readers will be encouraged and take some time to look into what's happening with HyperStudio, and all the marvelous new options for using their talents! **GS+**

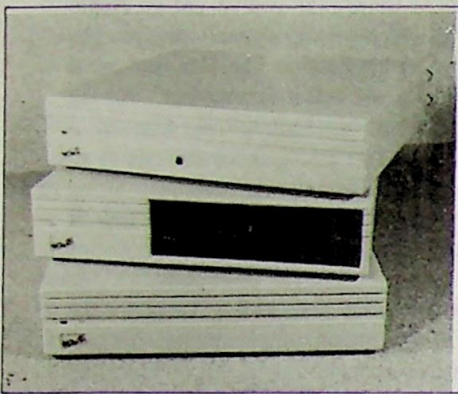
That concludes our conversation with Roger Wagner. If you have any suggestions for who we should interview in future issues of GS+, let us know!

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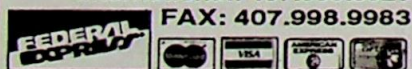
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Working With The Toolbox

By Josef W. Wankerl
Part 4: QuickDraw II

QuickDraw II is the tool set which lets you actually draw things on the Apple IIGS Super Hi-Res screen. It seems that every time when I try to write one of these Toolbox articles I end up saying that you need to get hold of the *Apple IIGS Toolbox Reference* books and read them. Once again, I have to say this. It's silly for me to repeat information that's already out there. It is, however, beneficial for me to restate some of that information in a concise manner so you can quickly get into using the tool sets!

What Do I Need To Know?

Before you start drawing things to the Super Hi-Res screen, you need to understand a few terms and concepts behind drawing on the IIGS. If you want to learn the layout of the Super Hi-Res screen, I suggest you read through the *Apple IIGS Hardware Reference* manual. It describes the layout of the screen in great detail. But, to get you started, I'll do a brief summary of what you need to know for right now. Note that it is not necessary to know all that nitty-gritty, low-level stuff to use QuickDraw II.

320 And 640

The IIGS Super Hi-Res screen can be in either 320 or 640 mode (a combination of modes is possible, but very unusual.) This means that there are either 320 or 640 pixels to a horizontal line. Pixel stands for *picture element* and is the smallest dot possible on the screen. Both of these screen modes allow access to all 4096 colors that the IIGS can display. However, the main difference between 320 and 640 mode is that 320 mode can display 16 of these colors at once and 640 mode can display only 4 at once. These are pure colors. With *dithering* (putting two or more colors together to make them seem like another color—an example is putting a blue pixel next to a green pixel which will result in a yellowish look) you can get more colors on the screen at once.

You want to use the right mode for the right job, however. Text looks much better in 640 mode because of the smaller

pixels, while pictures generally tend to look better in 320 mode because of the better color choices.

Real techies will tell you that you can get 256 or even 3200 colors on the screen at the same time (in 320 mode), but that's by using multiple palettes and some other funky tricks. For the most part, applications tend to use only one palette. If you want to get sophisticated, check out a graphics area or a development area on one of the better on-line services such as America Online or GENie.

The Screen

The Super Hi-Res screen is always 200 pixels high and either 320 or 640 pixels wide. In order to map pixels to locations, QuickDraw II is governed by a modified Cartesian coordinate system. This, you might remember from trigonometry class, is the system whereby you specify points (pixels) using coordinates in the form of (x, y) where x is the distance (number of pixels) horizontally from the origin and y is the distance vertically from the origin. (The *origin* being specified by the point (0, 0).)

With QuickDraw II, points are specified in the form of (y, x) not (x, y). This can be confusing at first. (OK, so I'm *still* confused sometimes). The pixel at the top left of the Super Hi-Res screen has coordinates of (0, 0). The pixel at the bottom right of the Super Hi-Res screen has coordinates of (199, 319) or (199, 639). I just described the most common screen mapping system. You can, however, change things so that the pixel at the top left corner of the Super Hi-Res screen has a different coordinate value than (0, 0). But, it is always true that the greater a coordinate value is, the farther right (for x coordinates) or down (for y coordinates) the pixel will be.

GrafPorts

When you draw something using QuickDraw II, you actually drawing in a *GrafPort*. A GrafPort is a data-structure which defines a specific drawing

environment. The most common example of a GrafPort is a window. In fact, a window is just a GrafPort with a frame around it. Among other things, the information in a GrafPort tells QuickDraw II what color to draw in, where in memory to draw, the rectangle on the coordinate plane where drawing will occur, and *much* more! So, to make a program that draws something on the Super Hi-Res screen, you'd first startup QuickDraw II, then you'd open up a new GrafPort to draw into, and then you'd draw in that GrafPort. There can be multiple GrafPorts open at any given time, and they can overlap, and some can even be off screen (so that when you draw to the GrafPort it doesn't show up on the screen). This provides a lot of flexibility for your drawings. All you have to do to switch GrafPorts is use the *SetPort* tool call.

Local And Global

There are two types of coordinates when drawing with QuickDraw II: local and global. Global coordinates are expressed in terms of the entire screen. For example, (0, 0) is the top left pixel of the screen. Local coordinates are expressed in terms of the current GrafPort. So, if you open up a GrafPort that is the same size as the screen but you set its origin to (50, 50) then when you draw to that GrafPort, the top left pixel of the screen now has the coordinates of (50, 50). The (50, 50) is local to the GrafPort. Globally, the coordinates are still (0, 0). When you are drawing in a GrafPort, you are always using its local coordinate system. If you ever need to find out where that is in terms of the big picture, you'll need to convert to global coordinates. The *LocalToGlobal* and *GlobalToLocal* calls do the conversions for you. For some interesting examples of local and global coordinate manipulation, see the "FGS - Fractal Graphics & Such" article elsewhere in this issue.

The Pen

All QuickDraw II drawing is done with a *pen*. A pen has a location on the coordinate plane, just as a normal pen can

be placed on a piece of paper. The pen is *always* on the coordinate plane. The pen also has a size. The size can be set to any width or height so you can draw big fat lines or very tiny lines. When the pen draws, it draws using an 8x8 pattern. The pattern can be considered to be ink in the pen. The pen also has a background pattern attribute which specifies what pattern the background (or paper) is. This is used whenever something needs to be erased. The pen draws using a mask—an 8x8 pattern that controls exactly how the drawing pattern appears. The pen can also draw in different modes. The most often used pen mode is *copy* mode. This means that the pattern is simply copied down over everything that might have existed at that spot before. There are lots more modes, but to get the exact details on them, read the *Apple IIGS Toolbox Reference: Volume 2*.

Drawing!

So now you want to actually draw something, right? A line would be a good starting point. Before you draw, you'd first open up a GrafPort and set your pen to the desired characteristics. To draw a line, you'd first move the pen to the starting location without drawing and then draw your line. To draw a diagonal line across a 320-mode screen, the code you'd use is:

```
OpenPort (&GrafPortRecord);
PenNormal ();
MoveTo (0, 0);
LineTo (199, 319);
```

Pretty simple, huh? For some more examples of GrafPort manipulation and drawing, see the "FGS - Fractal Graphics And Such" article elsewhere in this issue.

Simple Shapes

QuickDraw II also has provisions for drawing shapes. For example, you can draw rectangles, rectangles with rounded corners, ovals, and arcs. You can either draw the *frame* of the shape, you can *paint* the interior of the shape, you can *erase* the interior of a shape, you can *invert* the pixels in the interior of the shape, and you can *fill* the interior of a shape with a pattern. Look through the *Apple IIGS Toolbox Reference: Volume 2* for the calls to do all these simple shapes.

Complex Shapes

QuickDraw II also has provisions for letting you draw more complex shapes such as polygons. To create a polygon, you first make the `OpenPolygon` call, then you do a couple of `MoveTo` and `LineTo` calls to define your polygon, then you do a `ClosePolygon` call. When you're done, you'll have a handle to a polygon. You can then use the `frame`, `paint`, `erase`, `invert`, and `fill` calls on the polygon.

If a polygon is too simple for your tastes, you can move up to the most advanced shape, the *region*. A region is constructed much like a polygon in that you open it, define it, then close it. But the definition can be more than just `LineTo` calls, it can be lots of things like a `FrameRect` call. Before you can open the region for definition, you first have to create it using the `NewRgn` call. You don't have to do this with polygons. Also, you have a lot more operations on regions than you do with polygons. For example, you can find the intersection of two regions, you can union two regions together, you can take the difference of two regions, and lots more!

Drawing Text

QuickDraw II also exists to draw text on the Super Hi-Res screen. There is a lot of information about how this is done in the *Apple IIGS Toolbox Reference: Volume 2*, so you might want to read up on that. Basically, you just make draw calls to display text at the current pen position.

Miscellaneous QuickDraw

Cursors are also the responsibility of QuickDraw II. The cursor you are most familiar with is the arrow cursor. You can, however, create your own cursor and tell QuickDraw to use it instead.

The oddest part about QuickDraw II is that it contains a call totally unrelated to drawing on the Super Hi-Res screen. It's the `Random` call. This call, obviously, returns a random number. I have no idea why the call was made part of QuickDraw II—it would seem more logical to have it in with the Miscellaneous tools.

What Next?

QuickDraw II is the largest tool set there is. I have done it a gross injustice by presenting such a brief description of its capabilities. But I have done so in order to move quickly on to more tool sets so I can begin giving source code that does something. (By the way, unless there is a drastic surge in voting, source code will be done using ORCA/Pascal.) There is a lot more information remaining to be presented about QuickDraw II such as the different pen drawing modes, clipping, visible regions, the `locInfo` record, and more! However, the *Apple IIGS Toolbox Reference: Volume 2* discusses these items better than I can, so read up on them! **GS+**

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What Are Fractal Graphics & Such?

This isn't *Scientific American*, so I don't want this introduction to get too technical. I think I'll take the mathematical low-road and simply define fractals as "graphic representations of the solution sets of complex mathematical equations." These solution sets, when appropriately colored, make strikingly beautiful pictures and can be used to model natural shapes such as leaves, coast lines, and mountain ranges. If you want a more technical definition of fractals and fractal geometry, go to your local library and look in the card catalog under "Mathematics" or "Fractals."

What Is FGS?

FGS is a IIGS desktop program that allows you to explore the most famous of fractals: the Mandelbrot set. (The "Mandelbrot set" is named after the IBM scientist that discovered it and coined the term "fractal," Benoit B. Mandelbrot.) The Mandelbrot set doesn't contain any mountain ranges (not to my knowledge anyway), but it does contain some very neat pictures. FGS allows you to generate new pictures of the Mandelbrot set or to "zoom-in" on areas of the set that are contained in pictures you have already generated. If a picture is taking too long to generate, you can tell FGS to stop drawing the picture, save it, and resume drawing it at a later time. Pictures can be printed out or loaded into your favorite graphics program. FGS also has a color editor so that you can color the picture to suit your own sense of beauty.

Each fractal picture is contained in its own window and you can have as many windows open as memory will allow (although having more than four windows open will clutter the screen quite a bit). Each window can have its own palette of colors and when you switch windows the colors will be switched also (if you switch to a New Desk Accessory window, the standard system colors will be used.)

(Historical Note: FGS is the descendent of a public domain program, Fractals-GS, that I did before starting *GS+* Magazine. This is why FGS has a version number of 1.5. The name was changed to "FGS" to differentiate this version—which is *not* public domain—from Fractals-GS versions 1.0 and 1.1—which *are* public domain.)

Installing FGS

To install FGS on one of your disks, simply copy the FGS file and the Fractals folder out of the FGS folder on your *GS+* Disk, or use the Installer provided on your *GS+* Disk. To run FGS, simply double-click on the FGS file from the Finder. I strongly recommend that you read all of these instructions before attempting to use FGS.

How FGS Works

If the next paragraph gives you a headache, don't panic—FGS is much easier to use than it is to describe. Just read this whole article over once and then sit down and play with the FGS program.

FGS draws its pictures on a coordinate plane (the complex plane actually—but you don't need to worry about that). Pictures are drawn in 320-mode and can have up to 15 different colors. For each picture FGS draws, you must specify an *x coordinate*, *y coordinate*, *x range*, *y range*, and an *iteration limit*. FGS uses the *x* and *y* coordinates and *x* and *y* ranges to define a rectangle on the coordinate plane. The *x* and *y* coordinates specify the upper left-hand corner of the rectangle. The *x* range tells FGS how wide the rectangle is and the *y* range tells FGS how tall the rectangle is. FGS takes this rectangle and scales it up to fit the IIGS 320x200 mode screen. This gives us 64,000 different points which FGS must evaluate to draw the fractal image contained in the rectangle. This is where the iteration limit comes in. FGS draws its pictures by evaluating an equation over and over

for each of these 64,000 points. The iteration limit you specify tells FGS the maximum number of times to evaluate any given point. Each time a point is evaluated, the result of the evaluation is compared to an "escape value." If the result is greater than the escape value, the point is said to have "escaped" from the Mandelbrot set. The number of times that the point was evaluated before it escaped is then used to determine the color that is used to fill in that point on the screen. Different colors represent different "escape speeds." If the point does *not* escape (i.e. the number of evaluations for that point exceeds the iteration limit), it is considered to be a part of the Mandelbrot set and it is colored in the "No Escape" color. This color is usually black, but the FGS color editor allows you to change this if you wish.

OK. I'm Confused.

No problem. What you just read is simply an (attempted) explanation of the process that underlies the pictures that FGS draws. You don't *need* to understand any of it to use FGS or to appreciate the pictures that it draws. What you *do* need to know is what is in the FGS menus and how to use those items. So, let's just jump right in and start looking at the menus. After we've covered all of the menu items, I'll give some examples of how to use FGS that should tie everything together for you.

Ye Olde Apple Menu

The Apple menu contains the standard "About FGS..." selection and any New Desk Accessories (NDAs) you might have installed. NDAs are fully supported. That is to say, when you have a NDA selected, the Edit menu items become active so that the NDA can them.

The File Menu

New... - This item brings up a dialog box that allows you to specify information about the picture you want FGS to draw. You must specify the following information:

Title: This is the title for the picture. It can be up to 32 characters long. It will be used as the default file name when you save the picture to disk. (Note that under current versions of GS/OS, the maximum length of a file name is 15 characters. The ability to specify a 32 character file name is in anticipation of System Software v6.0 and the HFS FST.)

X Coordinate and Y Coordinate: These values specify the upper left hand corner coordinate of the rectangle that FGS is to evaluate.

X Range and Y Range: These range values are used to specify the width and height of the rectangle that FGS is to evaluate.

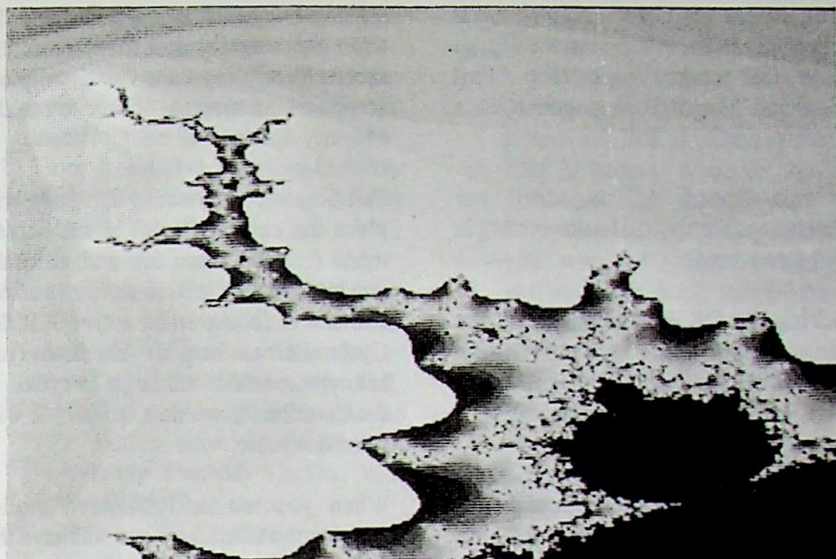
Iteration Limit: This specifies the maximum number of times that FGS evaluates each point in the rectangle to determine its color. Lower values produce faster, less accurate, pictures. Larger values produce more detailed pictures, but they can take a *very long* time to finish! The minimum value for this field is 16. The maximum value is 256.

When the New dialog is invoked, these fields will contain a set of default values. These defaults specify a picture giving an overview of the entire Mandelbrot set. If you wish, you can specify values in scientific notation.

To type in a value, move the mouse to the field you want to change and double-click on the number. Then type in your new number. You can also move from field to field by using the tab key.

When you have all of the numbers to your liking, click on the OK button (or press the return key) and FGS will create an empty fractal window using the values you have specified. If you want to cancel, click on the Cancel button or press Command-. (hold down the Command key and press the period key) and the dialog will disappear.

(There is one other button in the New dialog: the "Load v1.1 Pic..." button. If



you have pictures that were generated with Fractals-GS v1.1, click on this button and you will be able to select an old picture to load. You can then use that picture as you would any other picture generated by FGS. If you save the picture, it will be saved in the format used by FGS v1.5.)

Open... - Selecting this item will present you with a standard file dialog that will allow you to open a saved FGS picture.

Close - This selection closes the current window. If the window contains an FGS picture that has been modified, you will be asked if you want to save the changes.

Save - This selection saves the current FGS window. If the picture in the current FGS window has not been changed since it was last saved, you can not select this item. If the FGS window has not been previously saved (i.e. it was just created with the New option) you will be presented with the Save As dialog instead. If the picture was not finished, you can load it in later (using the Open item) and have FGS resume work on it.

FGS saves its pictures in standard Apple Preferred Format (APF) so you should be able to load your FGS pictures into any paint program that can read APF pictures.

Save As... - This selection allows you to save an FGS picture with a different name.

Page Setup... - This item lets you specify various page setup options for the printer that you currently have selected in the Control Panel NDA. The options that you specify are saved in the FGS resource fork so that you do not have to reset them.

Print... - This item will print the fractal in the current FGS window onto the printer that you currently have selected in the Control Panel NDA.

The Edit Menu

For the most part the Edit menu is not used by FGS, it is merely provided for use by any New Desk Accessories that you may have installed. However, below the standard editing items (Undo, Cut, Copy, Paste, and Clear) is an item that *is* used by FGS.

Preferences... - Selecting the Preferences item presents you with a dialog that allows you to set various defaults that affect the way FGS does things. All of these preferences are saved so that you don't have to reset them each time you run FGS. These preferences are:

- Auto Save - If this item is checked, FGS will automatically save a fractal as soon as it stops drawing it. If the fractal has not been previously saved, you will automatically be presented with the Save As dialog.
- Beep When Finished - If this item is checked, FGS will beep three times when it stops drawing a fractal.

- **Full Screen On Open** - If this item is checked, FGS will automatically go into full-screen mode (see "Full Screen..." below) when you open a picture.
- **Cycle Speed** - This scroll bar determines the speed of color cycling in full-screen mode.

Clicking the OK button will save any changes you have made to these preferences, while clicking the Cancel button will restore the previous values.

The Windows Menu

Coordinates - Selecting the Coordinates item brings up a small window showing the x and y position of the cursor. If the cursor is over the current FGS window, the Coordinates window will report the x and y values of the point in the coordinate plane. The offset of the cursor from the upper left-hand corner of the picture will also be shown in parenthesis. If the cursor is not over the current FGS window, the Coordinates window will show the current position of the mouse on the screen. The values shown in parenthesis will be the "local" coordinates of the mouse, relative to the topmost window on the screen. The Coordinates window can be placed anywhere on the screen that you wish. The Coordinates window can be very handy when you are in Magnify mode (see below). Just be sure to select Coordinates before you select Magnify.

Information... - Selecting the Information item presents you with a dialog detailing all of the pertinent information about the fractal you are currently viewing. This information includes the x and y coordinates, the x and y ranges, the iteration limit and the total time (in hours, minutes and seconds) that has been spent drawing the fractal.

Magnify... - The Magnify option allows you to "zoom in" on a portion of an FGS picture and generate a new picture. When you select the Magnify item, the current fractal is made full screen and the cursor changes into a hand holding a magnifying glass. (If the Coordinates

window is open, it is made visible.) To abort the magnify operation, press the escape ("esc") key. See the "Examples" section for an example of how to use the Magnify option.

Full Screen... - Selecting this item will place the current fractal in full-screen mode (i.e. the menu bar and all other windows will be hidden and the current fractal will fill the entire screen). If the Cycle Colors item is checked (see below), the colors will begin to cycle. If the Coordinates window is open, it will be made visible.

When you are in full-screen mode, pressing the following keys will have the following effects:

"esc" - Pressing the escape key will get you out of full-screen mode.

"+" - Pressing this key will speed up color cycling.

"-" - Pressing this key will slow down color cycling.

"D" - Pressing this key will reverse the direction of color cycling (i.e. if the colors were cycling in, they will now cycle out.)

"~" - Pressing this key will toggle color cycling on and off.

Spacebar - Pressing the spacebar will hide the cursor. To make the cursor reappear, simply move the mouse.

The Color Menu

Set Colors... - Selecting this item brings up the FGS color editor. This is a very simple color editor. There are 16 radio buttons that allow you to select the color you wish to edit. One button is labeled "No Escape." This is the color that FGS will use to show points that are in the Mandelbrot set. Another button will appear to have no label. This is because the color of the label is the same as the background color. The rest of the buttons are labeled "Color 1" through "Color 14" and their labels are shown in the appropriate color. To select a color to edit, simply click on the appropriate

radio button. When you select a color, the three scroll bars at the bottom of the color editor will change to show you the amount of Red, Green, and Blue that are in that color. To change a color, simply use the scroll bars to change the amount of Red, Green, or Blue that is in the color. Clicking on the arrow on the scroll bar will increase or decrease the value by one. Clicking in the grey area of the scroll bar will increase or decrease the value by two. When you have the colors set to your liking, click on the OK button. If you don't like the new colors, simply click the Cancel button.

Cycle Colors... - If this item is checked FGS will cycle colors in full-screen mode. This information is saved by FGS so that you do not have to reset it each time you run the program.

The Run Menu

Go... - Selecting this item will tell FGS to begin drawing the fractal in the current FGS window. FGS uses a special "contour crawling" algorithm to speed up its drawings of the Mandelbrot set. "Contour crawling" is a bit hard to explain on paper, but once you see it in action, you should understand. To tell FGS that you want it to stop its work on the current fractal, press and hold any key on the keyboard. When FGS realizes that you want it to stop, it will turn the border of your screen red. When you see the border turn red, let up on the key you are pressing. *When FGS finishes drawing the current contour (which can take quite a while), it will stop drawing the fractal.*

Examples

The following examples are intended to help you better understand how to use FGS.

Creating A New Picture

- 1) Select New from the File menu. A dialog box containing default values will appear. To edit these values, click the mouse in the appropriate box and use the left and right arrow keys and delete keys to change the values. When you have the values you want, click on the OK button and an empty window will appear. To abort this

- operation, click the Cancel button.
- 2) Now that you have an empty window, you probably want to get the fractal started! To do this, simply pull down the Run menu and select the Go item. At this point, FGS begins to calculate and draw your picture. Depending on the color set that you have selected, it may be a while before you can see anything.
 - 3) The next step is to *relax*. Mathematical operations on the IIGS are *very* slow. Some of these pictures can take 20 hours or more to draw! (Most however, take between 1 and 5 hours to generate.)
 - 4) What's that you say? You don't want your computer tied up for 20+ hours drawing a stupid picture? Neither do I! That's why FGS has the ability to save a picture in progress! To save it however, you must stop it. To stop a picture that is being drawn, press and hold any key. When you see the border of your IIGS screen turn red, release the key. FGS will stop drawing the picture when it completes its navigation of the current contour of the fractal. This in itself can take quite some time, so don't be too impatient!
 - 5) To save the picture as it now stands, pull down the File menu and select the Save As item. This brings up a dialog box that prompts you for a name to save the file under. (If you have the Auto Save preference turned on, this will happen automatically.) When you have the name that you want, click on the Save button and FGS will save your picture with the name you have specified.
 - 6) Now that your picture is saved, you can close it and start or load another picture, or you can restart the picture you just saved. To restart the picture, just select the Go item from the Run menu again.

Loading And Restarting A Saved Picture

- 1) Select the Open item from the File menu. This brings up a standard file selection box that allows you to select a file to load. When you find the file you want, double-click on its name or click on its name once and

then click the Open button. FGS will then load your picture.

- 2) Once you have loaded the picture, you may restart it by selecting the Go item from the Run menu.
- 3) To stop and save the picture, follow steps 4-6 under "Creating A New Picture" (above).

Using The Magnify Option

- 1) Once you have a picture drawn (or almost drawn) you can "zoom in" on bits of it that look interesting. First, load in a previously drawn picture (the picture does not need to be completely finished) via the Open option as described above.
- 2) Pull down the Windows menu and select the Coordinates item. (Please note that this step is *entirely optional* and is not really necessary when magnifying a picture.)
- 3) Pull down the Windows menu and select the Magnify item. The cursor will change into a hand holding a magnifying glass. This tells you that you are now in magnify mode.
- 4) Place the cursor at or near the point of interest and press and hold the mouse button. While *still holding down* on the mouse button, begin to drag the mouse. A box is drawn to show the area that will be magnified. You can drag the mouse in any direction. When you have the area you are interested in selected, release the mouse button.
- 5) When you have released the mouse button, a dialog box identical to the New dialog box will appear and show you the specifications for the area you have just selected. You may change the values shown as you would if you were specifying a new picture.
- 6) When the specifications are to your liking, click the OK button. A new, empty window will be opened. This window will eventually contain the drawing of the zoomed area. To begin drawing this picture, follow steps 2-6 under "Creating A New Picture" (above).
- 7) If you do not like the specifications for the area you have chosen, click the Cancel button. This will cancel magnify mode and you can try again.

Hints

- 1) When in magnify mode, try to get the x and y ranges about the same. If they are very different, the resulting picture will look stretched or smashed. This is because that, on the IIGS, pixels are taller than they are wide. So, when you are boxing in the area you want to magnify, make the vertical sides a bit longer than the horizontal sides.
- 2) When you are zooming in really "deep," make the iteration limit larger. This will cause your pictures to take longer, but, if you don't do this, the picture may end up being all black (or whatever color you have as the "No Escape" color).
- 3) Having said that, an iteration limit of 100 is usually more than enough for really detailed pictures.
- 4) Some of these pictures can take a *long* time to generate. So, it's really a good idea to run these things at night or when you are at work or school. However, if you live in an area that has a lot of electrical storms or power outages, do *not* run a fractal unattended! EGO Systems and GS+ Magazine will *not* be held responsible for fried or otherwise damaged IIGS's. Please use common sense.
- 5) We've put some of our favorite fractals on the GS+ Disk for you. These should make an excellent starting point for your explorations of the Mandelbrot set.

Technical Information

Due to the length of this article, the technical and programming information for FGS has been placed in a file on your GS+ Disk.

Enjoy!

I really hope that you enjoy FGS and that you have fun exploring the Mandelbrot set. If you have any suggestions for improvements let me know. And if you find a bug, be sure to fill out the problem form on your GS+ Disk and send it in. **GS+**

Welcome Back

EGOed took a vacation last issue and, unfortunately, I was not able to do much in the way of improving the program. Most of my EGOed programming time was spent making changes to better support AppleShare and compensating for a tiny problem in the Toolbox. However, there are a few operational changes and bug fixes that everyone should be aware of. (Remember, complete documentation for EGOed is on your *GS+* Disk in the plain ASCII text file *EGOed.Docs*. This file is in the EGOed folder. If you are new to *GS+* Magazine, I *strongly* recommend that you read this file before you attempt to use EGOed!)

Teach == IIGS TeachText

The first change you should be aware of is that "TeachText" files will be referred to as "Teach" files from now on. "Teach" is the "official" Apple name for this type of file for the IIGS. It is still my opinion that "Teach" is a silly name for a file format (this from the man that coined the name "EGOed"), but in the interest of standardization, we will be using the name "Teach" from this point on. However, you may still hear people refer to "TeachText" files. If this is done in the context of the IIGS world, relax—it's almost certain they are talking about Teach files.

To further confuse you, I would like to point out that "TeachText" is actually the name of a Macintosh program and the format of the files that program creates. As you might expect, Macintosh TeachText files and IIGS Teach files are totally incompatible. In fact, the version of Apple's "Teach" application (which Apple is planning to ship with System Software v6.0), that we saw at KansasFest would not read Macintosh TeachText files... but it would read MacWrite v5.0 files.

Share And Share Alike

After Noreen got her Macintosh LC and began letting us use it as a file server (see

"Writer's Block" in *GS+* V2.N6), it became obvious that EGOed was not 100% AppleShare friendly. The main problem was that more than one person could be editing the same file at the same time! Imagine for example that Joe was working on his latest Molehill column. He opens the file and starts typing. I open the same file (at about the same time) and begin editing. Joe saves his changes and goes to eat lunch. I save my changes *and destroy all the work he has just done!* Joe comes back from lunch and... well, it's not a pretty sight.

The solution is to keep the file *open* so that no one else can open it. If you are using EGOed v1.36 to edit a file on an AppleShare server and someone else tries to access the file (with EGOed or some other program), they will be told that access to the file is not allowed, and they will have to try again later.

If you are not using EGOed v1.36 with an AppleShare server, don't worry about any of this—EGOed will behave just as it always has.

I Prefer Not To Do That

Several months ago (in *GS+* V2.N4) EGOed was given a "feature" which has

What Is EGOed?

EGOed is a New Desk Accessory (NDA) text editor. When you install EGOed on your startup disk, you can use it to edit and print ASCII text, Teach, AppleWorks Classic and AppleWorks GS word processor files from inside any desktop program that properly supports NDAs. To use EGOed, you *must* have IIGS System Software v5.0.2 or later. For information on installing EGOed, refer to "How To Use The *GS+* Disk." For more information on using EGOed, read the file *EGOed.Docs* which is on your *GS+* Disk in the EGOed folder.

caused quite a few headaches for quite a few people. That feature was "path preservation" and by using it, EGOed was able to keep track of the last place you opened a file from and the last place you saved a file to. For hard disk owners, this is great. But for floppy drive users, it's been something of a hassle to have EGOed always ask you for that last disk you were using whenever you try to open or save a file.

So, with this version of EGOed, path preservation becomes a preference in the Prefs menu! The default is to *not* preserve path information. To turn path preservation on, simply select the Preserve Paths item from the Prefs menu. If you are hazy on what path preservation does and how to use it, read the "EGOed v1.33" article in *GS+* V2.N4 or the *EGOed.Docs* file which is in the EGOed folder on your *GS+* Disk.

And Finally

The last change to tell you about is that the importation of AppleWorks GS files has been improved. EGOed v1.36 reads these files much more reliably than previous versions.

That's about it for this version of EGOed. There's a lot more to tell, but it's all technical stuff. If you just want to *use* EGOed, flip over to "How To Use The *GS+* Disk" for information on installing EGOed on your system. If you want to get into the technical aspects of this version of EGOed, keep reading.

The Wheel... New And Improved!

If you pick up just about any issue of *GS+* Magazine and read one of the programming articles, chances are that there will be about three instances of the phrase "use the Toolbox!" in the article. It's good advice—using the Toolbox provides your programs with a uniform interface and keeps you from having to "re-invent the wheel!" for many of the

mundane chores associated with programming for an event-driven environment. Unless, of course, you want to have more than one Font menu active at a time.

Yep, that's right, if your New Desk Accessory (NDA) is going to have a Font menu in it, you should *not* use the `FixFontMenu` tool call to build that menu. Why not? Well, if you open that NDA inside an application which has built its *own* Font menu with `FixFontMenu`, you will clobber the application's Font menu!

You see, when a call is made to `FixFontMenu`, the Font Manager builds a table that relates the items in your Font menu to the family numbers of the corresponding fonts. Among other things, the parameters of `FixFontMenu` tell the Font Manager which menu to add the list of fonts to and what starting value to use in numbering the new menu items. So, if the host application calls `FixFontMenu` with a starting item number of 300 and your NDA comes along and calls `FixFontMenu` with a starting value of 400, the original Font Manager table is replaced with a new table based on a starting value of 400. The NDA and the Font Manager will know what is going on, but the application will be very confused!

An example of this can be seen if you use `EGOed v1.34` (from `GS+ V2.N5`) or earlier inside the AppleWorks GS word processing module. If you start up the AppleWorks GS word processor and then open `EGOed v1.34` or earlier, chances are that the AppleWorks GS Font menu will begin to behave very oddly. (At first, I thought this was a bug in AppleWorks GS... it isn't.) This is because when these older `EGOed`'s make their `FixFontMenu` calls, the table the Font Manager built for AppleWorks GS is replaced with a table built for `EGOed`! So, when you select a font item from the AppleWorks GS Font menu, the Font Manager tries to find a match for the AppleWorks GS menu item ID in the font family table it just built from the `EGOed` Font menu item IDs. The result

is screwy looking fonts and a font menu that behaves in a bizarre fashion.

The solution? Build your own font menu and write your own `FixFontMenu`, `FamNum2ItemID` and `ItemID2FamNum` calls! What's that? You feel faint? You say you've never built a menu from scratch, let alone an *alphabetized* Font menu? Neither had I. Not to worry, it's not that bad...

My first consideration in solving this problem was that the solution had to be as self-contained as possible. Toward this end, I decided to write replacements for the three routines mentioned above and to put them in a separate source file: `ndaFont.h`. This file contains four main routines:

- `FixNDAFontMenu`
- `FamNum2NDAItemID`
- `NDAItemID2FamNum`
- `KillNDAFontMenu`

The first three routines are the functional equivalents of their Font Manager counterparts—even the parameters are the same—and you use them in exactly the same way. The last call, `KillNDAFontMenu`, is used to dispose of the Font menu that the `FixNDAFontMenu` call has created. You would call this function from your `DAClose` routine.

FixNDAFontMenu

The first thing to do is to make a “new” Memory Manager ID from our main ID by changing the `auxID` bits. This is done so that we can get rid of all the memory simply by calling `DisposeAll` in the `KillNDAFontMenu` function. A call to `MMStartup` will give us the Memory Manager ID of the code that is currently executing (which, in this case, is `EGOed`). We then take that main ID and change the value of the `auxID` bits. For more information on fiddling with `auxIDs`, check out the Memory Manager chapter of the *Apple IIGS Toolbox Reference: Volume 1* or “Working With The Toolbox - Part 2: The Memory Manager” in `GS+ V2.N5`.

Now that we have an ID of our very own, we have to figure out the names of all of

the fonts that are available on the startup disk. For this, we use the `FindFamily` tool call. `FindFamily` takes as its parameters a `famSpecs` word (`FindFamily` and the `famSpecs` word are explained in detail in the Font Manager chapter of the *Apple IIGS Toolbox Reference: Volume 1*), a position number and a pointer to a buffer where `FindFamily` will return a p-string containing the name of the font. As a result, `FindFamily` returns the family number of the font. The key parameter here is the position number. Starting with position number equal to 1, you simply call `FindFamily` over and over, incrementing the value of position number before each call. When `FindFamily` returns a family number of `$FFFF`, you know that there are no more fonts!

The information returned by `FindFamily` is placed into a special `fontInfo` data structure containing information about that particular font. (Refer to the `ndaFont.h` file for the exact layout of the data structure.) The `fontInfo` is then inserted alphabetically into a linked-list of `fontInfo` items. This list is my version of the table that the Font Manager builds when you make a call to `FixFontMenu`. The routine to insert the item into the list is a simple “recursive insert in a linked list” routine with the addition of a string comparison to make sure the items are inserted in sorted order. (These routines are described in detail in the `ndaFont.h` file.)

Now that the font list (table) is built, we have to build the actual menu items and insert them in the font menu. The process of building a menu item on the fly is never really discussed in the Menu Manager chapters of the Toolbox reference manuals, but it would appear to involve a lot more work than I, personally, am willing to get into. The main problem is that you have to build these awful menu item definition strings and then feed them to the Menu Manager. Worse yet, the strings have to hang around in memory for the Menu Manager to refer back to!

A much simpler solution is to define a generic menu item *resource* in your program's resource fork. This way, the `InsertMItem2` can be used to load the menu item and insert it into the appropriate menu. All you have to do then is use `SetMItemID` to reset the Item ID and `SetMItemName2` to reset the name to the name of the appropriate font (which is in the table we just built). The main advantage of this method is that the Resource Manager gets to do all the dirty work (managing the memory of the menu items, etc.)! However, doing things this way means that the `FixNDAFontMenu` function is not as self-contained as it could be. In my opinion, it's worth it.

That's all there is to building the font menu. Now, let's look at the other three routines.

NDAItemID2FamNum & FamNum2NDAItemID

When the user picks an item from the font menu, you have to be able to relate the ID of the menu item to the font's family number. Similarly, when the user pulls down the font menu to see which font is checked, you have to be able to relate the font family number to the ID of the menu item that needs to have a check mark beside it. To make this easier, the `fontItem` data structure contains both the family number and menu item ID of each particular font. To look up these items, we simply traverse the linked list of `fontItems` until we find a match. When a match is found, the appropriate value is returned (a family number or a menu item ID).

KIIINDAFontMenu

When the NDA is being closed, we need

to get rid of the font menu we have built. This routine does that by setting the pointer to the first item in the font table to `NULL`, and by calling `DisposeAll` (with our special font memory ID) to dispose of all the `fontItems`.

Whew!

It's really a pity that the `FixFontMenu` call does not work correctly for NDAs... that certainly is a lot of extra work for something that you expect the Toolbox to do! However, solving problems like this can give you a great deal of insight into how the Toolbox works and the effort that went into creating it.

Now that this problem is solved, I hope to have some actual enhancements in the next version of EGOed! **GS+**

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Rumors, Wishes & Blatant Lies

By Prof. G. S. Gumby

Don't Hold . . .

We've been getting a lot of calls from beta testers of System Software v6.0. Without exception, these calls contain phrases like, "wow man!", "this is amazing stuff!" and "gotta go, the boss is coming!"

Among other neat things, System 6 will contain several new Control Panels (CDevs), one of which will allow you to select a different startup application, and another that will let you pick different sounds for different system events (like disk ejects, emptying the trash, etc.). Of course, all of this neat stuff takes up space . . . System 6 will ship on at least 5 disks and may end up occupying 6 disks! One of those disks will be full of fonts (in sizes up to 100 points) for use with the new StyleWriter printer driver and another will be a minimal system disk made especially for those users that don't have a hard disk. The message is clear, folks, it's time to get a hard disk!

Of course the question that non-beta-testers ask us is "When do I get *my* copy?" The latest word is that Apple will begin shipping System 6 sometime shortly before the end of the year. The release of HyperCard IIGS v1.1 is expected at about the same time.

. . . Your Breath!

We've also been getting calls from lots of HyperStudio v3.0 beta testers. The product is a bit behind on being released, but according to the reports we are getting, it's going to be well worth the wait. As soon as it is released, we'll have a full review.

"Young Women Of KansasFest"

Amazingly, we only got *one* negative letter about the "Babes Of KansasFest" features that we ran last issue. Our soon to be dead, er, I mean *wed*, publisher would like everyone to know that Ms. Ribaric wrote most of the text that accompanied her photo and Mrs. Westerfield was told exactly what was going to be printed along with her picture.

Actually, we don't see how anyone could be upset over these photos. It was done purely for the sake of art.

"Beefcake Of KansasFest"

On a more repulsive note, several of the young ladies that work for Resource-Central (the hosts of KansasFest) were conspiring with our own Ms. Ribaric to produce an exploitative and sexist "Men Of KansasFest" calendar. Fortunately, the entire smutty project had to be cancelled due to the fact that there weren't twelve good-looking men at the show.

Zip Drives

Zip Technology is working on a new series of internal hard drives for the Apple IIGS. These drives look just like all of the other internal hard disks that have come out for the IIGS, but they use the same type of controller that Applied Engineering's Vulcan hard disks use.

At this point, we have no information as to when the drives will be available or what they will cost. But we do know that a certain Burger-dude is working on the utility software for the drive.

Never Say Die!

Even after Rob Barnes (the Apple II "Evangelist") told us that there is no new Apple II, the rumors just refuse to die! The latest rumor was that a new II would be announced during the September 25th User Group Television broadcast. Unfortunately, that didn't happen.

What *did* happen is that Apple officially announced System Software v6.0, HyperCard IIGS v1.1, and the SuperDrive card. When asked about availability, Tim Swihart of Apple said that they were hoping to have System 6 finished before Christmas so that it could be in users' hands by late January of 1992. Oddly, no mention was made of the EtherNet card that we reported on last issue. Other than that, nothing much of interest (to Apple II users anyway) happened during the broadcast.

An extra special thanks to our good friend Michael Quinn for letting us use his satellite dish to view the event and to "Big" Dave Adams for his sidesplitting imitation of a certain CEO.

Bye Bye Barney

Barney Stone, creator of DB Master (one of the oldest and best Apple II database products—we used it ourselves for over a year) and several other excellent products for the Apple II, called it quits several weeks ago. In a statement posted on several of the major information services, Barney explained that one of the main reasons for his decision was the lack of marketing support that the Apple II has been getting from Apple Computer Inc. Rumor has it that Barney is going to begin working on a new product for either the Macintosh or IBM-PC.

Hey You!

I've got a wedding to go to. No way will I have time to er . . . collect all of next issue's rumors by myself! I need your help! Send your Apple IIGS rumors, wishes and blatant lies to us via:

America Online, Delphi:
GSPlusDiz

Genie:
JWankerl

InterNet/BitNet:
JWANKERL@UTCVM.BITNET

US Mail:
GS+ Rumors
P. O. Box 15366
Chattanooga, TN 37415-0366

If we use any of your items, we'll either send you a snazzy new GS+ T-shirt or extend your subscription for one issue! Be sure to tell us whether you want the T-shirt or the extra issue. If you want the T-shirt, don't forget to include your T-shirt size. **GS+**

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 are having a problem making a backup copy, give us a call at (615) 870-4960. If your disk is damaged, let us know and we'll get a new one to you as soon as possible.

Installing The Software

To install the software on this issue's GS+ Disk, start up your computer using System Software v5.0.2 or later (preferably v5.0.4), and then place your *backup* copy of the GS+ Disk in a drive. Now run the Installer program that is on your GS+ Disk. (From the Finder, you would double-click on the Installer icon.). When the Installer window appears, select the update you want to install from the left-hand window, and the disk you want to install it on in the right-hand window. Then click on the Install button. For more information on how to use the Installer, refer to your IIGS owner's manual.

Beginning with GS+ V2.N6, we began using GS-ShrinkIt to compress the *source code* on the GS+ Disk. To extract the source code from their archives, you will need to use GS-ShrinkIt v1.0.4 or later. If you do not have GS-ShrinkIt, check with your local user group or give us a call here at GS+ Magazine. *GS-ShrinkIt is not required to run any of the programs on the GS+ Disk!* It is only required if you want to look at the source code that is used to create the programs!

There are 13 items in the root directory of this issue's disk. They are:

a.Read.Me

A lot can happen from the time we send this magazine to the printer and the time we get ready to mail them out. If anything does happen, we will put everything we can find out about it in this file. This is a plain text file.

Autopilot

This folder contains Autopilot v1.1. This folder also contains complete

documentation for Autopilot v1.1 in the file **Autopilot.Docs**. This file is a plain ASCII text file, you may use EGOed to view it. Before attempting to install Autopilot, you should *carefully* read the installation instructions in the "Autopilot v1.1" article in this issue of GS+ Magazine! Autopilot must be installed on a startup disk.

EGOed

This folder contains EGOed v1.36. EGOed is a New Desk Accessory text editor that allows you to read and print ASCII, AppleWorks (Classic and GS) and Teach files. This folder also contains complete documentation for EGOed v1.36 in the file **EGOed.Docs**. This file is a plain ASCII text file. EGOed must be installed on a startup disk.

FGS

This folder contains the FGS program discussed in the "FGS - Fractal Graphics & Such" article. To run FGS, simply double-click on the FGS icon from the Finder. FGS can be installed onto any disk. Also in this folder is the **Fractals** folder. This folder contains several pre-generated Fractals that you can use as a starting point for your exploration of the Mandelbrot set.

HyperActivities

This folder contains the latest version of the Self-Sorting Address Book stack that is discussed in this issue's "HyperActivities" column. It requires HyperCard IIGS v1.0 or later and can be installed in any folder on any disk.

Icons

This folder contains the Finder icons discussed in the "Icons" article.

Installer

This is the Apple IIGS Installer. Run it to install the other files on this GS+ Disk.

Joke.A.Rama

This folder contains the Joke.A.Rama program that accompanies the reviews of ORCA/Integer BASIC and the ORCA/Talking Tools. For information on

installing and using this program, refer to the "Joke-A-Rama Notes" sidebar in the review of ORCA/Integer Basic. Note that you do not have to have the ORCA/Talking Tools to run this program. However, the program will not talk if you do not have them installed.

NoDOS

This folder contains NoDOS v1.6. This folder also contains complete documentation for NoDOS v1.6 in the file **NoDOS.Docs**. This file is a plain ASCII text file, you may use EGOed to view it. NoDOS must be installed on a startup disk.

OSLibrary

(If all you want to do is *run* the programs on the GS+ Disk, forget that this folder even exists. You don't need it.) This folder contains the OSLibrary. This library is needed to recreate several of the programs on this GS+ Disk. This folder also contains documentation for OSLibrary in the file **OSLibrary.Docs**.

Problem.Form

This is the standard GS+ problem report form. If you have a problem with one of our programs, fill out this form and send it to us. This is a Teach file. You may use EGOed to view it.

Scripts

This folder contains the scripts that are used by the Installer to automate the installation of files from the GS+ Disk.

Writers.Guide

This is a Teach file that explains what you need to do in order to write reviews, articles, programs, etc. for GS+ Magazine. You may use EGOed to view it.

Please Remember...

The contents of the GS+ Disk are *not* public domain or shareware! We depend on *your* honesty to stay in business. Please do not give away copies of the GS+ Disk or any of the programs on it. If you do, we will not be able to stay in business. It really is that simple!

GS+

Icons

By Steven W. Disbrow

This time, we have only one *new* icon, done by me and our good friend Jami Lowery (yep, it took two people to do this icon). The icon is for the FGS program (see "FGS - Fractal Graphics & Such" in this issue). I originally created the icon for the old public domain versions of Fractals-GS. Jami got hold of it and gave it a slightly more distinctive appearance for whenever I finally got FGS finished. (Sorry you had to wait so long Jami!) The icon is contained in the file **FGS.Icon** which is in the **Icons** folder on your **GS+** Disk. If you use the Installer that is provided on your **GS+** Disk to install FGS, the icon will also be installed automatically.

Since the Self-Sorting Address Book stack (see "HyperActivities" in this issue) has returned in this issue, so has its nifty little icon (which was done by Noreen Ribaric). If you use the Installer on your **GS+** Disk to install the stack, the icon will automatically go along for the ride.

New Icons

The focus of this "Icons" column has always been on new *Finder* icons. However, other programs are beginning to use icons as well. So, beginning next issue, I want to begin publishing icons for use with other programs. Specifically, HyperCard IIGS and

HyperStudio. If you have a neat icon for any of these programs, send it to us. If it's an especially neat icon (like an animated HyperCard IIGS icon) we'll give you a **GS+** T-Shirt for your trouble.

That's it for this time. Start sending in those icons and don't forget to tell us your T-Shirt size! **GS+**

IMPORTANT!

Use scissors or a knife to open disk bag!
Do not attempt to pull bag away from magazine!

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 \$6.50 to:

GS+ V3N1 Disk Offer
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P.O. Box 15366
Chattanooga, TN 37415-0366

Or call us at (615) 870-4960, Monday through Friday between 9 a.m. and 6 p.m. EST, to bill it to your MasterCard or VISA.

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Autopilot v1.1

By Josef W. Wankerl

This new version of Autopilot adds a great new feature and fixes a "bug."

A Great New Feature!

So far, Autopilot is the *only* program launcher besides the Finder, to my knowledge, that supports the launching of data files! What does this mean? It means that you can add an AppleWorks GS word processor *document* to your Autopilot launch list. When you double click on it, AppleWorks GS will be launched and your document will be opened. (Note that not every application supports this feature.)

How is this done? Well, Autopilot doesn't exactly know that an AppleWorks GS word processor document is supposed to be linked to AppleWorks GS. You have to tell it that. Whenever you add (or open) a file, you now have two cases: the file is an application, or the file is a document. If the file you select is an application, Autopilot works exactly as it did before. If, however, the file you select is a document, Autopilot will prompt you with yet another dialog requesting you to select an application for that document.

The only other change is the format of the Edit dialog since there are now two cases for list items (applications and data files.) If the list item you are editing is an application, everything looks exactly the

way it did before. If the list item you are editing is a data file, the pathname text will contain the pathname of the application first followed by the pathname of the data file enclosed in brackets. (See the photo below.)

Installation

There is *not* an Installer script for Autopilot. The reason for this is that I cannot reliably determine what the current start program is on your boot disk. To install Autopilot, all you have to do is to copy the Autopilot file from the Autopilot folder on your GS+ Disk to your *:System folder (where *: is the name of your startup disk), then rename your current Start program to something else (like Finder), then rename Autopilot to Start. Unfortunately, you can't use the Finder to rename itself. Instead, you have to use some other utility, such as NoDOS (see "NoDOS v1.6" in this issue). So, to install Autopilot, follow these five steps:

- 1) Launch the Installer from your GS+ Disk and use it to install NoDOS and the Autopilot file (the Autopilot Prep script.)
- 2) Reboot your computer and run the Installer program from your GS+ Disk again.
- 3) Select NoDOS from the Apple menu

and pick the Rename option.

- 4) Rename the *:System:Start file to something else (like Finder or Wings.)
- 5) Rename the *:System:Autopilot program to Start.

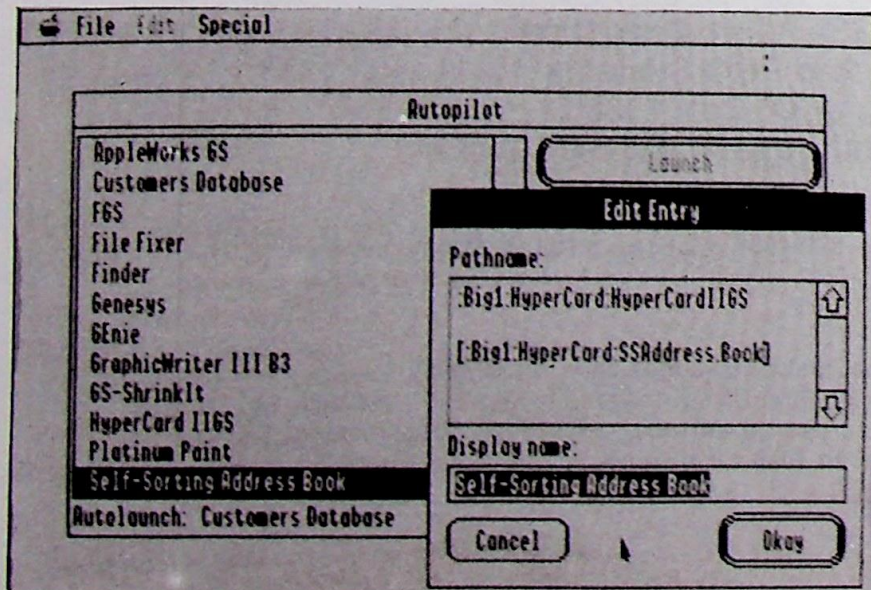
Now Autopilot will be correctly installed and the next time you boot your computer you will come up in Autopilot.

(If you have Autopilot already installed, you can use the Replace Autopilot script to install the new version of Autopilot in your system.)

That's all there is to installing the new Autopilot and using its new features. For more "techie" info, read on. If you are new to GS+ Magazine be sure to read the "What Is Autopilot?" sidebar for more information.

A "bug"???

Autopilot didn't have a real bug, so to speak, but some applications didn't like to be launched from Autopilot. Applications are not supposed to depend on prefix 0: or 8: to be set to the directory where the application is. Instead, they should use prefix 1: or 9:. Alas, sometimes you'll have a program that just wasn't written properly. Especially ProDOS 8 applications. They expected prefix 0: to be set to where they were. The old



What Is Autopilot?

Autopilot is an application that takes the place of your normal startup application (usually the Finder), and allows you to select a *new* startup application. So, if you want, you can have your IIGS boot directly into AppleWorks GS, HyperStudio or any other application you want. Autopilot also lets you run applications from a list of your most currently used applications. For complete Autopilot documentation, read the file Autopilot.Docs which is on your GS+ Disk in the Autopilot folder.

Autopilot never set prefix 0: or 8: before launching an application. So now the new Autopilot preserves prefix 0: and 8: and sets them before the application is launched. If you haven't had any problems before then you probably won't have any now. If you did have problems launching an application before, try it again with this new version and see if things work.

Storing Extra Information

To support the launching of data files, some extra information has to be stored in the Autopilot resource fork. To the prefix and data file information, I simply tacked on two extra resources. So the current resources needed for a single list item consists of:

- a rPString to hold the name displayed in the list (number is \$0000xxxx)
- a rC1OutputString to hold the pathname of the application (number is \$0000xxxx)
- a rC1OutputString to hold the prefix to the application (number is \$0001xxxx)
- a rC1OutputString to hold the pathname of the data file if there is one (number is \$0002xxxx) (if there is no data file then this resource will be absent)

... plus the entry in the rListRef resource for the list item.

If you have any trouble with Autopilot or you'd like to see new features, write in and let me know! If you have a problem, don't forget to fill out the problem report form on your GS+ Disk. Also note that Autopilot depends on the OS Library, so make sure that you have installed that if you want to change anything and reassemble. **GS+**

NoDOS v1.6

By Josef W. Wankerl

Yes, I know you thought that NoDOS is perfect and nothing else could ever be changed to improve it. But, amazingly, just that has been done!!!

Can You See It?

The only change to NoDOS is in the Info dialog. You can now change the status of the Invisibility bit. The Invisibility bit determines whether applications should show that file in a directory listing or not. For example, both Standard File and the Finder do not show files with the Invisibility bit set.

That's All.

That's the only change in this version of NoDOS. For complete documentation on NoDOS, see the file NoDOS.Docs in the folder NoDOS on your GS+ Disk.

Programmer Information

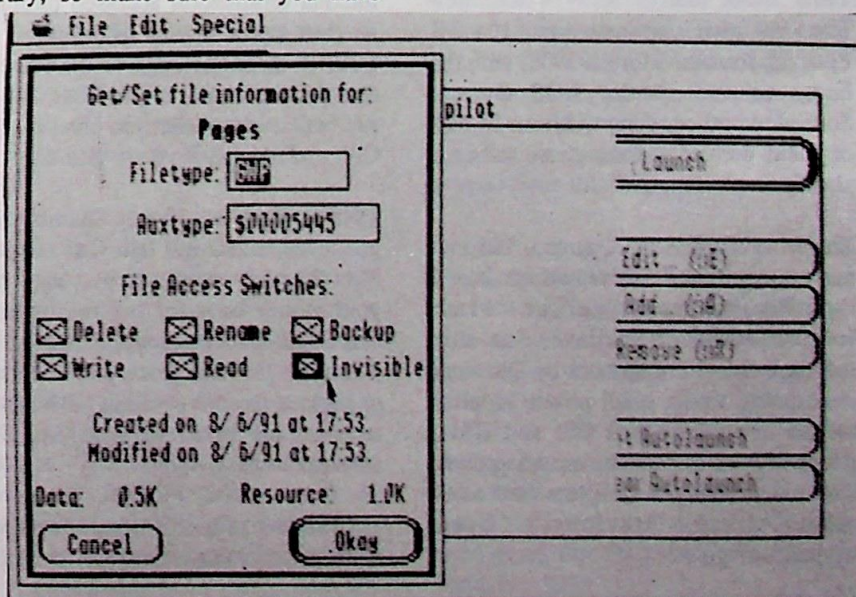
All that was required to put the Invisible bit information in the info dialog was to change a couple of resources around and add the code for another bit flag. Very simple. Three lines changed at most. Also note that NoDOS depends on the OS Library, so make sure that you have

installed that if you want to change anything and recompile.

If you are writing a program that uses Standard File you might want it to be able to show invisible files. If that is the case, you can use the SFShowInvisible call to tell Standard File to show files with the Invisible bit set. The default setting for Standard File is to not show files with the Invisible bit set. **GS+**

What Is NoDOS?

NoDOS is a New Desk Accessory (NDA) that allows you to delete, rename and get or set info on files. For example, you can use NoDOS to change the type of a file or to move a file from one folder to another on the same disk. For complete documentation on NoDOS, be sure to read the file NoDOS.Docs which is on your GS+ Disk in the NoDOS folder.



A Comparison Of Two 100 MB Hard Drives

TMS Peripherals 105 Pro Series LPS External Hard Drive

TMS Peripherals
1120 Holland Drive, Suite 16
Boca Raton, FL 33487
(800) 626-6347

Frog Systems 100E External Hard Drive

Frog Systems
4301 Oak Circle Drive #20
Boca Raton, FL 33431
(800) 654-3764

Reviewed by Greg Zimmerman

Introduction

More and more Apple IIGS users are looking at mass storage options to enhance their existing systems. Both TMS and Frog are vendors in the "low cost" hard drive market. Both companies advertise in Apple II publications (both companies advertise in *A+inCider*, TMS also advertises here in *GS+* Magazine) and market their products directly to IIGS owners, both companies sell similar products, and both companies claim to sell high quality products at very good prices.

The two hard drives which are the subject of this review are the TMS 105 LPS External Hard Drive (the "TMS" drive), and the Frog 100E External Hard Drive (the "Frog"). The purpose of this review is to evaluate both drives as to performance, price, quality, and speed, and then to compare the two drives to determine which represents the better overall value.

TMS

The TMS drive is advertised as a 105 MB External, formatted for the IIGS, with the latest version of the IIGS System Software installed, along with over 20 MB of public domain and shareware software already on the drive.

The drive contains the Quantum 105 low power requirement drive, which has a claimed access time of 11ms (milliseconds). I believe that this mechanism was brought out by Quantum in response to the small power supplies on the new Macintosh LCs and IISIs, which require drives that use less power than the ones which Quantum (and most others) had previously been manufacturing.

The TMS drive came formatted to a total of 102.7 MB, so the user does not get quite the advertised (or assumed) storage space based on the drive's name. However, this is a fairly common occurrence, hard drives are usually named based on their *unformatted* storage capacity. TMS ships the drive with a 30-inch SCSI cable, a decent manual, and some advertising stuff for everything from American Express cards to other TMS products.

The external case that houses the drive is platinum in color, metal, and is slightly smaller than the length and width of the IIGS CPU, while being about 1/3 of the IIGS CPU height. In other words, it appears that it would be a "zero footprint" drive (i.e. would fit right under) when used with a Macintosh Classic.

The TMS has a 40-watt international (auto-switching) power supply, an external push-button SCSI ID selector switch, internal termination accessed through a window on the bottom of the drive, two SCSI ports on the back of the drive (so that daisy-chaining is possible) and two AC outlets into which you can plug your CPU and monitor if you so desire.

TMS offers a 30-day money-back guarantee, and a full two-year warranty. The company says that you may have your money back for any reason in the first 30 days after your purchase; and that within the first two years, they will repair or replace the drive within 48 hours (of receiving the drive back from you) if any problem arises.

TMS also has a toll-free tech support number for its customers, and in addition

to hard drives, carries a wide range of IIGS and Macintosh hardware and software, most notably Applied Engineering, ZIP Technology, and C.V. Technologies (RamFAST SCSI Card) products, as well as Macintosh computer systems.

The price at the time of this writing (mid-September) for the TMS 105 LPS was \$529, with free Federal Express COD shipping (money order or bank check only) as one of the shipping options, if your order is over \$600. Which means to avoid a roughly \$18 second day air shipping charge, you would have to buy some other product from TMS to bring your total order up to \$600. So the delivered price of the drive itself is approximately \$547.

Frog

What's in a name? Well, I never did ask, so we'll have to let the product speak for itself.

Frog sells two 100E hard drives, which have a \$30 price difference. The drive that is being reviewed is the faster (claimed access time of 12 ms), more expensive of the two Frog choices, and it comes with a longer warranty than the slightly cheaper model. I did not test the cheaper, slower model, so I cannot confirm the differences.

Frog advertises in *A+inCider*, but the ads contain only the price of the cheaper drive, so if you call them, be prepared for a little jumping around (so to speak) from their advertised price to get to the drive which I am reviewing. The company says that all their current ads now contain the price of both drives, not just the cheaper of the two.

Although Frog advertises in Apple II publications, and solicits the business of IIGS owners, the drive does not come formatted for the Apple IIGS, but instead, comes formatted for the Macintosh! It also ships with photocopied Macintosh instructions, as well as Macintosh utility software. However, there is a one page photocopied sheet explaining (in a manner I could not get to work) the procedure for reformatting and partitioning the drive using the Apple DMA SCSI card and the utilities disk contained in the Apple DMA SCSI card package.

The drive mechanism is made by Rodime. It formatted out to 103.2 MB, which was more space than the TMS drive. The case is identical to the TMS case, except that this case has a Frog sticker on the front instead of a TMS sticker. So you do get the two AC outlets, SCSI ID external push-button switching, internal termination (with removable window access), two SCSI ports, and an international auto-switching 40-watt power supply. The SCSI cable that comes with the drive is 18 inches long.

The guarantees are the same as TMS, 30-day money-back if not satisfied, and, within 2 years, 48-hour repair or replacement for any problem. They also have a toll-free technical support number.

The Frog drive is \$389 with an additional \$15 for second day air shipping bringing the total to \$404.

Who Won The Race?

Before we even get to the finish line, there are a lot of things about this "race" that need addressing and which don't have fast and easy answers.

For example, warranties are only as good as the companies that stand behind them. Each of these drives has a good warranty, but will the companies be around to service that warranty? The drive mechanisms themselves; how long will they last? Are they high quality, or junk? Are they shielded properly so as to reduce electrical interference? Many drive manufacturers and vendors advertise the "MTBF" of their drives, or the Mean-Time Between Failures, or in other words, how

long will the thing probably last? No one really knows the answers to all these questions, and of course a lot has to do with the future success of the drive manufacturer (Quantum and Rodime), the future success of the vendor (TMS and Frog), and the manner in which you use and abuse the equipment you buy.

So, everything you read from here on in is tempered by the unwritten qualification, "all things being equal." I don't know how long these drives will last, or how long the sellers will last, or for that matter, how long you will keep reading this review. But, it does appear from both examination and extensive use, that both drives are of relatively high quality. It does seem that both manufacturers are going to be around for a while, and it does appear that both vendors are doing well. Of course, all that can change tomorrow or, for that matter, may have already changed yesterday.

One more thing is that I have done business with both vendors. I have bought one drive from TMS, one from Frog (the drives used for this review), and have been responsible for 12 (twelve) additional drives being sold by the company I will recommend to you at the end of this review. I received no special treatment due to my relationship with this magazine, and I paid regular prices just like anybody else. I just thought I'd mention that.

One thing to keep in mind is that the hard drive market is a fast-changing market, and it is possible that prices will be even lower than those quoted here by the time this article appears in print.

Also, for those of you considering a hard drive purchase that are not familiar with all the areas which you need to address, any hard drive for the IIGS needs a controller card which goes into an empty slot, which connects to the drive, and which "controls" the drive's operation. Some drives (not these two) come packaged with controller cards, most notably the internal drives (such as Applied Engineering's Vulcan hard drive). The two most popular controller cards are the Apple DMA SCSI card, and the

RamFAST SCSI card. The Apple card is around \$100, and the RamFAST is around \$180. (These are typical mail order prices.) Either way, the price of the card is in addition to the price of the drive you buy, unless you are purchasing a package which includes a card with the drive.

Statistics

The following information summarizes the tests that I did on the two drives while each was hooked up to a ROM 01 IIGS with a 7 MHz TransWarp and an Apple DMA SCSI card. Both drives were formatted at 1:1 interleaves.

Boot to the Finder from power on: Each drive had a bare System Software v5.0.4 installed. The TMS drive booted to the Finder in approximately 26 seconds, while the Frog did it in 27 seconds. This test was pretty much a toss-up.

Verifying partitions: I did extensive testing verifying partitions of different sizes. The TMS drive averaged approximately 550 kilobytes (a little over half a MB) per second, or in plain English, it took less than a minute to verify a 32 MB partition. The Frog verified approximately 484 kilobytes per second, which is around 11% slower than the TMS. In this test, the TMS was the clear winner in speed.

Duplicating a file: I used each drive to duplicate a 762K system folder from System Software v5.0.4. The TMS drive did it in 40 seconds. The Frog duplicated the folder in 38 seconds. This is more of a "real world" test than the verify test, and the Frog won by a hair each of several times that I repeated the test.

Rebooting to the Finder desktop: From the black shutdown screen, which says that you may safely power off the IIGS, I rebooted using each drive with the bare System Software v5.0.4 installed on the boot partition. The TMS got to the cursor on the Finder desktop in 19 seconds on average, and the Frog got there in 21 seconds. Again, this is a real world type test, and while the results were close, the TMS outdid the Frog by just under 10%.

Launching AppleWorks GS from the Finder. Another real world test, with the TMS doing it in approximately 13 seconds, and the Frog averaging just over 11 seconds. This was another close race, with the Frog edging out the TMS drive.

DiskTimer GS v2.0 (the great freeware utility from Joe Jaworski): I timed each drive several times with DiskTimer GS v2.0, which gives a comprehensive view of the speed of each drive. DiskTimer GS v2.0 measures speed in four different ways; Read, Multi-block read, Seek, and Adapt. Read does a sequential read of 512-byte blocks (to see how fast consecutive data is transferred) a test which is most affected by both the interleave of the drive, and the data transfer rate of the mechanism. Multi-block read does 16 sequential 2000 block reads. Seek, measures the time it takes the read/write heads of the drive to seek across 10 MB of data, and Adapt does repeated reads of a single block. The times in seconds for each drive are shown in Figure 1.

As you can see, the TMS drive was faster in three of the four categories, with the Multi-Block read category coming out dead even.

Conclusions

Both these drives are pretty fast performers. And by the way, I am told, (though I have not tested it) that using the RamFAST SCSI card would result in significantly faster performance than the already quick levels achieved using the Apple DMA SCSI card.

The TMS and the Frog look exactly alike. They perform almost exactly alike. They are both sold by companies from the same city (I know this is not important

information, but it seemed so coincidental that I had to include it), and they both contain mechanisms from manufacturers that have been around for a while. The Frog does not come formatted for the IIGS, and the TMS does contain software (both shareware and public domain) which saves a lot of downloading time, and/or fees from the public domain libraries if any of the stuff is useful to you. (A little aside here is that the TMS collection of software is put together by the librarian for one of the greatest Apple IIGS user groups in the country, the Arizona Apple Users Group in Phoenix, Arizona. The group's librarian is Rick Krueger.)

Recommendations

Ah, to the meat of the matter. When one of the local schools here asked my opinion as to where to purchase 12 (twelve) hard drives in the 100 MB range for one of their computer labs, the request was kind of timely, because I had just gotten done reviewing the two drives for this article. Mentally, I had given the TMS drive a very slight edge in the speed/quality/intangible/whatever department, not really based on the tests I had done, but because of the extensive advertising they had done in this magazine, and also because they seemed to have good support for the IIGS market, considering both the other items they sell, and the little things in the back of my mind like their on-line support area on America Online. The fact that they quote the publisher (editor, mailman, and bottle washer) of this magazine in their advertisements saying how great their products are also carried great weight (again, in the back of my mind) because I have great respect for Steve's opinions, and also because he actually pays me to write this stuff, so I can earn money while

I'm enjoying myself playing with computers. So, it was a close call (in making a recommendation to the local school), but in the end, I recommended Frog's drive as the better "buy" of the two choices. And I am making the same recommendation to you.

Simply put, while both drives are good buys, the Frog drive is almost \$150 cheaper (shipping included). This is 26% less than the TMS drive, and even if the TMS drive is a slightly better performer (I rate them close to even in real life use), it cannot be judged to be 26% better. So the purchase of the Frog drive is the clear choice on a price/performance basis.

Please keep in mind that TMS in particular, but to a good degree, both of these companies, have gone out of their way to solicit your Apple IIGS related business. Both have great support over the phone (with TMS maintaining a support area on America Online), and both drives are good quality at good prices.

They look the same (if it looks like a duck), and they perform almost identically (it walks like a duck) . . . but only time (and breakdowns and bankruptcies) will tell if both are ducks. For now, with the information that is available today, the drives appear to be of equal quality and performance. Therefore, at a savings of approximately \$143, and in spite of the little bit of work that you need to do to format the Frog drive, and even considering its lack of software and its inadequate documentation, the Frog drive is clearly the better buy. **GS+**

Figure 1 - DiskTimer GS Results

	TMS	Frog
Read	29	35
Multi-block read	21	21
Seek	17	47
Adapt	17	26

Nite Owl Slide-On Battery

Retail price:

Battery for ROM 01 IIGS: \$14.95

Battery for ROM 03 IIGS: \$10.00
(part #TL-2150/S)

Nite Owl Productions
Slide-On Battery Dept.
5764 Lamar Ave.
Mission, KS 66202-2646
(913) 362-9898

Reviewed by Dave Adams

Ack! Who's Been In My Control Panel?

Friends and neighbors, there will come a day which you cannot avoid. It is a day of reckoning which no IIGS owner can escape. There will come a day when you sit down in front of your IIGS (Ole Reliable) and it will not work. You will find that your slot settings are changed. Every time you reboot your slot settings will change. You will stare at a pink screen with green letters and a white border. No, it's not the Twilight Zone, it's not the death of your computer, it's not even something to worry about. The best part of these horrors is that you can

blame Apple for them. You've run into the dreaded, heinous, planned obsolescence syndrome.

Did You Check The Battery?

Despite that gloomy opening there is a ray of hope for you. You can prepare yourself for that day. But for those of you who have not figured out what I am ranting about, let me explain. Listen as I will tell a tale that will rival the deaths of kings . . . well, maybe. It seems that when the original Apple IIGS was designed a decision was made to solder a lithium battery directly to the motherboard. This battery is used to retain the settings that you select in the Control Panel after you turn your IIGS off. Later models of the IIGS (ROM 03) were a bit smarter in that the battery was placed in a special battery holder. But it was still the same lithium battery. Under typical use, these batteries only last about three to four years. After years of faithful service, they will finally give out. When they do you will notice those symptoms mentioned in the beginning of this tirade. But enough rambling. We're here to discuss the Slide-On replacement lithium battery from Nite Owl productions.

Some Assembly Required

The Slide-On for ROM 01 machines is really quite simple to install. The instructions are printed on the package and are quite thorough. The entire process takes about 5 or 10 minutes. All you have to do is cut the wire leads to the old battery (I used fingernail clippers so you don't have to have any special tools) and slide on the new replacement. Installation on a ROM 03 is even simpler. Just pop the old battery out of its socket and pop in the replacement. Wow, really tough, eh? (Your local Apple dealer might charge \$40 or more for the same task. [I once heard of a gentleman that was charged \$150 to have the battery replaced in his ROM 01 machine! - Ed.]) Boot the computer, reset your Control Panel settings [our Battery Brain CDev—last featured in *GS+ V2.N3*—can help with this - the king o' plugs.], and your IIGS is as good as new.

Bottom Line

The only problem with the Slide-On is that, like the original battery, it won't last forever. Other than that, the Slide-On is great. Buy it. There is no getting around the fact that you are going to need it someday. Be prepared. **GS+**

ORCA/Integer BASIC

By Mike Westerfield

Retail price: \$50.00

Not copy protected.

Requires 3.5-inch disk drive, 1.25 MB of RAM, and the ORCA or APW Shell

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

Reviewed by Joe Wankerl

What? Did you read that correctly? *Integer BASIC*? Yes, you did!!! *Integer BASIC* first appeared on the original Apple II. Later, when the Autostart ROMs came out, Applesoft BASIC was substituted for *Integer BASIC* as the built-in language. Every single Apple II computer has BASIC built-in. Now you can relive those memories of the original

II! Now you can write your very own programs on the Apple IIGS using that ancient language that everybody loves. And, when you buy *ORCA/Integer BASIC*, you get more than just the compiler, you also get the compiler source code!

Conversion

If you happen to have any old *Integer BASIC* programs lying around on Apple DOS 3.3 or 3.2 disks, you might feel like converting them to run on your IIGS in full native mode. This process is made easier for you by a convert utility. The convert utility takes a tokenized *Integer BASIC* file and converts it into a source code file that can be read by the *ORCA/Integer BASIC* compiler. There is, however, much more you will have to do to your program besides running the convert utility on it. First, you have to take out all the weird calls, peeks, and pokes in the program. They aren't the same when compiled. For your

convenience, the *Integer BASIC* compiler manual lists some frequently used calls, peeks, and pokes and what their equivalents are with the *Integer BASIC* compiler. Also, if the program used any DOS calls then you'll have to rewrite them for *GS/OS*.

Speaking of GS/OS...

If you want your *Integer BASIC* program to make *GS/OS* calls or *Toolbox* calls then you'll have to write some external routine in C, Pascal, or Assembly to do the work. *Integer BASIC* does not have any provisions to access *GS/OS* or the *Toolbox*.

The Compiler

If you don't like *Integer BASIC*, you might still want to get your hands on the *ORCA/Integer BASIC* compiler just for the source code to the compiler. The compiler was written using *ORCA/Pascal*, and the accompanying libraries were

written using ORCA/M. If you ever thought about writing a compiler for the IGS, then this package is a *must* for you to have.

The Manual

The manual was written with compiler writers in mind. The first section briefly describes the syntax of Integer BASIC and then the rest of the manual is devoted to explaining exactly how each part of the compiler works. You'll get an in-depth view of the parser, the syntactical analyzer, and the code generator. You'll get hints and tips on how to make the compiler better. You'll see how a large project fits together. Learning by example is my favorite way to learn, so the compiler source code was *very* welcome in the Integer BASIC package. I might even want to try my hand at writing some kind of weird compiler . . .

Writing A BASIC Program

To get a feel for how the Integer BASIC compiler works, I decided to write a program and compile it. To tell the truth, it became more of an exercise in writing assembly language subroutines than it did in writing Integer BASIC code. Perhaps the most limiting factor on the Integer BASIC compiler is that it *requires* line numbers. That means that each line of source code must be prefixed by a line number. Also, the line numbers must be sequential. No blank lines are allowed. This makes the code very unreadable. However, the manual gives a very quick fix to this requirement—simply change the compiler! For all my GS/OS calls and Toolbox calls I had to write subroutines in assembly language. I could have written

them in Pascal or C, but assembly was readily available and I wanted as much control over the subroutines as possible. For an example of what the Integer BASIC compiler can do (with a *lot* of help from assembly language), try the **Joke.A.Rama** program on your GS+ Disk.

GOTCHA!!!

In writing the **Joke.A.Rama** program, I ran across a rather nasty feature of ORCA/Integer BASIC. Strings are named in the normal BASIC manner of the variable name followed by a dollar sign (i.e. A\$ is a string variable.) With all of the other languages available (C, Assembly, and Pascal) the '\$' is not a valid character in a label or variable name. This means that there is *absolutely no way* to assign string variables outside of Integer BASIC! That's not very nice. Your external procedures can play with BASIC's integer variables just fine, you just can't play with the strings.

So, in order to write my joke program, I had to modify the compiler. If you want to make changes and recompile, you'll need to make the changes to your compiler, too. The changes are:

In the **Parser.PAS** file, in the **FindSymbol** function there is a sub-function called **CreateSymbol**. In this sub-function, there is a statement:

```
if name[length(name)] = '$'
then sym^.kind := str
else sym^.kind := int;
```

Simply change the '\$' to a '~'. Whenever the parser runs into a string variable that is

undefined, it will put a new entry in the symbol table. The symbol can have one of two types: string or integer. To flag the new symbol as a string, the last character is checked and if it is a '\$' then the symbol must be a string. Since the '\$' is an illegal character, I changed the symbol to be a '~' instead of a '\$'.

In the **Scanner.PAS** file, in the **NextToken** procedure, there is a statement:

```
token.name[len] := ch;
```

Right before this statement, put in the statement:

```
if ch = '$' then ch := '~';
```

This translates the '\$' at the end of a string variable identifier into a '~'. This lets you write your BASIC programs using string variables using the '\$' to identify them, but when the compiler starts to compile, it substitutes a '~' for the '\$' on all string identifiers.

String Me Along . . .

While the manual is great at describing how the compiler works, it falls short in describing the exact specifications of Integer BASIC. For example, the chapter that talks about strings (I just had all kinds of problems with strings!) says they are internally c-strings (zero terminated). Also, there is a section that talks about dimensioning variables. But *nowhere* in the manual does it say that you *must* dimension your string variables before you use them. When you use a string variable in your program without dimensioning it,

Joke-A-Rama Notes

Note that there is not an Installer script for **Joke.A.Rama**. This is because the program depends on an entire directory of jokes (in the **Jokes** folder) and to write a script that would copy each one would be silly. So, instead, just copy the **Joke.A.Rama** file and the entire **Jokes** folder using some file copy program, such as the Finder. The **Jokes** folder must appear in the same directory as the **Joke.A.Rama** application. Also note that the assembly language portion of **Joke.A.Rama** depends on the OS Library (which is also on this GS+ Disk), so make sure that you have installed that if you want to change anything and reassemble.

The **Joke-A-Rama** program looks in the **Jokes** folder for all the jokes it will tell. Each joke is in a text file that can be created with any word processor—I used EGOed. To let **Joke-A-Rama** know that the text file contains a joke instead of other textual information, the first line in the joke file contains the string:

```
Joke-A-Rama
```

. . . and that string must be terminated with a return. Each line thereafter should be eighty characters or less (so it will show up nicely on an 80 column screen) and should end with a return character. If you have several related jokes, you can place them all in the same file—just put another "Joke-A-Rama" line between the jokes.

the compiler gives a dimension of zero to that variable! So...

```
10 A$ = "X"  
20 B$ = "Y"  
30 A$ = "ZZZ"  
40 PRINT A$: PRINT B$
```

would print "ZZZ" and "ZZ". Not very nice. Also, those last two 'Z' characters (and the terminating zero) will overflow into memory! This isn't very nice. However, the manual *does* state that Integer BASIC doesn't check for dimension overflows so the programmer has to be sure that he does things correctly.

Is It Worth It?

It depends on what you want to do. If you want to write Integer BASIC desktop programs, no. If you want to transfer old Integer BASIC programs to a 16-bit compiled environment, maybe. If you want to learn how compilers work with a great example, then, by all means, yes, yes, yes! **GS+**

ORCA/Talking Tools

By Barbara Allred

Retail price: \$60.00

Typical mail-order price: \$39.95

Not copy protected

Requires 3.5-inch disk drive, 1 MB of RAM

The Byte Works, Inc.

4700 Irving Blvd. N.W., Suite 207

Albuquerque, NM 87114

(505) 898-8183

Reviewed by Joe Wankerl

The ORCA/Talking Tools are a collection of four tool sets for your Apple IIGS that empower it to generate speech through the Ensoniq sound chip.

When you think of computer generated speech, you might think of a classic monotone metallic voice. The Talking Tools is a rather sophisticated piece of software that allows the speech to speed up, slow down, get louder or softer, and even change pitch. Used correctly, these control parameters can give inflection to the voice and will generate some very realistic speech. However, it still sounds a bit "fake."

Manual

The Talking Tools are mainly targeted at programmers, not end users. The manual is set up to focus on how to write programs that use the Talking Tools. The manual gives a brief introduction to the tools, tells how the computer generates speech, and gives a couple of sample programs (in C, Pascal, and Assembly) that use the Talking Tools. There is also a nice reference section that gives all of the Talking Tools tool set calls and their parameters.

The Packaged Programs

There are two programs that come with the Talking Tools package: **Speak** and **SpeakIt**. The **Speak** program is a shell utility (EXE file) that lets you type in text or phonetics a line at a time and it will speak what you type.

SpeakIt is a desktop program that lets you create and load in text files for the computer to generate speech from. It demonstrates all the functions of the Talking Tools by allowing you to enter plain text or phonetic strings. If all you need is some kind of program that will let you load in text files and have your computer speak them, then the **SpeakIt** program is what you seek.

The Source Code

The source code for both **Speak** and **SpeakIt** is provided in Assembly, C, and Pascal. It demonstrates just about every single call that you would ever want to make with the Talking Tools. The source code is commented fairly well and the manual goes over the Pascal source code for the **SpeakIt** program in detail. I like learning by example, so the inclusion of source code made my day.

How Does It Work?

The theory of generating speech is rather simple. First, you have a set of rules that converts an English phrase into a phonetic phrase. In English, there are a limited number of sounds that the human voice box can make—and when combined correctly they form words. A phonetic phrase is a string of those basic sounds. Once the phonetic phrase is formed, the computer parses the phonetic phrase and generates each basic sound using the Ensoniq sound chip. The end result is speech.

Programming Speech

Using the Talking Tools in one of your

own programs is simpler than you may expect. First, you start up all four of the tool sets. Then, whenever you want your program to say something, you simply make the **Say** call. The **Say** call takes a pointer to a Pascal type string and makes the computer say the string.

Of course there are some more advanced functions you can perform. You can build a dictionary of rules that tells the Talking Tools how to say certain words that break the Talking Tools' English to phonetic translation rules. You can also have the tools say a phonetic string instead of an English string. A phonetic string tells the Talking Tools *exactly* how to say things. This bypasses the English to phonetics translation phase.

Licensing

The Talking Tools were first developed by First Byte, Inc. during the "old" days of ProDOS 16. The Byte Works obtained a license to sell the Talking Tools and added another tool set to the package to clean up the old ProDOS 16 calls to make GS/OS calls instead. Because of this, if you want to include the Talking Tools with one of your programs you must obtain a license from First Byte. (Normally, the Byte Works allows you to freely distribute programs that you have created with their products, as long as you post a copyright notice and send them a copy of the program.) What all this means is that you have two options when you decide to use the Talking Tools in one of your programs: license the tools from First Byte (a hassle), or require that the end user purchase a copy of the Talking Tools from the Byte Works (not very cost effective). Neither option is very exciting.

NO! NO! NO!

When First Byte made the tools, they made

them as System tool sets. This, by Apple's rules, is a no-no. They should be User tool sets, instead. By making the Talking Tools use System tool sets, some tool set numbers had to be "stolen." This means that if Apple ever creates tool sets with numbers 50 to 53 that you won't be able to use the Talking Tools. (Apple is currently up to tool set number 33 with System Software v5.0.4—it won't be too much longer before things start to conflict.) The last time I talked to the Byte Works about the Talking Tools they were trying to get the source code to the first three tool sets in order to convert them to User tool set format. Hopefully they'll be able to do this and then also be able to distribute all the tools with the typical Byte Works agreement of allowing you to distribute the Talking Tools with your programs by just posting a copyright notice.

The Tool Sets

You might be thinking to yourself, "Why four tool sets? Why not just one?" Well... I don't know. The Byte Works tool set, number 53 (the "Speech" tool set),

simply has startup and shutdown calls. It patches out the other tool sets so that they make GS/OS calls instead of ProDOS 16 calls. If the Byte Works ever get their hands on the source code for the Talking Tools, this fourth tool set might disappear. Tool set number 52 (the "Parser" tool set) contains the Say tool call (translates speech to phonetics and makes the Ensoniq chip play the speech), the Parse tool call (translates speech to phonetics but doesn't make any sound), and all the dictionary calls. Tool set number 51 (the "Female Speech" tool set) has one call—it takes a phonetic string and makes the Ensoniq chip play the speech using a female voice. Tool set number 50 (the "Male Speech" tool set) has only one call as well—it says a phonetic string using a male voice. I really don't know what the insides of all these tool sets look like, but I'm pretty sure that the three First Byte tool sets could be condensed into one generic tool set.

For an example of the Talking Tools in action, try the **Joke.A.Rama** program on

your **GS+** Disk. For more information on the program, see the "Joke-A-Rama Notes" section in the review of "ORCA/Integer BASIC" elsewhere in this issue. Your computer won't talk to you unless you have the Talking Tools installed, but you can get an idea of what is involved in writing a program to take advantage of the Talking Tools. Just look in the **Joke.ASM** source file at the **StartUp**, **ShutDown**, and **SayA** routines.

In all, I think the ORCA/Talking Tools product is fairly nice. However, the drawbacks of System tool sets and the horrid licensing agreement setup tends to make me frown upon the product. I don't see the **SpeakIt** program alone justifying the \$60 price tag, either. I can make the Talking Tools crash the system fairly frequently when using the **SpeakIt** program (just load a large text file and make the computer try to speak it.) But, if you're even slightly interested in computer generated speech and incorporating it into your own programs, the ORCA/Talking Tools would be a wise investment. **GS+**

GravenStein Apple IIGs User's Group

P.O. Box 751454

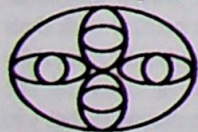
Petaluma, CA. 94975-1454

GSAUG



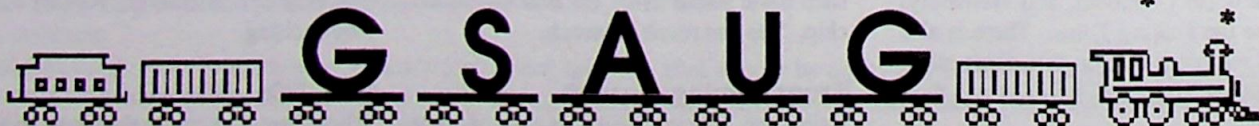
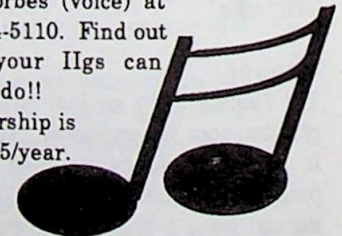
Serving the Apple IIGS User with Information & Education

GravenStein Apple is one of the fastest growing IIGs clubs in the country, and out of the country. Members are across the United States, with memberships in France, Japan, and Australia. With over 200 MEGs of Public Domain IIGs software, the club claims one of the largest selections for all members. All for only \$3 a disk! The club's newsletter rivals most MAC newsletters with



articles of interest for both the new and experienced IIGs user. Currently topics in the columns are on the use of AWGS and Encapsulated Post Script Graphics. (Yes, the IIGs prints Post Script Graphics using AWGS!) Terrific hardware deals for members too. We offer OctoRam memory boards with 2 MEGs of memory for \$120.00 With a BBS with over 80 MEGs of software, just dial us up at 707-224-5110 and give us a call. Find out for yourself and ask for a free

newsletter. Using your modem, call our BBS and leave E-Mail for Big Russ. You're on American Online? Leave E-Mail for Big Russ. No modem? Call Don Forbes (voice) at 707-224-5110. Find out what your IIGs can really do!! Membership is only \$25/year.



Storybook Weaver: World Of Adventure

By Patricia Korn, Brian S. Neese, Dee Dee Roedel and Jean Sharp

Retail price: \$59

Copy-protected

Requires 1 MB RAM and two 3.5-inch drives or one 3.5-inch drive and a hard disk.

Minnesota Educational Computing Corporation (MECC)
3490 Lexington Avenue N.
St. Paul, MN 55126
(800) 685-6322

Reviewed by Greg Zimmerman

"Having imagination, it takes you an hour to write a paragraph that, if you were unimaginative, would take you only a minute. Or you might not write the paragraph at all."

Franklin P. Adams, "Half a Loaf," 1927

Storybook Weaver: World of Adventure by MECC is a young children's writing program that is intended to help children to capture their minds wanderings, and ease the conversion of these thoughts and imaginations into the written word.

The Details

Storybook Weaver: World of Adventure comes on two copy-protected 800K disks (with an added set for backup), along with an extensive 120-page instructional guide, which explains clearly and concisely every feature of the program.

It is System Software v5.0.4 compatible, will work properly on either a ROM 01 or ROM 03 IIGS, and can be run from a hard drive if you have the original program disk in an external drive for the "Are you a thief?" check.

The program is recommended by MECC for grade levels K through 6.

The manual states that the program requires two 800K drives, but it ran fine from a hard drive with one 3.5-inch drive available for the copy-protection check.

The program offers extensive help from the pull-down Apple menu, and also contains the MECC Key Caps desk accessory, and a desk accessory named Disk Accessory, which allows users to initialize and eject disks, as well as delete, rename, and get info on files contained on any online volume.

MECC offers a toll-free number and continued support for the Apple IIGS market. Storybook Weaver: World of Adventure is one of several of the IIGS-specific offerings from MECC.

What It Does And How It Does It

Storybook Weaver: World of Adventure provides an easy environment for the creation of stories by young children.

The program begins with a simplified menu selection screen containing five main choices in the center of the monitor, in addition to the pull-down menus located where you would expect to find them. The main choices are to start a story, finish a story, print a story, read a story, or to quit.

To start a story, the child steps through a simplified process wherein a title, author, and short description are entered on the title page following selections of those items from buttons located on the left of the screen. Text may be entered in color, and the page may be trimmed by selecting from among many pre-made borders included with the program. While the text

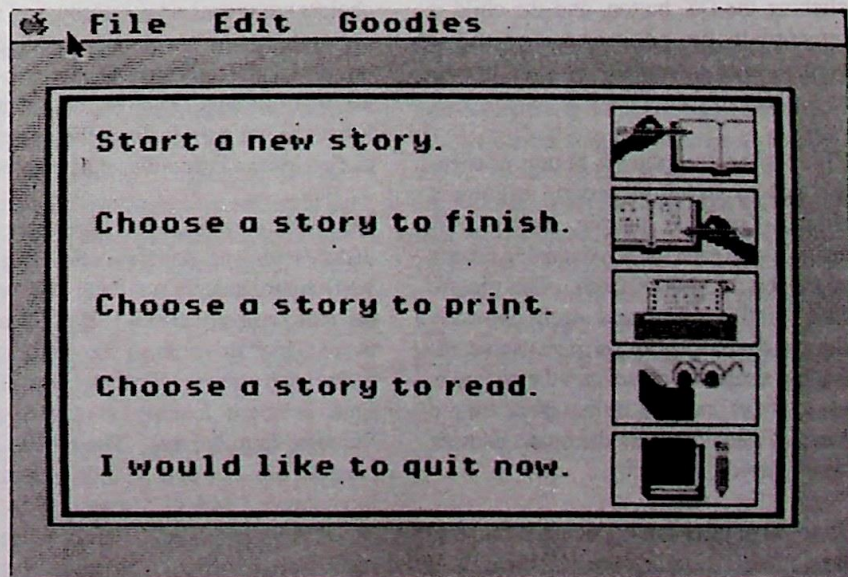
for each item is centered and positioned on the page for the child, the program also offers some of the features of more advanced word processors for users that want to change things around, such as the ability to move and resize each item on the screen, and also for editing and changing the contents of each item.

After completion of the title page, the child proceeds to the next page by clicking on an arrow (button) located on the lower right of the screen. The program then offers a choice among two possible layouts for the next page, either an all text selection, or part text and part graphic.

The part text/part graphic page allows either two or four lines of text depending on font size, while the all text page allows either nine or seventeen lines of text. The font is chosen from the pull-down menus, with the choices being "large" or "small." Additional items that may be selected from among the pull-down menus include setting the page choice (either the text or part text/part graphic page), and choosing from among printing formats.

The part text/part graphics page has five areas for the child to work in. There is a simplified tool palette, a color palette, story and picture windows, and the area with the page turning arrows at the bottom of the screen.

The tool palette has eight button choices that allow the child to select scenery,



objects, do re-sizing of objects, flip and trash objects, spell the names of selected objects, and to stop the program.

The color palette has 24 color choices that the child can use to color objects. The story and picture windows are where the (you guessed it) go, and the fifth area, the page turning arrows, is self explanatory.

Creating a page would go something like this:

The child selects the part text/part graphics page when the two choices are presented after leaving the title page by clicking on the turn the page arrow. Up pop the five work areas. Clicking on the scenery button, color choices are presented from amongst which the child may choose the color of the top of the picture area, and the bottom of the picture area. A "scene" button also appears, allowing the child to select from amongst pre-made scenes of everything from the sky to a shoreline. Both the color and the scenery choices are made from button-like intuitive selection areas, and all scenes may be selected as day or night scenes.

All selections made in the scenery section are immediately shown in the picture area of the screen, so that the child can cycle through all the choices, and make changes in scenery, color, or day and night until he/she is satisfied with the results.

Exiting the scenery area is as simple as clicking the OK button, and the child is returned to the prior screen, with the picture area intact and containing the newly selected items.

Clicking on the objects button changes the screen to eight groups of object choices (such as people, animals, or nature), with each group containing dozens of objects to choose from. The picture area is still intact, and each object is shown to the child as it is selected. Placing a selected object into the picture is as simple as dragging it into place from a preview window where the object choices are displayed for viewing.

Up to 50 objects can be included on each page.

Returning to the prior screen allows the child to make any object larger or smaller, and to do some group re-sizing as well as doing an instant return of any object to its original size prior to re-sizing. Also, objects can be moved around, and dragged into the trash for elimination from the picture.

Text is entered into the text area underneath the picture in the usual IIGS word processing fashion, with the program supporting color text and word wrap. A really nice feature of the text area is that while the child is writing, if he/she wants to include the name of any of the pictured objects in the story, the child merely has to click on the object, then on the spell button, and the name of the object will insert itself at the current location of the cursor in the text area for inclusion in the story.

As the child's story grows (and I've heard and seen some long ones), story pages can be copied, inserted, swapped, and deleted.

The program supports color printing on the ImageWriter II so that children can print out their "storybooks."

Good? Bad? Well?

I like this program. It takes all the of selections that a young child could make, and organizes them in a simple and easy-to-use manner. Yet it is not limited to the most simplistic features found in many young children's writing programs. The choices are organized colorfully, and most importantly, in an easy-to-understand, intuitive format, that even many five- and six-year-old children will find a snap to learn, and a breeze to follow (getting carried away a little with the adjectives).

Yes, it is slow loading, taking the two disks (with one double-click along the way) approximately a minute and twenty seconds on a stock ROM 03 IIGS using two 3.5-inch drives to get the child to the main menu screen. Of course most of this time is spent loading in the System Software from the disk. The time to load from a TMS 105 LPS hard drive attached to an Apple DMA SCSI card, on a ROM 01 IIGS with a 7 MHz TransWarp GS installed, booting from the System

Software v5.0.4 Finder, was only 13 seconds.

Another complaint I have is the copy protection, which is somewhat mitigated by the inclusion of back up copies with the software. Of course, it is a pain to drag out either of the included program disks for the disk check every time the program is run from the hard drive, and I have not had the time to examine the program more closely with an eye towards eliminating this irritant.

The last problem I have with the program is not with the program itself, but with the Disk Accessory NDA that comes as part of the package. There's something wrong with this NDA in that it failed to recognize many times when disks were no longer in the drives. The NDA many times insisted that disks that were ejected were still there, and then refused to recognize newly inserted disks as having a different name and contents, even after I chose the scan disks option that it has available.

These problems are minor compared to the quality of the software, however, and do not significantly diminish the effectiveness of the program.

Conclusion

Storybook Weaver: World of Adventure is a very good program for young children. It makes the combination of text and graphics an easy and enjoyable task for children as young as kindergarten age, and allows them to spend their time creatively in effective expression with a minimum of training, experience, or frustration.

Storybook Weaver: World of Adventure stimulates and encourages creativity and accomplishment in young children. I highly recommend it. **GS+**

HyperBole

By King's Gambit

Retail price:

\$42 for one year (6 issues)

\$81 for two years (12 issues)

\$117 for three years (18 issues)

Not copy protected

Requires 1MB RAM, System Software v5.0.2 or later and HyperStudio Run-Time Module (included).

Resource Central

P. O. Box 11250

Overland Park, KS 66207

(913) 469-6502

Reviewed by Dave Adams

What The Heck Is That?

Wow. HyperBole is definitely something different from the average IIGS offerings. HyperBole is a literature magazine (I use magazine loosely here for each issue comes on two 3.5-inch disks) that uses HyperStudio as the medium for the message. That unique fact about HyperBole poses many interesting questions. How are we to judge this effort? Should this be hailed as one of the first uses of Hypermedia as a commercial venture that radically changes the way we gather and interpret information? Or is this merely a new literary magazine that latched onto a gimmick to promote sales? Are we to judge this based upon the technical aspects of HyperStudio stack design or upon the subjective aspects of literature? The very aspect that sets HyperBole apart from other magazines confuses how we are to evaluate the magazine.

As Hypermedia

HyperBole is an excellent example of how HyperStudio can be used in innovative ways. The stacks are well designed and integrate the latest External Commands. Each issue incorporates a wealth of high quality graphics, in both 320 and 640 mode. Graphics and sounds are well coordinated.

A special serial that runs in each issue, "The Madness of Roland," contains background SoundSmith songs that

greatly enhance the story. "The Madness of Roland" should be singled out as a superior quality stack. The story concerns events in the life of Roland (the mythical hero of the medieval French epic "The Song of Roland"). The story is told from the point of view of five different people. Each person has their own song. Each screen with their point of view contains a graphic relating to that story and a text selection that complements the story. The different elements of "The Madness of Roland" combine to create a whole that is greater than the sum of the parts.

Other features range from simple stacks to stacks that are cleverly designed and significantly enhance the literature they accompany. HyperBole is an excellent place to see new ideas for stack design. For serious HyperStudio users it can be an inspiration.

As Literature

This area is much harder to evaluate. I do not feel that I am sufficiently qualified to judge the literature in HyperBole by serious academic standards. The best I can do is offer what an average well-read man on the street thinks about the literature. Each issue of HyperBole is broken down into various departments. These departments are: Features, Columns, Poetry, Gallery, and Information.

The Features are the main articles of each issue. The quality of the features ranges from fair to great. Some are well written and highly engaging, while others make up for their weaknesses by using creative stack design.

The Columns are just that: editorial pieces and recurring features. One of the more interesting columns is the "HyperQuote." A quote is presented in the issue for the readers to respond to for the next issue. The best responses are then published in the next issue and a new quote is presented. The Columns are interesting but, overall, I found them to be my least favorite part of HyperBole.

The Poetry section is fairly good but the shorter poems really do not lend themselves to Hypermedia. You can only do so much with a six line poem.

The Gallery section is generally a very good selection of graphics. I find this area to be one of the strongest areas of HyperBole.

The Information area is simply subscription and publishing information.

Adults Only

Now, I'll never claim to be a saint, but some features and columns in HyperBole could be considered offensive by some. There have been a couple of pieces that seem to be nothing more than a collection of cuss words and sexual terms and descriptions that I felt were of very little literary value. Please keep in mind that this is a *personal opinion* and you may see this material as having some worth. However, I think I am on safe ground in saying that this is definitely a magazine for adults.

Putting It All Together

HyperBole has many features that make it an excellent buy. "The Madness of Roland" and "The Gallery" are worth the money. They take advantage of the HyperStudio environment and are truly pleasurable to view. Other areas are less attractive and could be considered dull. Basically HyperBole is a mix of good and bad. Some aspects of HyperBole push HyperStudio to the limits of power and creativity while others are simply boring. Much of HyperBole is subjective. It is advertised as an eclectic magazine, and it is. There is something for every literary taste in each issue.

Before you spend (or withhold) your money based solely on this review I would recommend that you download the free issues on America Online or GENie and review them yourself. As a HyperStudio product, HyperBole succeeds. It is on the cutting edge of stack design. As a Literary magazine it is a collection of hits and misses. There are good features and bad features. This is one product that I feel you should personally try *before* you buy. **GS+**

HoverBlade

Programmed by Shiraz Akmal
Art by Eric M. Boden

Retail price: \$39.95
Typical mail-order price: \$30.00
Not copy protected, hard disk installable.
Requires 1 MB RAM.

MCX
2076 Mitchell Avenue
Clovis, CA 93612
(209) 298-0411

Reviewed by Brian M. Winn

What? New IIGS Games?

Yes, it is true! There is not only a new Apple IIGS game in town but a new IIGS software company, as well. MCX, a small software company, currently consists of two employees. Shiraz Akmal is the young programming genius behind the company, while Eric Boden is the graphics artist. Shiraz notes that he was inspired by the French programming group, FTA (Free Tools Association), to make awesome programs for the IIGS. Evidently this inspiration has payed off. MCX, a U.S. based company, has just released their first game for the IIGS, HoverBlade. When I said "first" was I implying there would be a second? Yes, of course, MCX is near completion of their second game, Druid of Shadowdale, which they plan to release later this fall. They also plan on releasing a three-dimensional graphics imaging program. It is great to see new development on the IIGS, and I wish MCX luck in their business.

Bladers Take Note!

When I saw the title of this game I thought "Great, a game for Rollerbladers, like myself." I was wrong, this game is not a blading game, it is a hovering game. I see the game as a unique cross between FTA's Space Harrier demo and the hovercraft portion of MicroRevolution's Xenocide.

When you order HoverBlade, which by the way is available only direct from MCX or through mail-order, you will receive two disks and a manual. The manual contains six pages of information about the game,

including an installation procedure for placing the game on your hard drive. Overall, the manual is nicely done.

The year is 2127 A.D. and the world has been taken over by intergalactic beings. A group called The Star League Federation has been formed to combat the alien aggressors. You, as an elite member of the group, have been chosen to test fly their new fighter, the HB5000 (HoverBlade 5000), through treacherous terrain in order to prove its worthiness in the fight against the aliens. This is not the most unique story I have ever heard, but not a bad one either.

Gameplay

HoverBlade works great under GS/OS and the Finder. Simply double-click on the HoverBlade icon and the game will start. If you have a hard disk you can copy HoverBlade to a folder on your hard disk and run it from there. After the game has loaded, you will see the opening credits and title page while a stereo song blasts out of your speaker(s). When you have had an earful, you can press a key to be presented with the main menu. You will find several options here which are selectable with a mouse-controlled robot arm, a la Photonix. You can view how the mouse controls your hovercraft, info about the authors, the mission briefing, and the current sound/music preferences. The game includes three "energetic" SoundSmith tunes to choose from to accompany the sound effects of the game.

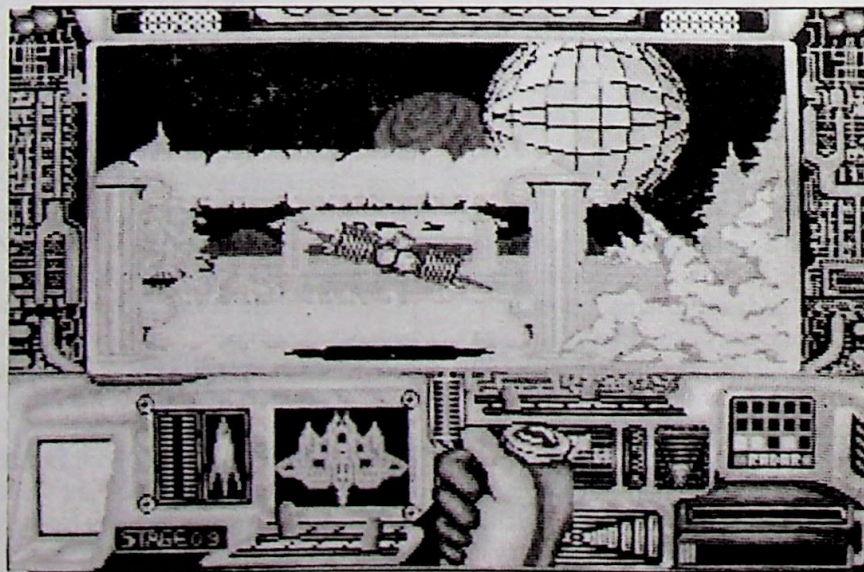
With a little work, you can replace their songs with your own SoundSmith songs (see sidebar).

When you click on "Begin," your HoverBlade vehicle is launched into the first area. If you have ever played Space Harrier, you will be surprised at the similarities. The scrolling of the terrain and the movement of your craft is nearly identical. (I guess MCX completed what FTA started.) HoverBlade represents what a IIGS game should be like. It features stereo sound, fast scrolling screens, flicker-free animation, great sound effects, and colorful graphics.

The HB5000 is controlled by the mouse as it rockets over the land. You must move it in order to avoid trees and rocks, while trying to collide with fuel cans and energy balloons. There are several bonus gates you can manipulate your craft through to gain bonus points. You also have a fair share of missiles to blast objects that stand in your path. The controls of the cockpit are presented around the outside of the view screen. You can see your hand on the flight-yoke moving around—a nice touch. The view screen shows a rear view of your hovercraft as its surroundings race below it.

Problems?

There was only a minor problem with the music. When many objects were on the screen at once I could hear a slight stutter in the song. This was hardly noticeable, though.



The action is very fast-paced. The game was essentially unplayable with my Zip GSX running at 8.0 MHz. When I turned it off or slowed it to around 45%, the game was much easier to keep up with. Even so, I did not get much past level four (out of a possible ten). Believe me, this game is not for people with slow reactions.

One other little thing that bothered me was that you can not access the Control Panel when playing the game. Since the Command key is the pause key in HoverBlade, all that occurs when you press Command-Control-ESC is that the game pauses until you press the Option key for unpause. You can access the Control Panel when you are at the main menu, however.

Conclusion

I personally liked the game and had a lot of fun with it. Since the action is fairly repetitive, I can foresee it becoming boring as I continue to play it. However, the price is right and the action is intense. The graphics and sound are astounding

The Software Bargain Bin

By Brian M. Winn

Introduction

It is sad but true, new software releases for the Apple IIGS have slowed to a crawl. It is becoming harder and harder to find a decent "new" software package. But wait, maybe we just aren't looking hard enough. There were literally dozens of new, quality IIGS titles released last year. And better yet, these programs have a very reasonable price tag. No, you won't find these new programs on the shelves of your local software dealer. This software is distributed solely through online services, user groups, and specialized mail-order vendors. The software I am referring to is classified as "shareware" software.

What Is Shareware?

Shareware software is copyrighted, just like commercially sold programs. However, unlike commercial programs, you can copy and distribute this software legally. Shareware software works on the philosophy of "Try before you buy."

Make Your Own Music

Note: Do this only on a backup of your HoverBlade disk! Do not use the original!

If you want to, you can replace the current HoverBlade songs with your own favorite SoundSmith songs. Your song and wavebank files should not be over 80K combined, and the song should not use more than eight instruments.

Follow these instructions to customize your copy of HoverBlade:

1. Back up the current **Music** folder within the **Hover** folder onto another disk.
2. Rename your SoundSmith song and its wavebank, to have the same names as the files you are replacing. For instance, if you want to replace Hoverblade song 1 you would rename your files **Song1** and **Song1.w**.
3. Copy these song files into the **Music** folder within the **Hover** folder.
4. Now load the game and select the appropriate song number in the sound preferences area. The song *names* will be the same as before but the actual songs will be the one you placed in the folder.

Thanks to David Hallwas for his help with this patch.

which I believe puts HoverBlade in the top five IIGS games. I have to recommend this game to anyone who can handle a mouse quickly and loves fast-paced arcade

games. If you are more the strategy and adventure type, you should probably look elsewhere. **GS+**

When you obtain a copy, you are allowed to use it for a trial period (generally two weeks). If you don't use the software, simply delete it or give it away. If you enjoy and use the software, you are asked to send a registration fee (typically around \$15) to the authors of the program to reward their work. When you send in the fee you will often receive a manual and the most recent version of the program. One of the most popular shareware programs for the Apple IIGS is a game by Pangea Software called CosmoCADE, which we will review in a future issue.

Is Shareware Any Good?

Surprisingly enough, many shareware programs are created by professional programmers and contain the quality and usefulness of commercial products costing a lot more. Why, then, would an author release his or her software in this fashion? The expense in marketing and difficulty in distribution of commercial programs has grown dramatically in the last couple of years (especially in the IIGS market). Shareware offers an alternative. Programs are distributed through public domain

libraries and there are no marketing costs. This sounds like the utopian system of distribution, right? Wrong. Shareware is based totally on honesty. The authors may slave long hours programming and not receive one cent in return. It is up to you, the user, to support their efforts by sending in the registration fees for the software you like and use.

Where Can I Find Shareware?

There are hundreds of shareware titles available for the Apple IIGS. You can find them in program libraries located on many on-line services (America Online, CompuServe, and GENie) and local BBS's. Public domain mail-order houses, such as The Public Domain Exchange and Big Red Computer Club, will also have most of these titles available for a small price. It is very important to note however, that this fee does *not* include the shareware fee!

Reviews?

Here at **GS+** Magazine, we believe that this software is too good to pass up. Therefore, in upcoming issues, we will

be writing in-depth reviews of some of the new and interesting shareware titles available for the Apple IIGS. The following are brief reviews of two classic shareware titles that will give you a taste of the quality of software that is obtainable.

DeskTop Painter

Shareware price: \$10
Requires 1.25 MB RAM and System Software v5.0.2 or later.

Earl Gehr
1824 A. Manning Circle
Charleston, SC 29404

The IIGS, with its excellent graphic and color capabilities, has spurred on many new artists. Several painting and drawing programs have been created to aid these novice Picassos in their work. DeskTop Painter is one of the most unique. Unlike the rest, DeskTop Painter is a New Desk Accessory (NDA). This means that the program is present at all times under the Apple menu and can be used in any standard desktop program.

DeskTop Painter has a very commercial appearance. When you select it from the Apple menu, a large window opens on the desktop. This window contains a menu bar on the top, several paint tools running down the top of the left side, a color palette on the bottom of the left side, and a large painting area in the middle. The layout of the window reminds me a great deal of Paintworks Gold.

This NDA has most of the features found in a standard paint program. It will work with both 320 and 640 pixel modes with

up to 16 colors (640 uses dithering to obtain 16 colors). DeskTop Painter has the standard paint tools, such as those present in AppleWorks GS and HyperStudio. It can load and save most Super Hi-Res picture formats and print them in black and white or color. Believe me, this program is packed with features.

DeskTop Painter seems to be fairly bug free and only two things come to mind as minor problems. For some reason, the program does not have a "lasso" tool. It does have a select-box tool but often I need the precision of the lasso to manipulate a shape. The only other problem is that DeskTop Painter is relatively slow on a standard 2.8 MHz IIGS, because it is running in the background of another program. This can be annoying if you are doing a lot of drawing. The only way to remedy this is to get an accelerator card, such as the Zip GS.

SoundSmith

Shareware price: \$20
Requires 768K RAM and System Software v5.0.2 or later.

Huibert Aalbers
FUN Software
c/Madre Antonia Paris, 6, K2, 12C
28015 Madrid, Spain

The "S" in "GS" should stand for SoundSmith. This is the first music program to really take advantage of all of the IIGS's sound capabilities. The program will let you compose music with up to 14 different tracks (all playing at once) and use as many instruments as you can squeeze into the 64K sound RAM. You can usually fit at least six to eight

different instruments. There are hundreds of digitized instruments included on four separate disks that accompany the program. You can sample each of the instruments by trying them out on the on-screen synthesizer keyboard.

When you get tired of jamming on the keyboard, you can put your musical talents to work on a real song. You can enter the song manually by typing in the track number, instrument number, note, and the special effect (change volume, fade, etc.) from the keyboard. The input screen is well laid out, resembling an AppleWorks GS spreadsheet page, but entering the song from the keyboard becomes very tiresome. Huibert has fixed this problem by allowing "MIDI in" from MIDI instruments, such as synthesizers. I, however, did not have a chance to test this feature because I do not have a MIDI device. When you are done with the song you can save it on disk for later retrieval. If you aren't a very good composer (like me), don't worry, several finished songs are included on disk and you can find hundreds of "SS" songs through the public domain.

You now have a song loaded and ready to go. When you select the graphic playback item, prepare to be blown away. Crisp, clear music will flow out of your IIGS. Amplified speakers and a stereo card are a must for this program. The graphic screen even lights up with 14 different VU meters (like the ones found on many equalizers).

SoundSmith is an excellent program and a great demo of the IIGS's sound capabilities. With the MIDI support, this program is a complete music arranging package. In my opinion, the sound quality is very good, almost that of synthLab (Apple's new MIDI music program for the IIGS). SoundSmith songs have become somewhat of a standard song format and several programmers have used SoundSmith to create music for their own programs. If you want a sample of what SoundSmith songs will do for a game, pick up a copy of MCX's HoverBlade (see review in this issue). All of its songs were created with SoundSmith. **GS+**

Information Services

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(800) 227-6364

Delphi
Three Blackstone Street
Cambridge, MA 02139
(617) 491-3342

CompuServe Information Service
P. O. Box 20212
Columbus, OH 43220
(614) 457-0802 or (800) 848-8199

Genie
P.O. Box 6403
Rockville, MD 20850
(800) 638-9636

IIGS Classic:

The Bard's Tale IIGS

IIGS version by Bill "Burger" Heineman

Retail price: \$20.00

Not copy protected. Requires 1 MB RAM and System Software v5.0.2 or later.

Big Red Computer Club

423 Norfolk Ave

Norfolk, NE 68701

(402) 379-4680

Reviewed by Dave Adams

Can't Keep A Bad Man Down

Mangar. He's back. Just when you thought you were jaded on the Bard's Tale this had to happen. Bill Heineman proves that just because a software package has been released many years ago it doesn't have to stay the same. In case you haven't heard the good news let me sum it up for you: The Bard is back and he's better than ever!

The classic adventure game "The Bard's Tale" has been upgraded for the wonderful world of GS/OS. Although the game itself is still the same the mechanics of game play have been greatly enhanced and expanded.

For those of you who have never played the Bard's Tale (hereafter referred to as BT) it is one of the most addicting adventure games ever released. It literally set the standard for adventure games with dazzling graphics, animation, great sound, and a thoroughly engrossing plot line. (Admit it, how many of you spent entire weekends playing the game hunched over the keyboard subsisting entirely on caffeine heavy drinks, junk food, and sleeping only when you couldn't see the keyboard anymore?) You create a party of adventurers of different races and classes and set out to free the town of Skara Brae from an eternal winter spell cast by the evil wizard Mangar. You must survive the streets of Skara Brae (not that easy for low level characters) and equip your party with captured weapons and gold. As you gain experience (and levels) you are able to handle tougher encounters and begin a little exploring in the local dungeons. There are battles galore with magic weapons and armor and magic flying through the air.

Your quest leads you into deeper and more dangerous dungeons as you seek more clues and enchanted items to assist you. Eventually you face Mangar himself in the final battle. You face death often in this game and you keep coming back for more.

Everything Old Is New Again

So what are the improvements to the original Bard's Tale? First and most noticeable is the inclusion of MIDI Synth songs. If you thought the old BT had great music you should hear the new version. You'll keep the sound going throughout the game. Different instruments (carried and played by Bards) have their own distinctive sounds. The songs are still the same but the quality has improved exponentially. Sound effects have also been incorporated into the game play. Spells and sword ringing automatically highlight the action in combat.

The annoying copy-protection has been removed (*please don't pirate this game!*) and the game can be installed and run from a hard drive. Although the graphics haven't changed from the original IIGS version, they are still above and beyond most adventure games. Not enough? Well, how about having the ability to save and restore your game whenever and wherever you wish? Now you can check out what's on the other side of that door and if your party expires you can restore your game and look for less dangerous opponents. Since the game operates under GS/OS you are only limited by the available disk space as to the number of saved games. In addition, the game supports NDA's (I'm using EGOed to write this review as I cruise through Harkyn's Castle). A hidden menu bar allows you to toggle both the sound and the music on or off. There are also menu commands for many features in the game but the old keyboard equivalents still apply.

Still not convinced? What more does it take? How about Auto-mapping? No more graph paper cluttering the desk. Just select the appropriate command or use the keyboard and a map pops up in the right hand corner that shows you all of the dungeon level that you have seen. Hit the Return key and it will show you your path through the level. Hit Control-P and it

will print the map on your printer. (Make sure that you have the printer selected in the Direct Connect (DC) Printer in the graphic control panel.) If you need more convincing try this on for size. Macros!

You can program keyboard macros into your game and save immeasurable time. No more "Attack, Attack, Attack, Defend, Defend, Defend." Just automate the entire series into one keystroke! You can even automate traveling through town. I set the game up to automatically take my Party to Garth's, run by the Tavern, check out the Review Board, and head for the current dungeon. With four keystrokes I can run all over the city. Miss the Batchspell from BT II? Just program it into your handy little macro. If the game interface sounds a lot like Dragon Wars GS they share many of the same characteristics.

Problems

Most of the problems in the game are nit-picky little things. The music slows down a bit when you move the mouse across the screen. The macros seem to have a limit as to the number of keystrokes that they can accept. Other than that there aren't that many gripes. Some people might complain that it is not a self-booting disk but that should give you another good reason to buy a hard drive.

Acquisition

For those of you who have never purchased the original (shame, shame) you can order a copy from the Big Red Computer Club (who seem to specialize in buying out great games) with the new and improved version. You won't get all the fancy packaging that came with the original but you'll get the disk and a complete manual.

If you *do* have the original and want to upgrade to the GS/OS version, you can do that too. Call Big Red for more info.

The Magic Is Back

Bard's Tale GS/OS is a much improved version of a great game. The old thrill of the game is back. The sound track is outstanding and the sound effects are great. With all of the enhancements there is simply no reason not to upgrade to or buy this game. I wholeheartedly recommend it!

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Last time, we looked at how to use HyperTalk to eliminate the need for sorting your HyperCard IIGS stacks. This time, I'll be showing you how to create your own custom reports in HyperCard IIGS.

Not Quite Right

When HyperCard first came out for the Macintosh, I remember reading lots of commentary like, "Great program, but the reporting capabilities stink." As later versions of Mac HyperCard were introduced, Apple began to add more reporting power to HyperCard. When HyperCard IIGS came out, its reporting capabilities were based on the reporting capabilities of the latest version of Mac HyperCard. Still, it's not quite good enough.

The main problem with using HyperCard templates for reporting is that they seem to ignore completely the condensed print setting in the Page Setup dialog. This means that your text is always "stretched out" when it's printed. This will probably be fixed in HyperCard IIGS v1.1, but until then, it looks goofy. Another problem that I personally have with the templates is that they just aren't flexible enough. Then again, it may just be that I gave up on them too quickly.

What Are You Gonna Do?

So, the first question is: How do you print custom reports with HyperCard? The answer is: The HyperTalk `print` command.

The next question is: How do you build a custom report that can be printed with the `print` command? The answer is: By using the HyperTalk `put` command to stuff the contents of your report into a field or variable.

Before I lose myself in a big technical explanation of how it all works, let me give a simple example. The script shown below will print "Hello World!" on your printer.

```
on HelloWorld
  put empty into reportVar
  put "Hello World!" into ~
  reportVar
  print reportVar
end HelloWorld
```

Contained in that script is just about everything you need to know to create custom HyperCard reports. The second line of the script creates an empty variable for us to work with, the third line stuffs our "report" into the variable and the fourth line prints the contents of the variable out on the currently selected printer. It's that simple. However, because the technique is *so* simple, it can take a bit of work to get the look that you want on your reports.

A Bit More Complex

As an example of a slightly more complex report, I've taken the Self-Sorting Address book stack from last issue and given it a new "printer" button. When you click on this button, you will be asked if you want to proceed. If you say yes, a report of all of the entries in the address book will print out. (See Figure 1.)

As you can see from Figure 1, this is not the most complex report in the world. (In fact, it could easily be done with a template—but it would print out as "tall text" and not look so good.) The first column contains the first and last name, the second column contains the street address information, and the last column contains the city, state and zip code (or country) information. The question now is: How did I format those nice columns? The answer is: By stuffing lots of spaces in my report variable. To generate the necessary spaces, I used the script shown below.

```
function spaces number
  put empty into filler
  repeat with count = 1 to number
    put filler & " " into filler
  set cursor to busy
end repeat
return filler
end spaces
```

(Looking at this script, you are probably thinking, "I bet that's one slow script!" Actually, it's a *very* slow script! There is a *much* faster way of doing this, which is used in the actual stack on your GS+ Disk, but I'm leaving it up to you to figure out as an exercise.)

Now that we have this simple method of generating spaces, it's a simple matter to use it to create columns in our report. For example, the code shown below is used to format the first line of address information.

```
put spaces((column2 - ~
  length(line thisLine of ~
  myList))) after reportVar
put bg fld "Address 1" ~
  after reportVar
```

This code uses the `spaces` function to pad over to the second column (which is defined in the variable `column2`). (The variable "thisLine" is a variable that keeps track of the line we are currently building in `reportVar`). The main thing to notice here is the use of the modifier "after" in each of the `put` statements. By using "after" instead of "into" the string is appended to the end of `reportVar`. If I had used the "into" modifier, the contents of `reportVar` would have been *replaced* by each `put` statement.

Fielding Questions

So far, I've only shown examples of report building inside variables. It's just as easy to build a report inside a field. In fact, building reports inside fields has several advantages. First of all, if the field is not hidden, you can watch your report being built—this is a great debugging aid. Second, fields don't go away like variables do. When your report is finished, you can copy it out of the field and paste it into your favorite text editor to spruce it up. Finally, you can use the HyperTalk commands `set TextFont`, `set TextSize` and `set TextStyle` to change the font, size and style of the text in the report. However, when you print

a field that contains text in a typeface that is not monospaced (like Times or Helvetica), the spacing between characters is messed up. Until this is fixed (hopefully in HyperCard IIGS v1.1), it's a good idea to stick with monospaced fonts like Courier or Monaco.

Using The Examples

On your GS+ Disk you will find the latest version of the Self-Sorting Address Book that contains the script to print the report shown in Figure 1. If you have been using the Self-Sorting Address Book from last issue and you don't want to reenter all of the names and addresses you have put in during the last two months, don't worry. The reporting scripts are all

contained in the "printer" button that is in the new stack. Simply copy it out of the new stack and paste it into the background of your old copy of the Self-Sorting Address Book.

If you are just joining us, complete information on using the Self-Sorting Address book can be obtained by clicking on the question mark icon in the stack. (This button is *not* self-contained, there is a hidden field containing the help information. To move this over to the old stack you would need to copy both the help button and the field containing the help text to the background of the old stack.)

Call For Help

The first installment of HyperActivities was not the most popular item in GS+ V2.N6 (and you thought I didn't read those "Feedback" forms!) However, several of you stated that you liked the idea, but wanted to see a focus on HyperStudio instead. HyperActivities is intended to focus on *both* HyperPrograms, the trick is that we need someone to write something about HyperStudio before we can print it. So, I'm calling on all of you HyperStudio gurus out there to write us an article on HyperStudio. Send it to us at:

GS+ Submissions
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Chattanooga TN 37415-0366

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Figure 1

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File Detective

My name is File Detective. I'm the guy you hire to solve a mystery. My domain: storage media. My job: catalog and search files. Let me relate a recent job that a fella contracted: You see, this guy wanted to find a utility program that displays SHR pictures. He knew that it was on a popular disk based magazine, but he couldn't remember which issue contained the program. That's why he called me. First, he told me to limit suspects to application files only. Then, he directed me to scan a floppy. Well, several floppies later, the guy recognizes this utility he's looking for in the file line up and off he goes. He says thanks for the quick catalog, you saved me bunches of time! I say, if you'd like my services then contact the agency: Send \$20.00 for disk and manual. Note that System Software v5.0 or later is required (v5.0.4 is recommended). Source code available for \$40.00, 2 disks with manual (\$20 for registered File Detective owners).

Contact:
DataComb
1310 Cholla Court
Lake Havasu City, AZ 86403

Readers can place an ad in the GS+ Classifieds for only \$5. This cost buys 25 words in one issue of GS+. Additional words are just 10 cents each. The GS+ Classifieds are the perfect way to contact all of the other IIGS owners out there. The deadline for inclusion of a classified ad in the next issue (Volume 3, Number 2) of GS+ is November 15, 1991. Simply fill out a photocopy of the coupon below; or send your ad along with your name, address, phone number, number of issues to run, and payment (made payable to EGO Systems) to us here at GS+; or call us at (615) 870-4960, Monday through Friday between 9 a.m. and 6 p.m. EST, to place an ad with your MasterCard or VISA.

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Advertisers Index

By Steven W. Disbrow

ProDev Inc.

Page 4

The ProDev DDT16 is a *hardware* debugger. The hardware is well designed, but the software leaves a bit to be desired. For complete information, see Joe Wankerl's review in issue V2.N6 of *GS+* Magazine.

TMS Peripherals

Pages 12 and 13

Several months ago, I desperately needed a 45 MB removable to do backups with (see review in *GS+* V2.N5). TMS got it too me in less than 24 hours and I paid about \$100 less (shipping included) than the "base sticker price" of just about any of the big name 45 MB removable drives advertised in the MacRags. Since then, the drive has not given me a single problem. Even if the drive *had* been bad, TMS has a Toll-Free support line, a 30 day Money Back Guarantee and a 2 year Warranty!

Part of our job here at *GS+* is to find the best people in the business and point them out to our readers. I was so impressed with TMS' products and service that I practically *begged* them to advertise with us.

Raptor, Inc.

Page 22

The products advertised here are *image enhancement programs* for your black-and-white 320 mode graphics. Although I have not had much time to play with the review copies that Raptor sent us, they seem to do exactly what they promise—and they do it very well! And, since our last issue was published John-Majka of Raptor contacted us to say that they have sped up the operation of both programs. If you need the ability to perform the same kind of processing that NASA does on satellite photos give the folks at Raptor a buzz, there simply isn't any other product like this for the IIGS.

GravenStein User Group

Page 34

What's this? An ad for a *user group*? Sure, why not? Even if you don't live in the greater Petaluma area, you owe it to yourself to contact the folks at the GravenStein User Group. If you represent a user group, you should definitely begin exchanging newsletters with GravenStein. They have one of the best newsletters that I have seen (and I've seen quite a few newsletters) and the discounts that they

offer their members on hardware are nothing to sneeze at.

GS+ Magazine

Page 42

This is a definite conflict of interest, but what the heck! These shirts are great! Order yours today! Seriously though, if you want a size that we don't have shown, let us know. If we get enough requests, we'll have some shirts printed up in those additional sizes.

Econ Technologies

Back Cover

Econ is a new advertiser with *GS+* Magazine, and they are a new player in the IIGS internal hard drive market. At this point, I have not had any first hand experience with the Econ drive, so I can not make a recommendation one way or the other. However, I have met the folks at Econ and they seem very committed to the IIGS market place. If you have an Econ drive and would like to write a review of it for us, I want to publish it!

GS+

Errata

In the "New Products" section of *GS+* V2.N6 we mistakenly reported that File Detective by DataComb was a New Desk Accessory. File Detective is a stand-alone application, *not* a New Desk Accessory.

MacZombies (*GS+* V2.N6) has a small problem that can make it difficult to run from a floppy based system. To run MacZombies, you must have the A.C.E. tool set installed (TOOL029). ("A.C.E." stands for "Audio Compression and Expansion.") If this tool is not present on your boot disk, MacZombies will report an error number \$46 and refuse to run.

Unfortunately, the A.C.E. tool set does not come already installed on the System Software v5.0.4 :**System.Disk:**, however, it *is* on the :**System.Tools:** disk. To install this tool on your backup copy of :**System.Disk:** make sure you have at least 11K free on your backup system disk and then run the Installer program on the :**System.Tools:** disk. Install the A.C.E. Tools onto your backup system disk and reboot your computer. You will then have everything you need to run MacZombies.

Also, the wording in the *GS+* V2.N6 "How To Use The *GS+* Disk" article seems to have confused some people as to what is required to run MacZombies. The poor wording of that article had some people thinking that GS-ShrinkIt and the Merlin assembler were *required* to run MacZombies. This is *not* the case. GS-ShrinkIt and Merlin are required *only* if you want to unarchive and assemble the MacZombies *source code!* The only program that is needed to run MacZombies is . . . MacZombies. (To run MacZombies, you simply double-click on it from the Finder.) Our apologies for the confusion.

GS+

GS+ Back Issue Information

Sep-Oct 1989 (V1.N1)

• \$4.50 mag • \$6.50 disk • \$9.50 both

- 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 Arkanoïd II (new custom levels on disk), Crystal Quest, ORCA/C, Rocket Ranger, Silphed, Test Drive II, TransWarp GS, Turbo Mouse ADB
- PLUS: Graphics, rumors, and the most over-hyped product of the year!

Nov-Dec 1989 (V1.N2)

• \$6.50 disk (magazine is sold out!)

- EGOed - An NDA text editor (TML Pascal II source code on disk)
- Brush with Greatness - Tips on drawing faces (pictures on disk)
- PLUS: Original icons and new levels for Laser Force on disk

Jan-Feb 1990 (V1.N3)

• \$6.50 disk (magazine is sold out!)

- Rotator - A beginner's desktop programming tutorial and program w/source code written in ORCA/C
- Winning Arkanoïd II Levels
- Brush with Greatness - Space graphics (pictures on disk)
- HyperStudio stack version of GS+ V1.N2 on disk.

Mar-Apr 1990 (V1.N4)

• \$6.50 disk (magazine is sold out!)

- All About Control Panel Devices - with Desk Color CDev and ORCA/C source code on disk
- Random IIGS Programming Notes - An EGOed update
- Brush with Greatness - Architecture on your IIGS with pictures of the Citicorp building and Frank Lloyd Wright's house on disk

May-Jun 1990 (V1.N5)

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- AppleFest Report
- Beginner's Guide to System Disks - Part 1
- GS/OS prefixes - PreFixer CDev and ORCA/Pascal source code on disk
- Brush with Greatness - How your IIGS makes colors
- Reviews of CMS SDRM 45 Megabyte Removable Hard Drive, S&S-RAMCard, DataLink Express modem, Visionary GS digitizer, GraphicWriter III, ZapLink, McGee, Math Blaster Plus IIGS, The New Talking Stickybear Alphabet, a sneak peek at the ZipGS

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- Reviews of AMR AS800K 3.5-inch drive, Salvation: The Exorciser, Disk Access, MD-BASIC, Katie's Farm, Task Force, BLOCKOUT, OMEGA, 2088: The Cryllan Mission, Hunt for Red October, Revolution '76, Where in the U.S.A. is Carmen Sandiego?

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- PING - video table tennis program (Merlin assembly)
- Shuffle - an Irit file that allows you to move desktop windows from the foreground to the background (ORCA/M)
- Battery Brain - CDev saves BRAM parameters to disk (ORCA/C)
- Reviews of GS Sauce memory card, Salvation: Wings, World GeoGraph, Orange Cherry Talking Schoolhouse series, QIX, Solitaire Royale, InnerExpress

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- Beginner's Guide to System Disks - Part 3
- LaserWriting - a guide to using an Apple LaserWriter with the IIGS
- Christmas Buyer's Guide
- TeachText Translator - import and export TeachText files in GWIII
- Reviews of Quickie Hand Scanner, AE 3.5" Disk Drive, Salvation: Renaissance, USA GeoGraph, Rastan, Captain Blood, HOSTAGE, Questmaster, Pipe Dream, The Immortal, PIRATES!

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- AppleFest/Long Beach '90 and the Apple II Achievement Awards
- Interview with Jim Carson of Vitesse, Inc.
- Introduction to System Software v5.0.4
- RAM Namer - a CDEV that can rename your RAM disk at boot time, with ORCA/C source code on disk
- GS+ program updates - Battery Brain v1.1, EGOed v1.32c (now written in ORCA/C), GWIII TeachText Translator v1.1
- Reviews of ZipGSX, LightningScan, Design Your Own Home, Print Shop Companion IIGS, Your IIGS Guide, Dragon Wars, 2088: The Cryllan Mission - Second Scenario, Space Ace, Sirbad and the Throne of the Falcon

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- Interview with Dave Hecker of Seven Hills Software
- Working with the Toolbox - Part 1: The Tool Locator
- Quick NDA - an Irit that can assign control-keypad equivalents to your New Desk Accessories, with ORCA/M source code on disk
- The New Order - a NDA that can reorder the contents of your directories, with ORCA/C source code on disk
- GS+ program updates - EGOed v1.33, Transfusion v1.1.1
- Reviews of Harmonie, Independence, InWords, Allison Digitizing Software, MAX/Edit, Software of the Month Club, Super GS Award Maker, Talking Speller II, Halls of Montezuma

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- Interview with Matt Deatherage of Apple DTS
- Working with the Toolbox - Part 2: The Memory Manager
- Autopilot - A program launcher with ORCA/M source code on disk
- Softlock - A password protection NDA with ORCA/C source code on disk
- GS+ program updates - EGOed v1.34, NoDOS v1.5
- Reviews of TMS Pro R45 Removable Hard Drive, RamFAST/SCSI Card, HyperCard IIGS vs. HyperStudio, McGee at the Fun Fair, Talking Classroom, Talking Multiplication and Division, Bouncing Bluster II, Space Shark, Transylvania III

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- A Peek at System Software v6.0
- A Conversation with Roger Wagner - part 1
- Working with the Toolbox - Part 3: The Miscellaneous Tools
- MacZombies - A game written by Bill Heineman with Merlin source code on disk
- Watchdog - A GS/OS notification CDev with ORCA/C and ORCA/M source code on disk
- Reviews of ProDev DDT16, GS Memory Board, Photonix II, Software Development Environment, Jungle Safari, Space Shuttle Word Problems, GeoQuiz, Panzer Battles, Reach for the Stars

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Glossary

Beginning this issue, we will present a glossary of some of the more common terms in the IIGS world and some of the more uncommon terms that we use in each issue. If you have a term or bit of jargon that you would like to see explained, let us know and we'll try to get it in a future "Glossary" installment. (Note that the following terms are not given in alphabetical order, but in a "semi-logical" order.)

RAM

RAM stands for **R**andom **A**ccess **M**emory. This is the memory that holds the programs you execute on your IIGS. RAM holds information until the power is turned off. As a general rule of thumb, the more RAM you have, the better.

ROM

ROM stands for **R**ead **O**nly **M**emory. It is similar to RAM except that the information that is in ROM can not be erased—even if you turn off your computer, the information in ROM will remain intact. On the IIGS, ROM is used to store parts of the operating system and the Toolbox. At this point in time, there are two common IIGS ROM versions, ROM 01 and ROM 03. You can tell which ROM version you have by looking at the bottom of the screen when you first turn on your IIGS.

Toolbox

A collection of software routines that are used to simplify the process of writing programs for the IIGS.

GS/OS

The Apple IIGS Operating System.

Command Key

The Command Key (also known as the Open-Apple key) is a key that you press in combination with other keys to send commands to the program that you are using. These key combinations are known as "key equivalents" or "shortcut keys" that may be used instead of choosing an item from a menu. For example, in the Finder, the menu item

"New Folder" has a shortcut key combination of Command-N. To activate this item, you would simply hold down the Command key and then press the "N" key.

IIGS System Software

This is the software that makes your IIGS a IIGS. System Software is responsible for almost every aspect of the operation of your IIGS. Among its many duties are program launching and disk maintenance (via the Finder), fixing problems in the Toolbox, and providing drivers for the various peripherals you may have attached to your IIGS (disk drives, printers, etc.). System Software is the foundation on which all IIGS-specific programs are built.

Installer

The Installer is a program that automates the process of copying files. It is provided with the IIGS System Software and with many third-party software products (such as *GS+ Magazine*). In the simplest terms, the job of the Installer is to "put the right files in the right places."

New Desk Accessory

A New Desk Accessory (NDA) is a small application program that is available from the Apple menu of IIGS desktop programs such as the Finder. The main advantage of NDAs is that you can run them while you are inside your favorite desktop programs. Examples of some of the functions NDAs can perform include text editing (EGOed), file utilities (NoDOS) and telecommunications (Transfusion). To install a NDA, you copy it into the **System:Desk.Accs:** folder of your startup disk and restart your computer.

The Control Panel

There are actually two different forms of "The Control Panel." The first is a text-based utility that is built into the IIGS ROM and can be called up simply by pressing the Command, Control, and Escape keys all at the same time. The second version of the Control Panel is a New Desk Accessory that is available from the Apple menu of IIGS desktop programs.

Both versions of the Control Panel allow you to change various settings governing how your IIGS behaves (how loud the speaker is, what color your border is, etc.). However, the capabilities of the NDA Control Panel can be enhanced with the use of CDevs (see below).

CDev

CDevs are files that give extra capabilities to the NDA Control Panel. To install a CDev, copy it into the **System:CDevs:** folder of your startup disk and restart the computer. You then select the Control Panel NDA from the Apple menu and pick the CDev you wish to use from the list in the Control Panel. Examples of the tasks that CDevs perform would be setting the sound volume on your IIGS, setting the time and date and selecting the slot you want your computer to start up from. (Note: When System Software v6.0 is released, CDevs will be referred to as "Control Panels.")

FST

FST stands for **F**ile **S**ystem **T**ranslator. FSTs allow GS/OS to access different types of diskettes. At this point in time, FSTs exist that allow GS/OS to access ProDOS disks, High-Sierra CD-ROMs and AppleShare file servers.

HFS FST

When it is released, System Software v6.0 will include an FST that will allow GS/OS to access Macintosh disks. The name of the Macintosh file system is the **H**ierarchical **F**iling **S**ystem, thus the abbreviation HFS FST.

Resources

Resources are commonly used items (menu items, windows, sounds, etc.) that are kept in the resource fork of a file.

Resource Fork

A "resource fork" is a special part of a GS/OS file where resources are kept. A file with a resource fork cannot be accessed by ProDOS 8 programs. **GS+**

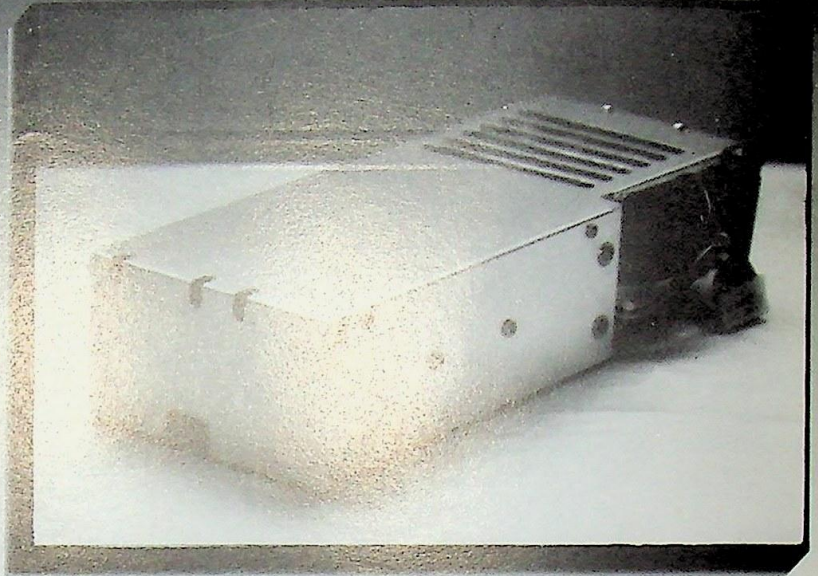
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GS+ Magazine
P. O. Box 15366
Chattanooga TN, 37415-0366

Last Issue Will Be: V3.N4
DONALD COHEN - 100CHE205W
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