GS+™

March
April
1992

Volume 3
Number 4

The *First* Apple IIGS® Magazine + Disk Publication!

Blockbuster April Fools' Issue!

Can *You* Guess Which Of These Items Actually Appear In This Issue?

System 6 Finally Ships!	-OR-	A Very Cold Place Freezes Over!
How To Use The Window Manager!	-OR-	Æ Installs 1-800 Number!
Apple Taken Over By Honda!	-OR-	3-D Graphics, Part II!
Replicator v1.1!	-OR-	FGS v2.0!
Lots Of Neat Ads!	-OR-	A Make Utility For ORCA v2.0!
A Long, Stupid Editorial!	-OR-	A HyperCard Stack!
EGOed v1.41326598!	-OR-	The Latest On The Next KansasFest!
Lots Of White Space!	-OR-	News About System 6!
Stuff To Make Our Lawyers Cry!	-OR-	Pointless Tips!

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Shadow Hard Drive
Pointless • The Desktop Enhancer
ANSI Term • Learn To Program In ORCA/Pascal
The Secrets Of Bharas
Three Shareware And Freeware Reviews

And, Because *You* Demanded It . . .

Liz And Michael In Love Nest With Chimps!
Exclusive Photos!

Writer's Block

By Steven W. Disbrow

System 6!

Yes, friends and neighbors, Apple IIGS System Software v6.0 is *finally* here!

Never have so many waited so long for so much Operating System. (Well, OK, Mac users did have to wait a *bit* longer for System 7.) And let me tell you, it was worth it! We've only had it about four days, but it's already easy to see that it's going to be a winner.

Since System 6 was released only one week before we had to go to print, you won't find too much about it in this issue. However, I will have time to write one article on it for this issue. And there will be a bit more about it in our next issue. (English students: the previous sentence was an example of *foreshadowing* and *understatement*. *Sarcasm* comes later in the article.)

How To Get Yours

At this point, I can almost hear your thoughts, "How can *I* get a copy of System 6?" Well, at this point, we have not actually gotten either our developer copy of System 6 or any information from Apple Software Licensing as to whether or not we can distribute System 6. (Believe it or not, Joe and I downloaded System 6 from America Online and GEnie! Boy, Howdy! Am I ever glad we signed up to be developers so we could get stuff in a timely fashion! Yes-sir-re Bob.)

However, I am assuming that nothing will change, and that we will be able to distribute it to our *magazine and disk* subscribers. That means if you subscribe to the magazine only, we won't be able to help you! (But I am going to give you the names of some people who can—just sit tight.)

(As you read the following, keep in mind that we are a three-person operation and my main goal is to get these out of the office the same day that we get them in.)

So, if you subscribe to *GS+* Magazine *and* Disk, send us the following, and we will send you a copy of System 6. *(If you are a magazine-only subscriber, your disks will be returned to you. Sorry.)*

1) Five *blank* and *formatted*, 3.5-inch diskettes. I am asking for "blank and formatted" disks because formatting takes time that we don't have, and its a great way to tell if a disk is good before you send it to us. *If you send us a bad disk, we aren't going to replace it.*

2) A *self-addressed* return disk mailer with enough postage on it to mail the five disks back to you. *If you don't provide a postage-paid, self-addressed return mailer, your disks will be considered "gifts" and will be used for backups . . . on Nory's Macintosh.* You have been warned!

3) That's all. Don't send any money. I don't want any money for this. I feel bad enough that we can't afford to send out all five disks with the magazine!

If it turns out that we *can't* distribute System 6 (due to a licensing problem or something silly like that), we will return your disks to you.

How Else Can I Get It?

Now, if you are a magazine-only subscriber or you don't like my ultra-strict rules, here are some other ways to get System 6.

Your Apple Dealer. Bug the hell out of him (or her, or in some cases, *it*) until he gets it in for you. The retail price is $39, but that includes manuals and a nice box to keep everything in. The part number should be #A0077LL/A.

Your user group. Bug the hell out of them until they get it in. Take your own disks and they shouldn't charge you anything for it.

Resource Central. You won't have to bug them, they have it in stock. Call them at (913) 469-6502 and order item number DA-006. They want $24 for it.

And, of course, you could download it from your favorite online service. It took Joe and I about six hours (but only because we were repeatedly knocked off line for some reason).

Other Big Changes

So, other than System 6, what else is new? Well, Pointless was finally released and I'm using it quite extensively. See my review in this issue and take a look at how much tighter we can pack the text on the page. (And be sure to let me know if you like this or not! I think it looks pretty neat, and it lets us put more information into fewer pages. But, if lots of you hate it, we'll go back to the larger line spacing.)

Another thing that is new is the way we are doing our screen shots. After he read our last issue, Roger Wagner (yes, *that* Roger Wagner) called me up to find out how we were doing our screen shots and, more importantly, *why* we were doing them that way. (Almost everyone I've ever spoken to *hates* our screen photos.) After I told him, he shot me off a copy of The Graphic Exchange, which includes a (gasp!) Macintosh application that loads in IIGS graphics and saves them as Pict files that Mac page-layout programs can use. Roger was a bit surprised to find out that we don't use a Macintosh page-layout program, but I made the point that we could still benefit from at least printing out screen shots that way. (Actually, the Mac application TeachText does an excellent job of loading and printing Pict files, so we didn't even need a Mac page-layout program!) So that's what I'm doing this issue. Let me know what you think.

So, What Now?

Which raises a really good question: "Why isn't there a way to get a decent screen printout from a IIGS program?" It could be that there is some fabulous program out there that I don't know about, but I don't think so. (If I'm wrong, *please* tell me! I want to use it!) I've used Platinum Paint to print a few screen shots in the past, but I almost always had to waste time fiddling with the colors to get it to print out nicely.

Let me expand the question. "Why isn't there more *useful* software for the IIGS?" And I'm not talking about development utilities, Inits or other toys for computer-weenies like myself. I'm talking about *productivity* and *small-business* software.

For example, why isn't there a really *good* stand-alone word processor available for the IIGS? The original MultiScribe GS was a good start, but I don't think that Beagle Brothers has done much to enhance it. (They haven't bothered to tell me if they have—I was a registered MultiScribe GS owner.)

And what about Finance programs? It really burns me up that I have to use Quicken on a Mac to track my business expenses. (I tried the 8-bit Apple II version of Quicken—ick!)

And while I've got my blood-pressure up, what about a good, relational database program? Or a spreadsheet? I'd settle for a sleazy dBASE or Lotus 1-2-3 clone if I had to!

(continued on Inside Back Cover . . .)

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Letters

Dear *GS+*,
I read, with great interest, Mark Ranes review of Signature GS [*GS+* V3.N3]. Because I also use Wings as a program launcher, I only installed Boot Master and Sonics. These were installed from Wings without any problem. However, when I later installed Pointless, the program copied as it was supposed to, but the Control Panel did not show up in the Control Panel NDA. I tried installing it from the Finder, but still could not get it to show up. . . .

Having discovered the wonderful world of DAs, I have several installed but didn't want to go to all the trouble of deleting any to see if one was the cause of the problem with Pointless. And I wasn't going to delete Wings since it was even easier to use than the Finder (not to mention all those lovely little "extras" it has). So I just let Pointless sit for a few days in the computer.

That's when your magazine came with Cool Cursor and of course I promptly installed it. When I rebooted and accessed the Control Panel, not only Cool Cursor appeared but also Pointless! What's going on here? Not that I really care, I'm just happy it works. Signature GS is worth $30. I don't know how I got along without Wings. Pointless works like it is advertised, and Cool Cursor is, well, like really cool.

Helen Kern
Denver, CO

Thanks for writing Helen. You may not realize it, but your letter touches on several of the more arcane secrets of the "wonderful world of DAs." Here's what happened: In the ****:System:CDevs*** *folder is a file called* ***CDev.Data****. This file contains information about the Control Panels installed in your system. When the system is booting up, the Control Panel looks in this file to figure out (among other things), which Control Panels are active, and which icon belongs to a particular Control Panel. Storing all of this information in one file saves time, but it also leads to some odd behavior if the* ***CDev.Data*** *file becomes corrupted. One example of this is that when you add a new Control Panel, its information doesn't get added to the* ***CDev.Data*** *file and so, the Control Panel NDA ignores the new Control Panel! This is what happened when you first added Pointless to your system. Another hint that you have a corrupted* ***CDev.Data*** *file is that the icons for one or more of your Control Panels will appear "washed out." The only way to fix this problem is to* delete *the* ***CDev.Data*** *file and restart your computer. When the Control Panel looks for the* ***CDev.Data*** *file and finds that it is missing, it will automatically rebuild it. The reason that installing Cool Cursor "revived" Pointless is that as part of its installation process, the Installer script for Cool Cursor deletes the* ***CDev.Data*** *file for you.*
Diz

Dear *GS+*,
I was reading the review by Brian M. Winn about the Tulin 120 hard drive [*GS+* V3.N3]. He stated a problem with most hard drives that you have to turn on the hard drive, wait 10 seconds or so, then turn on the computer for it [the hard drive that is,] to pick up speed and boot properly. I have a 40MB Q-Drive with a TransWarp GS. All the hardware (monitor, computer, hard drive, printer, modem) is plugged into a surge protector with a master switch. In the text control panel, select TransWarp GS, then choose configure. Make sure the startup graphic and startup sound are checked. You can then turn on the master switch to start everything. Executing the startup graphic and sound first will enable the hard drive itself to pick up the needed speed to boot. It works for me and I thought it might help some others. . . .

Stephen Banchich
via America Online

Thanks for the tip Stephen. I should just note that only Apple SCSI cards seem to have this problem, the RamFAST card will wait for a drive to come up to speed before it tries to get things going. So, this tip really only applies to folks with a TransWarp GS, an Apple SCSI card and a slow hard drive. Actually, there are a lot of people in that group—including me!
Diz

GS+,
I have enjoyed your magazine very much. Please continue the good work! I have three questions: Is there a card available to add more RAM memory to my IIGS? I have a GS-RAM Ultra with 4MB already, but my spreadsheets (AppleWorks GS) eat up the memory quickly. . . . Is there such a thing as a memory board with more than 4MB, or a board that I can piggyback my GS-RAM Ultra into? . . . Question 2: Is there a utility that allows me to set aside RAM to dump data into so that I could continue using the computer while the printer is printing? Question 3: I recently bought Pointless, and received [in the Pointless box] an ad from Vitesse for a GS/OS printer driver called Perfect Image to "transform the smooth appearance of your screen letter to your printer." I'm confused, because in the Pointless manual it states "Pointless creates smooth, crisp and clean text at any point size both *on screen* and *on the printed page*." If the manual is correct, what's Vitesse's Perfect Image for? Thanks for your help. . . .

Rodney J. Avilla
Hilmar, CA

Good questions! Here are some (hopefully) good answers:
Answer 1: I don't know of any cards that will allow you to piggyback any *Applied Engineering RAM card—except Æ's own RAM Keeper. However, if you don't want to clog your IIGS with two more cards (a RAM Keeper and a second memory card), I would recommend investing in an Octo-RAM memory board (see review in* **GS+** *V3.N2). The Octo-RAM can have up to 8MB on it at once—which should be more than enough for your current needs. However, there is a drawback, the Octo-RAM uses 1MB SIMMs to achieve its 8MB capability. Since these are not the same kinds of chips as the GS-RAM Ultra uses, you would lose your current memory investment.*

Answer 2: What you are asking for here is a print buffer or print spooler. As I write this, there is no available software to perform this function on the IIGS. However, Seven Hills Software has announced (and is supposedly close to shipping) just such a product: Express. *For more information, contact Seven Hills at (904) 575-0566.*

Answer 3: Perfect Image is a subset of the printer drivers in Vitesses' Harmonie package (see review in **GS+** *V2.N4). The drivers in Perfect Image are for the ImageWriter and ImageWriter II* only. *The main selling point of Perfect Image is that it is supposedly faster, and (supposedly) produces better printouts than the ImageWriter driver supplied by Apple. I can't speak to this myself, because I've never really used anything other than the Apple ImageWriter driver. With the help of Pointless, it seems to do*

a fine job (see my Pointless review in this issue for an example).
Diz

Dear Diz:
. . . I read Greg Zimmerman's review of the MacLand 105MB hard drive [*GS+* V3.N3] and it sounded like what I have been looking for. So I phoned the number and talked to a young male voice. I told him I might like to buy two drives so I could use one for a back-up.

First the voice told me that the price had gone up from $389 to $399. Then he advised me that I might be better off using a removable hard disk for backup (well, maybe).

He then asked me what model of Mac I was using. I told him I was using a IIGS, not a Mac. He told me their software would not work for me. I said I did not care. He then conferred with some other voices in the background, and came back to tell me that he could not sell the product to me because it was built for the Mac, and if it were used *in another machine* [emphasis added - Diz.], its warranty might be voided, so NO SALE.

Incredible. Well, to hell with it, I'll just build my own.

Robert L. Griswold
Stockton, CA

I agree with you, that is an incredible *display of ignorance on the part of the MacLand salesman. However, given that, like most Mac people, he probably didn't know that the IIGS can use SCSI drives, I can understand his behavior—as far as he's concerned, he's looking at an almost certain product return and, at the very least, a lot of wasted tech support time.*

*Still, there may have been some miscommunication in this case. In your letter, I emphasized the phrase "*in another machine.*" It may be that he thought you wanted an* internal *drive—not an external drive. In that case, he was right not to sell you the drive—Macintosh internal drives simply will not work on the IIGS without some modifications. So, it's vitally important that you explicitly state that you want an* external *drive when ordering from a Mac company.*

And, when they ask you which Mac you have, always *say "*II*".*
Diz

Dear *GS+*,
I noticed a problem that you answered for Rudy Nickman of Bergenfield, NJ concerning his TransWarp. This was the third letter on page three of *GS+* V3.N3.

I had had the same problem with my TransWarp GS when I first installed it. Although the fix suggested may be the problem, I believe that Rudy has the same problem I had, namely a *bad* TransWarp GS connector cable.

During the time frame discussed, Æ sold a lot of TransWarps with bad connector cables, after returning my TransWarp twice, they discovered the problem and issued new ribbons that can be identified by a black spot on the cable. This was a while ago and at that time the replacement cables were free—as for now, who knows. . . .

Jay Hubschman
via America Online

Thanks for the letter Jay! I actually had the same problem and had completely forgotten about it when I replied to Rudy's letter. That may very well be his problem.
Diz

Dear Steve:
The other day I received my long awaited copy of Pointless from WestCode Software. . . When I installed it on my hard drive, I quickly learned, when I tried to quit the first program back to the Finder, the Finder would crash. . . [According to WestCode's technical support] It seems that Pointless looks for the standard system cursor. I had purchased a disk, called "Way Cool GS," similar to Signature GS, which had a customized cursor such as your "Cool Cursor." WestCode suggested that I remove the "Skull Cursor" [which is part of the Way Cool GS package], reinstall Pointless and try again. I did and it has worked perfectly since then. After installing your "Cool Cursor" I had the same crashing problem, so reluctantly, I had to remove it.

. . . If [Pointless] is truly incompatible with custom cursors, then many of us GS people will not be able to use "Cool Cursor." I thought you should be aware of this. . . .

James Harris
Fairburn, GA

We have had quite a few people report problems with Cool Cursor [see "Errata" in this issue for more information], but, for the most part, it's been a case of the cursor simply not animating. Until we got your letter, no one had reported system crashes or conflicts with Pointless. In fact, I've been using Pointless with Cool Cursor for the entire time I've had it, and have not had a single conflict. Based on the information that was in your letter (or, more precisely, the information that wasn't *in your letter), I'd have to say that the conflict is with yet another piece of software.*

Which is a perfect excuse for me to say the following: If you have a problem with one of our programs, please, please, please *fill out the problem form that is on your* **GS+** *Disk and send it in! While we appreciate* all *of the letters that we get, when it comes to finding bugs in our programs, most letters simply don't give us enough information to even begin* looking *for the problem. That's why we designed the problem form, and that's why we continually beg everyone to send it in.*
Diz

Diz,
. . . I would like to put a TextEdit control in a dialog box. Maybe I missed it, but when I was looking through my Toolbox reference volume I could not find any info on doing this. Is it possible? When I checked the **dialog.h** file in ORCA/C I found they don't include a `#define` for this control. . . .

Steve Bilgrien
via America Online

Sorry, but you can't put an extended control (which is what a TextEdit control is) into a dialog—the Dialog Manager simply won't support it. What you have to do is create a window *with the* `NewWindow2` *call and then manage the window like a dialog. This is what EGOed does for it's Find and Replace "dialogs." Be sure to check out EGOed's* **Find.cc** *source file on your* **GS+** *Disk to see how it's done.*
Diz

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 with your letter.* Please address all letters to:

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Introduction To 3-D Graphics

Part 2: Surface Removal & Shading

By Michael Lutynski

In our first article ["Introduction To 3-D Graphics" in *GS+* V3.N2], which discussed the basics of three dimensional (3-D) programming, we learned the data structures, the mathematical routines, and the drawing techniques needed to manipulate and display two 3-D objects (a pyramid and a cube). In this article, I will present some essential, 3-D programming concepts: hidden surface removal and surface shading. Along the way, we'll build a 77-color palette from only 14 colors and a sharp demonstration program to show it all off with.

For this article, I will assume that you have read the first article and have a grasp on the basic 3-D concepts presented in it. Like the first article, we will be doing our programming in ORCA/C but, if you prefer, you could easily convert the formulas to your favorite language; it's not that difficult.

The first article dealt primarily with the geometry, or shape, of the objects. All of our math operated on the points of the objects to accomplish feats like scaling, rotation, and moving. Now we will be concentrating on the surfaces of the objects.

Hidden Surface Removal

After looking at the demonstration program that came with the first article, you may have noticed the inefficient way in which the surfaces were drawn on the screen. Namely, *all* of the objects' surfaces were drawn regardless of whether or not they could be seen. If we could find out which surfaces can not be seen, we could save a lot of time simply by not drawing them. This is called *hidden surface removal*, and it's one of the most important concepts in any programmer's 3-D arsenal.

Before we can determine if a surface faces us or not, we need to establish a convention for defining surfaces. As you'll remember, a surface is made up of a small list of indices indicating which points of the object to use. If a surface has four vertices, then it has four indices

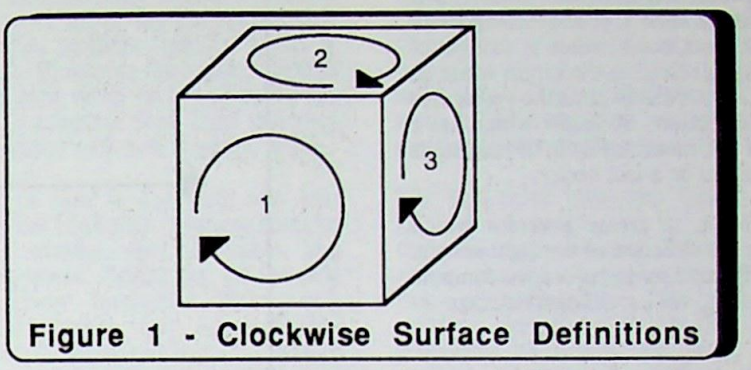

Figure 1 - Clockwise Surface Definitions

indicating which four of the object's points are used. If you look back to the first article, you will notice that we ordered the surface's vertices in a clockwise manner. This was no accident, because the first requirement for the hidden surface removal algorithm is to make sure that, when looking from the outside of the object, the vertices are listed clockwise around the edge of the surface. (See Figure 1.)

The heart of the algorithm lies in determining if the surface is still clockwise when the surface is projected onto the flat, 2-D computer screen. If the surface "appears" clockwise, then it is visible and needs to be drawn. However, if the surface "appears" counterclockwise, then it is facing away from us and is therefore hidden.

The formula for determining if a surface appears clockwise or counterclockwise follows:

```
orient =
   (pt2.x - pt1.x) *
   (pt3.y - pt2.y) -
   (pt2.y - pt1.y) *
   (pt3.x - pt2.x);

if (orient <= 0)
  counterclockwise;
else
  clockwise;
```

The variables `pt1`, `pt2`, and `pt3` are the first three points of the surface. Notice that these points are only two-dimensional because they've already been projected onto the screen. There's just one catch to using our 2-D hidden surface formula: we must use floating point, or real, values for the x and y components of `pt1`, `pt2`, and `pt3`. Using integers is not as precise, and doing so would make surfaces, in some instances, hide prematurely, leaving gaps in the sides of our objects.

Light

Let's take a moment to talk about the type of lighting we will use. A light bulb radiates light rays in all directions and is called a *point source illuminator*. (See Figure 2a.) Its light rays spread out and strike a surface at varying angles. However, if the light bulb is moved to a position "infinitely" far away, then its light rays become parallel and strike a surface at a constant angle. (See Figure 2b.) Such a distant light source, like the sun, is called a *parallel beam illuminator*, and is the type we will be using because it is the easier of the two to implement.

Ambient light is the minimum amount of light present which shades all surfaces. Even if a surface faces 180° away from a light source, the surface will still be shaded by the global ambient light. Ambient intensity is specified by a value in the range of 0 to 1.

Vectors

Before we can go any further, we must establish the fundamental concept of a *vector*. In the simplest terms, a vector can be thought of as nothing more than a direction. Rays of light are considered

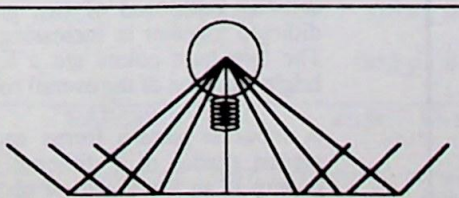

Figure 2a - Point Source Illumination

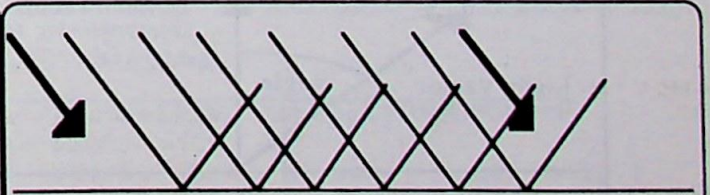

Figure 2b - Parallel Beam Illumination

vectors because they, too, have direction. (See Figure 3.)

Creating vectors is straightforward. A 3-D vector has the same x, y, and z components as a 3-D point, but a vector is thought of having its tail fixed at the origin while its head's x, y, z location aims the vector in a specific direction. A vector which has a length of 1.0, measured from its head to its tail, is said to be a *unit vector*.

For example, to create a vector which points in the direction of our light source, as we will have to do before we compute any shading, we set `lightVector` as follows:

```
lightVector.x =  10000;
lightVector.y =  0;
lightVector.z = -10000;
```

`lightVector` now points to a location which is far behind our right shoulder. However, `lightVector` is not yet a unit vector. A few of the vectors we will work with, like `lightVector`, will have to be in unit vector form for our equations to work properly. We use the function `MakeUnitVector` to turn vectors into unit vectors.

Shading

The objects in the first article were unexciting partly because they were mono-colored. We are about to change that.

The basic idea for finding the shade of a surface is to determine the angle between the *surface normal* and the light vector. A surface normal is a vector perpendicular to the plane of the surface. The angle between these two vectors determines the intensity of the surface's shade. If the angle is 0°, then the light source directly illuminates the surface and the shade is at its maximum intensity. If the angle is 90°, the light source is edge-on to the surface and the surface receives the lowest shading intensity. A 45° angle would create a medium shade. (See Figure 4.) This angle-to-shade effect is called *Lambert shading*.

How To Do It

First, I'll give the formulas for determining shading and then I'll explain each of the steps.

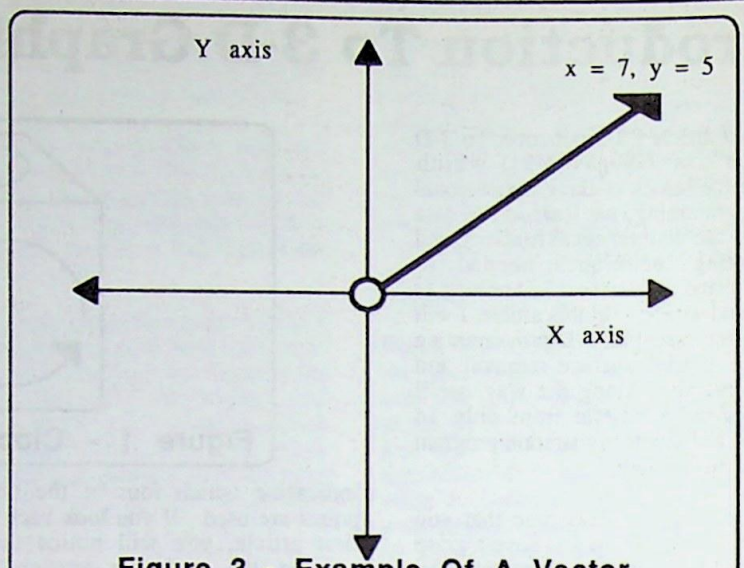

Figure 3 - Example Of A Vector

Step 1: Create surface vectors

```
P3Sub (&pt1, &pt2, &v1);
P3Sub (&pt3, &pt2, &v2);
```

Step 2: Create surface normal

```
V3Cross(&v2,&v1,&sNorm);
MakeUnitVector(&sNorm);
```

Step 3: Calculate shade

```
angle =
 V3Dot(&sNorm,&lightVector);
intensity =
 ((1-ambient)*angle)+ambient;
shade =
 (integer) ((NumShades - 1) *
 intensity);
```

The first step creates two vectors, v1 and v2, which define the plane of the surface. `P3Sub` is a small math routine which subtracts one point from another and places the result in a vector. The points, `pt1`, `pt2`, and `pt3`, are the object's 3-D points which have already been transformed (scaled, rotated, and moved).

The second step performs a mathematical *cross product* with the `V3Cross` function to produce the surface's normal vector. `V3Cross` takes two vectors and creates a new vector perpendicular to the surface. `MakeUnitVector` is used to assure that this new surface normal vector will be a unit vector.

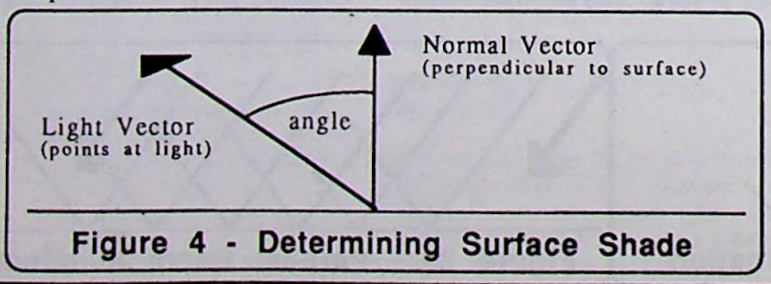

Figure 4 - Determining Surface Shade

Step three calculates the angle between the surface's normal vector and the light vector with the mathematical *dot product* function, `V3Dot`. `V3Dot` takes two vectors and returns a single value, or `angle`, in the range of -1 to 1. This `angle` is not in degrees, but rather it's the cosine of the angle between the vectors. If `angle` is negative, this tells us that the surface is facing away from the light source. The lighting intensity of the surface, `intensity`, is computed and will have a value between 1 and 0. The value `shade` is the final result we need to use when we paint the polygon; it becomes an index into our *color table*, which will be discussed shortly.

Color Dithering

We can create the illusion that we have more colors than are available to us using a time-honored technique called *dithering*. Dithering is the result of placing differently colored pixels closely together so that they appear to have a different color. Dithering seems to work best when the pixels are small, like with the IIGS's 640 x 200 graphics mode. However, since we want the most available colors, we'll be using 320 mode; the dithering will appear a bit grainy, but that's OK.

Our color table will have seven dithered colors, each with eleven shades. One dithered color with its eleven shades is actually composed of two pure colors dithered together in increasing amounts. The two pure colors are a light and a bright variation of the overall color.

A separate *pattern* forms each of the eleven shades of a dithered color. A pattern is an 8 x 8 grid of pixels, which can be used by QuickDraw's painting

routines. (See Figure 5.) By carefully choosing which pixels in a pattern will have which of the two pure colors, we create a new color blend. For example, if every other pixel alternates between, say, bright green and light green, a medium green is the result.

To use the color table's shades, we first create an array of patterns:

```
Pattern ditherColor
[NumColors][NumShades];
```

After initializing the patterns to their proper dithered state, all we have to do to get the desired shade of a color is issue a

```
SetPenPat
(&ditherColor[color][shade]);
```

where `color` is one of seven values and `shade` is from Step 3 in the shading formula.

The Demo

When you launch the demonstration program, you will see the same two familiar windows: one for viewing the 3-D objects and one for changing the orientation and scale of the objects. The new Light menu lets you change the ambient light, alter the lighting direction, and display a window which shows all of the dithered colors. The default ambient light is set to 0. Repeatedly increasing the ambient light to its maximum value of 1 will make the objects so saturated with light that they will be shaded with their brightest colors.

The source code is now split into four files to make life easier. **Main.cc** contains all the constants, data structures, and global variables. **Init.cc** has all the new initialization functions like `SetCustomPalette`, and `SetCustomDitherColorPatterns`. **Desk.cc** holds all the standard functions which maintain the desktop environment. **Only3D.cc** has the new routines like `ChangeAmbientLight`, `ChangeLightDirection`, `CalcSurfaceVisibility`, `CalcSurfaceShade`, `MakeUnitVector`, `P3Sub`, `V3Cross`, and `V3Dot`. All of the new things that were added to the first article's program are marked `NEW` in the source code.

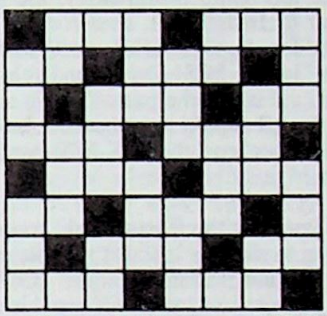

Figure 5 - 8 x 8 Pattern (25% Dither)

The two most important functions are `CalcSurfaceVisibility` and `CalcSurfaceShade`. They are called after the `TransformObject` and `ConvertObjectFrom3Dto2D` routines, introduced in the first article, whenever an object has been scaled, rotated or moved. Then calling `DrawObject` will reflect the object's change.

Fini

With the understanding of hidden surface removal and surface shading, along with the concepts from the first article, we have the tools in hand to create 3-D worlds which can approximate reality. All you have to do is use your imagination. ***GS+***

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First Impressions Of System 6

By Steven W. Disbrow

Disclaimer

This article is being written mere hours before we go to print, and is based on approximately six days of life with System 6. This is not intended as a definitive article on System 6! I just wanted to share some of our early experiences with you, in an effort to save you some headaches and give you an idea of what you can expect from the new system. I'll also give some tips as to what you need to get the most out of System 6.

Tip #1: Buy A Hard Drive

Yes, finally! It was back in July of 1991 that Apple unofficially announced that it was working on System 6, and after months of delays and last minute refinements, Apple IIGS System Software v6.0 was finally made available for download from various information services at 5 p.m. on March 30th of 1992.

Was it worth the wait? Was it worth 5 and a half hours of downloading? So far, I would have answer with a resounding "yes!" System 6 seems to be a major step forward in making the IIGS easier to use and much more powerful.

Tip #2: Buy A Hard Drive

System 6 is truly a major piece of work that takes up all of *five* 800K disks. Now, you may hear others say that System 6 comes on *six* disks. That's true, but the sixth disk is merely a minimum boot disk (i.e. a disk that contains the *bare-minimum* required to run System 6). The new Installer comes with an option to build this disk for you, so it really isn't necessary to have this disk. Keeping this in mind can save you an hour of download time if that's the way you are going to get System 6. (I downloaded it simply because I wanted to see what System 6 looked like while I downloaded the other 5 disks!) Speaking of the new Installer . . . .

Tip #3: Buy A Hard Drive

After you get System 6, the first thing you have to do is install it on your system. If you don't have a hard disk, you don't have that many options, you pretty much have to use the minimal boot disk to use System 6.

However, if you have a hard disk or a 1.4MB floppy (and are using the new Apple II 3.5 Controller Card), you will need to boot the **:Install** disk to place System 6 onto your boot drive. When I say you will have to "boot the **:Install** disk," that's just what I mean. The new Installer *can not* and *will not* let you update the system files on your startup disk. So, you will have to boot off of the **:Install** diskette. I agree that it's a pain, but I also agree with Apple that it's better to be safe than sorry.

Now, if you have ever tried to install System 5.0.4 onto a SCSI drive, you know that the old **:System.Disk** did not contain the drivers needed to access a SCSI drive and you had to do some file copying and reboot a couple of times to get the job done. Fortunately, the new System 6 **:Install** disk *does* contain the drivers for Apple's SCSI card, so that whole "Install SCSI Driver and reboot" mess is a thing of the past. (Along those same lines, I should note that the **:Install** disk does *not* have the HFS FST installed on it!)

When you boot the **:Install** disk, you will be taken to the new Installer. Apple calls this the "One Button Installer," because when you get to it, you will see this one button with the very friendly title, "Easy Update." How nice! How comforting! Ignore it. Why? Lemme tell ya . . . .

When you select "Easy Update," the Installer goes over the disk you have selected to update and replaces *only* those files that are already there. In other words, it doesn't add anything really *new* to your System. You won't get any of the new File System Translators, the Teach application, the Calculator NDA or any of that neat stuff because they weren't already there. Of course, if you don't *want* any of that neat new stuff, by all means, use the "Easy Update."

Anyway, my advice is to click on the "Customize" button (which is just below the "Easy Update" button) instead. This button will present you with another window that looks a lot like the old Installer. From here, you can pick exactly the type of installation you need. For example, one selection updates either a hard drive or 1.4MB floppy, another builds the minimum boot disk that I told you about earlier. Take a few moments to look over all of your options (and be sure to look at all of the items in the Installer's new Help menu!) and then go hog wild installing all of the neat new stuff.

Tip #4: Buy A Hard Drive

After you get System 6 installed and reboot, you will probably want to check out the new Finder. If you use "Easy Update" to install System 6, your start program will *not* be overwritten, so if you are using ProSEL or another start program, you will actually have to go and find the new Finder. In fact, even if you are using the Finder, you will find that it is *not* the **Start** file! The new **Start** file is a mini-program launcher that works in conjunction with the new "SetStart" Control Panel to actually take you to the Finder. The Finder is still in the ***:System** folder, but now it's just called "Finder."

Be that as it may, once you actually get to the new Finder, you are in for some major treats! This is an amazingly cool piece of software of which Andy Nicholas and Dave Lyons should be very proud.

Discussing every new feature that is in Finder v6.0 would probably fill the magazine and it would definitely repeat stuff that has already been said in every magazine from *A+/inCider* to *A2-Central*, so I'm just going to go over a few things that you might not otherwise notice or things that will just make your life easier.

In the "make your life easier" category, the new Finder supports a neat little trick called "Tunneling" and an even neater trick called "Reverse Tunneling." Tunneling occurs when you hold down the option key while opening a folder. The folder whooshes open and its parent window closes behind it! This is a great way to keep your desktop clean as you dig through folder after folder trying to find the documents that could send you up the river for the next 20 years. So, now, you've opened about 10 folders, but only one window is on the desktop. If you want to get back to one of the previous folders, you don't have to dig through them all again, just hold down the Command key and click on the title of the topmost window. A pop-up menu will appear showing you all of the folders that you had to go through to get to the window you are currently looking at! To get back to one of those windows, simply select it from the menu and it will open back up for you! And, if you hold down the option key when you make a selection from the menu, the original window (the one with the menu in it) will close after the new window opens! This is Reverse Tunneling.

Now, if you *like* a cluttered desktop, you will be happy to know that the new Finder allows you to have up to twenty windows open at a time (at least, that's the most I could get it to open), that's

twice as many as the old Finder. And, if you hold down the option key while clicking in the close box of any Finder window, all open windows will be closed.

Another thing that will make you life easier, is that almost every single item in every dialog now has a key equivalent! For example, when you pick Shutdown from the Special menu, it used to be that you had to grab the mouse and click on the Restart button if you wanted to Restart. Now all you have to do is type an "r" and the Restart button is automatically selected!

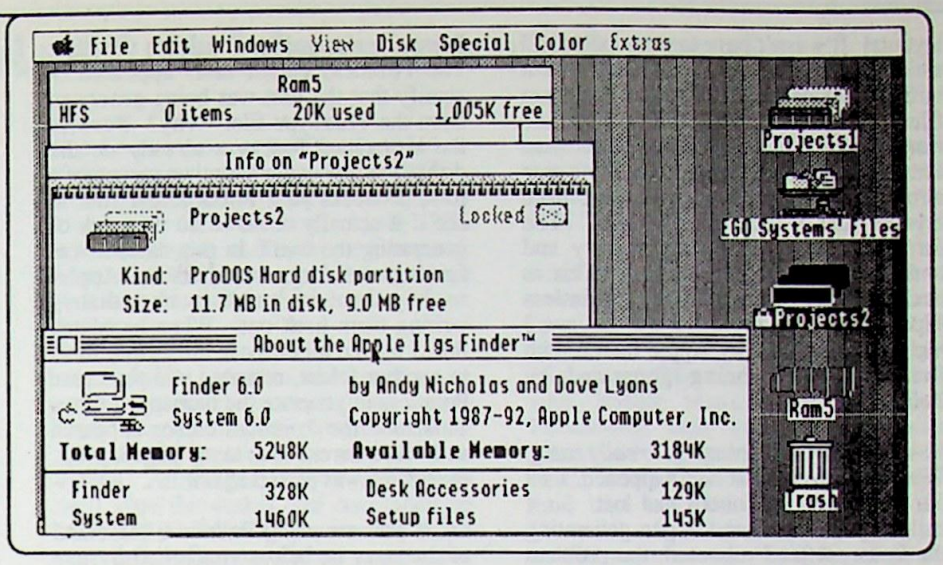
And the Finder isn't the only part of the system that has been redone to support keystroke equivalents; almost every dialog in the system now has support for this time-saving feature. For example, when you pick Choose Font in just about any text editor (like our own EGOed or the Teach application supplied by Apple), you will find that you can use the keyboard to pick any font, size or style combination that you want. And in Standard File, when you are saving a file, if the computer tells you "That file already exists," you can just press the "r" key to select the Replace button! In fact, any program that uses Alert Windows will automatically have keystroke equivalents for the buttons in those Alert Windows! For example, in EGOed, if you select the New menu item and there were changes to the file you were working on, EGOed will ask you if you want to save the file before closing it. The three choices you are given are "Yes," "No," and "Cancel." Under the old System Software, you would have to grab the mouse and click it on one of the buttons. Under System 6 you can just press "N" for the No button or escape for the Cancel button! And the best part is that I didn't have to change a line of my code!

Now that I've beaten the buttons to death, let me tell you about a little thing that you might not otherwise notice. If you select a SCSI drive in the Finder and then select the Icon Info menu item, you will notice that there is a "Locked" check box in the upper right corner of the info window. That's right, you can write-protect your hard drives! This should come in very handy in schools and homes with inquisitive children!

Tip #5: Buy A Hard Drive

Well, I am rapidly running out of both space and time, and I've only scratched the surface! So, I think I'll move on to some of the other parts of the system.

There are several application programs provided with System 6. The only one I have had the time to play with is *Teach*. Teach is a simple text editor that Apple has supplied to address the problem of "I want to include a formatted **Read.Me** file, but I don't know if my customers will have an editor that can read Teach files." By distributing the Teach application with System 6, Apple has taken a great step forward in establishing the Teach file format as a standard and in giving developers the assurance that IIGS owners will be able to read any documentation that they might want to supply on disk. They've also done developers a favor by making Teach one of the least powerful editors that I've ever seen. So if you want to write the Great American Apple IIGS Word Processor, go for it—Teach definitely won't cost you any sales.



Of course, Teach isn't all bad. It can import AppleWorks GS, AppleWorks Classic and MacWrite v5.0 files so that you can save them back out in Teach format. But even that is not done quite the way you would expect. The key word here is "import." You can't simply "Open" anything other than Teach files and text files. Which, sadly, also means that you can't double-click on a MacWrite v5.0 file in the Finder and have Teach open it. You have to first start up the Teach application and then use the Import menu item to open one of these files.

Tip #6: HFS Won't Boot!

By now you may have noticed that I have not talked much about the long-awaited HFS FST. The reason is that there really isn't that much to say about it. You install it in your system, reboot, and then you can use HFS disks just like any other disk. There are no hoops to jump through or animals to sacrifice. It's an amazing piece of software and almost 100% transparent. Except, of course, for one little thing . . . .

You *can not*, I repeat, *can not* boot from an HFS disk. Even under System 6, your boot disk *must* be a ProDOS disk. So don't waste your time trying and please don't call to ask me why you can't do it! (That means *you* Burger!) If you have to know, ask Greg, or Tim, or Matt, one of those other guys at Apple. In fact, maybe one of them would do an article for us on this very subject. How about it guys?

Tip #7: Buy Some More RAM Too

Finally, I want to address the issue of compatibility. Thus far we have only had two problems with System 6 and existing software. Other than these two problems, absolutely everything else we have tried has worked great.

The first problem was with version 1.2 of the ORCA/Disassembler. When Joe ran this program under System 6, the cursor began to "erase" everything underneath it on the screen. We thought this to be very odd, and it definitely slows down the disassembly process.

The second problem was one I found, and it has to do with Pointless. It's not a bug, it's just a very weird "sequence of events" problem, that, unfortunately, lots of Pointless owners will probably have without even knowing it. So, if you own Pointless, pay attention, because this gets weird. But, reading this could save you some major headaches!

When you install System 6, you not only get lots of new System 6 stuff, you also get lots of new bitmapped fonts stuffed into your **Fonts** folder.

Among others, installing System 6 on my system replaced my **Times.10**, **Times.12**, **Helvetica.10**, and **Courier.10** fonts. These just happen to be fonts that I generated with Pointless for use in our

layouts! It wasn't easy to spot, because I used "Easy Update" to update my system initially. Since Easy Update only replaces files that are already on the disk, the *names* of the files in my **Fonts** folder were the same! I didn't suspect anything was wrong until I tried to reprint some page layouts that I had already done. The formatting was completely screwy and nothing I tried would fix it. (This is because, as I warned in the "Pointless Tips" section of my Pointless review, I had fonts provided by Apple mixed with fonts that were being generated by Pointless.)

Now here's where things get *really* nasty. When I realized what had happened, I set out to recreate the fonts I had lost. So, I called up Pointless and began generating the fonts. After I rebooted, the problem was *still* there! In desperation, I reinstalled Pointless and all of my TrueType fonts and generated my bitmapped fonts again. The problem still would not go away!

Finally, I noticed that when I told Pointless to generate a bitmap font, Pointless was going straight to the disk. The Pointless cursor *never* appeared to signify that the font was being generated from the TrueType file! Why? Because the bitmapped font was already on the disk! You see, when Pointless generates a font, it checks your **Fonts** folder first to see if it actually needs to do the work of generating the font! In this case, it was finding the fonts supplied by Apple, reading them in, and then immediately writing them back out! When I realized this, I moved all of those bitmapped fonts to another folder, restarted and *then* used Pointless to generate the bitmapped fonts. This time the Pointless cursor appeared and, when I went back to my page layouts, everything was perfect again!

So, if you are using Pointless, the moral of the story is, before you install System 6, make backups of all of your Pointless generated bitmap fonts and then copy them back to your **Fonts** folder *after* you install System 6! In fact, before you begin generating any bitmap fonts with Pointless, you should move your old bitmapped fonts out of your **Fonts** folder, so that Pointless will actually use the TrueType font to generate the bitmapped font.

Tip #8: Buy A Hard Disk

Alas, I have so much more to tell about System 6, even after only a week of using it, but the printer is knocking on the door and I've got to get these pages finished. I hope that I've been able to give you some idea of the new power and ease of use that is waiting for you in System 6, and I hope even more that I have saved some of you some headaches. My last tip is to tell you to be sure and read the **Read.Me** and **Shortcuts** files that you will find on the **:SystemTools2** disk when you get System 6. And if you get a chance, be sure to thank the people that created System 6! They truly deserve all the praise we can give them.

Oh! I almost forgot, you will really need to have a hard disk to get any real use out of System 6. *GS+*

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The 1991 Apple II Achievement Awards

Reported by Steven W. Disbrow

On April 3, 1992, at 10 p.m. Eastern Time, the Rotunda on America Online was filled with some of the best and brightest in the Apple II universe. The Master of Ceremonies was the distinguished Matt Deatherage of Apple Developer Technical Services and the event was the 1991 Apple II Achievement Awards.

Mr. Deatherage looked resplendent in his hand-knitted tuxedo as he asked the OnlineHost to read the nominees for the first award: Best Educational Program. The nominees included, GeoQuiz by PC Globe, HyperCard IIGS by Apple Computer, HyperStudio v3.0 by Roger Wagner Publishing, and McGee at the Fun Fair by Lawrence Productions. With a flourish, Matt ripped open the envelope and announced that the winner was . . . *HyperStudio v3.0*!

Next came the award for Best Best 8-bit application. The nominees were: Delta Drawing Today by Power Industries, InWords by WestCode Software, ProTERM v3.0 by inSync Software, PublishIt! 4 by TimeWorks, and Total Control by JEM Software. Again, Matt held the audience spellbound as he announced the winner: *ProTERM v3.0*!

Next came the award for best 16-bit software. The nominees were: DreamGrafix by DreamWorld Software, GraphicWriter III v1.1 by Seven Hills Software, HyperCard IIGS, HyperStudio v3.0, and SuperConvert by Seven Hills Software. Feeling more confident, Matt announced this winner while balancing on one knee. The winner? *HyperCard IIGS*!

Next, Matt presented one of two Apple II Individual Recognition awards. These Recognition awards were added to supplement the coveted Apple II Individual Achievement award. The first individual receiving this special recognition of his work for the Apple II was *Alan Bird* of West Code Software!

Then, Matt moved back to the mainstream awards by presenting the award for Best Freeware or Shareware Program. The nominees included Milestones 2000 by Dr. Ken Franklin, Nifty List v3.3 by Dave Lyons, GS-ShrinkIt v1.0.4 by Andy Nicholas, SuperView v2.2 by Chris McKinsey and UtilityWorks by George Wilde. The award, the first of many for this young man, went to Andy Nicholas for *GS-ShrinkIt v1.0.4*!

The next award was for Best Innovation. The nominees were: DreamGrafix, HyperCard IIgs, inWords, Pointless by WestCode Software, and Apple IIGS System Software v6.0 by Apple Computer. Matt confidently tore open the envelope and announced that the winner was . . . *Pointless*!

At this point, Matt took some time to explain that there had been some controversy surrounding the nomination of System Software v6.0 for *any* of these awards. After all, it wasn't even released until after the voting had concluded on March 27th! The only comment that I will make is that *we* did *not* nominate or vote for System 6 in any category. We felt that the recognition should go to those that actually managed to release their products during the time period specified, and we had not been told that shipping beta versions to testers counted as a software "release."

Getting back to the awards, Matt then presented the award for Multimedia Achievement. The nominees were: HyperBole by Resource Central, HyperCard IIgs, HyperStudio v3.0, the Media Control Tool Set by Apple Computer, and Script-Central by Resource Central. Ripping open the envelope, Matt announced that the winner was, for the second time that night . . . *HyperStudio v3.0*!

The next award was for Best Utility Program. The nominees were: Finder v6.0 by Apple Computer, ProSel 16 by Glen Bredon, the Salvation series by Vitesse, GS-ShrinkIt, and SuperConvert. Without wasting a moment, Matt ripped the envelope open and revealed the winner. *Glen Bredon* for *ProSel 16*!

Then it was time for the second Individual Recognition Award of the night. This one went to long-time Apple II supporter, publisher of *A2-Central*, and all around great guy, *Tom Weishaar*!

Next came the award for Outstanding Developer Aid. The nominees were, GSBug v1.6 by Apple Computer, GNO/ME by Procyon, Nifty List v3.3, ORCA/M v2.0 by The Byte Works, and the Talking Tools, also by The Byte Works. Once again, Matt demonstrated his deft ability to wield a letter opener and announced the winner! *GSBug v1.6*!

Next came the Group Achievement Award. I don't think that it will be any surprise to anyone that this award went to the great people in the *Apple II System Software Team* for their outstanding work on the IIGS System Software.

Next came the award that I had been waiting for—Best Apple II Periodical. The nominees were: *A2-Central* by Resource Central, *A+/inCider* by A+ Publishing, *GS+* Magazine by you-know-who, Nibble Magazine by MindCraft Publishing, and Script-Central, also published by Resource Central. For some reason, Matt forgot about all the money I gave him and said, "the winner is *A2-Central*." Rats! You just can't buy off an MC anymore. Oh well, we might not have won, but at least we lost to the very best!

Next came the award for Best Apple II Online Service. The nominees were: America Online, CompuServe, Delphi, GEnie, and The Internet (including all of its Apple II newsgroups and mailing lists). Since we were *on* America Online at that very moment, there was quite a bit of tension coming over the phone lines as Matt read the winner. Amazingly, it was a two-way tie! Both *America Online* and *GEnie* were named Best Apple II Online Service!

Then came one of the most coveted awards of the night, the Individual Achievement Award. I won't say anything about this one other than it couldn't have gone to a more deserving person: *Andy Nicholas*.

Finally, Matt prepared to announce the big award, Software of the Year! By this point, the names of the nominees had gotten to be very familiar. They were: DreamGrafix, HyperCard IIgs, HyperStudio v3.0, Pointless, ProTERM v3.0, and Apple IIGS System Software v6.0. Holding his breath, Matt slit open the envelope and announced the big winner: *Apple IIGS System Software v6.0*!

And then, suddenly, it was over. The awards had been give out and the spectators began logging out of the Rotunda. Even with the minor controversy, it was a lot of fun to attend. And I am already looking forward to next year.

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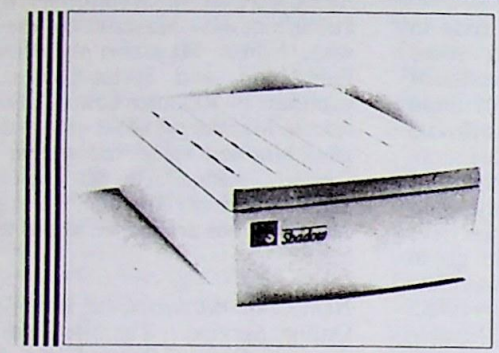

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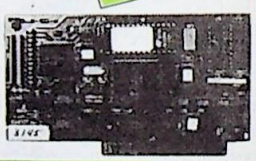

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Replicator v1.1

By Josef W. Wankerl
& Steven W. Disbrow

When we finished up Replicator for last issue (see "What Is Replicator?" for more information), we thought that it was going to be one of those programs that people look at and say, "What, another disk duplicator?" We were convinced that only a few people would get excited about it (namely ourselves and people that have to copy disks at user group meetings). Much to our surprise, a *lot* of people called and wrote to say, "Wow, man! That's cool!" Apparently, we weren't the only ones that were tired of jumping through hoops to get disks copied with ZZ Copy and Photonix.

After copying a few thousand *GS+* Disks with Replicator, we came up with some new features that we wanted to make it even easier to use. And there was one bug to fix, so, after fixing that and getting all of these new features to actually work, we are proud to present Replicator v1.1!

New Disk Options

For us, *copying* disks is only part of the battle. We also take the time to validate 20% of the disks that we've copied before they get shipped out. This has helped us catch *lots* of defective disks, and has saved us untold amounts of money on returns and replacements. However, it's been a real pain to actually do. Basically, we would copy the disks (using whatever program we happened to be using) and then go to the Finder and use its "Verify" option to verify one out of every five disks we had copied. So, we would have three piles of disks: blank and uncopied, copied but not verified, copied and verified and waiting for labels. As you can imagine, this could be quite confusing. Needless to say, a major consideration in Replicator v1.1 was to automate the Verify step.

So, Replicator now has some *very* exhaustive disk validation routines that you can use to make sure that the data on a disk is valid. All of these validation checks are selectable from menu items in the Disk menu or they can be made a part of the disk duplication process via new options in the Preferences dialog (see "New Preferences" below).

The first check, "Compare...", allows you to compare a disk image in memory with any volume online. When you select this item, Replicator will prompt you to select a volume to compare the disk image to, and then the disk image will be compared against the volume you selected. If the disk image in memory and the selected volume aren't *exactly* the same, Replicator will tell you so.

The second check, "Verify Blocks...", allows you to check the integrity of the *blocks* on any online volume. Select this item and Replicator will prompt you to select a volume to verify. Each block on the selected volume will then be checked for errors. If an error occurs when Replicator tries to read a block from the volume, Replicator will tell you that the disk contains bad blocks and the Verify operation will stop.

The last check, "Validate Volume...", allows you to check the integrity of the *files* on a disk. Replicator will prompt you to select a volume to validate, and then each file on the selected volume will be checked for errors. If an error occurs when Replicator tries to read a file from the volume, Replicator will tell you that the disk contains a bad file and the Validate operation will stop.

Faster Saving

When a document was saved using Replicator v1.0, all the information in the disk window was written out. Replicator v1.1 is a bit smarter than that. Since the disk *image* can never change, it doesn't need to be written out when you make a change to either the number of copies or comments field. When the "Save" menu item is selected, only the information that *can* be changed (comments, mass copy option, and the number of copies to make) is updated in the Replicator document. This drastically reduces the time needed to save a document since the (usually) huge disk image does not need to be written. When the "Save As..." menu item is selected, the entire document (including the disk image) is written out, just as in Replicator v1.0.

Smaller?

Most people that asked for changes to Replicator v1.0 asked for one thing in particular: compression of the disk image in Replicator documents. There wasn't time to put it in this version, but a lot of internal programming hooks have been put in so that compression can be supported in the future. In fact, you can see part of this with a new field in the disk information window: the compression field. So far, the only supported compression type is "None."

Load And Unload

The disk information window now contains a button which can be in one of three states: Unload Disk Image, Load Disk Image, or disabled. When you open a Replicator document, an attempt is made to load the disk image into memory. If there is not enough memory, version 1.0 would simply refuse to load the document. Version 1.1 handles the not-enough-memory situation by opening the disk information window, loading everything *except* the disk image, and setting the load/unload button to "Load Disk Image." When you click on the Load Disk Image button, Replicator will make another attempt to load the disk image. If a disk image has been successfully loaded for a Replicator document, the load/unload button will be set to "Unload Disk Image." When you click on the Unload Disk Image button, Replicator will dispose of the memory it has for the disk image. This allows you to have multiple documents open, even if memory wouldn't normally allow it. You can easily switch between disk images, meaning that you don't have to waste time moving through folders by repeatedly opening a document. When you read in a new disk with the "New..." menu item, the load/unload button will be disabled until you save the new document.

New Preferences

The original Replicator had three preferences—Replicator v1.1 has eight. The five new preferences are:

"Blank screen on formats and writes." This tells Replicator whether or not the screen is to be blanked during time consuming operations such as when a disk is being formatted, written, verified, validated, or compared with a disk image. Screen blanking will only take place during disk duplication. In other words, if you select Format, Verify, Validate, or Compare from the menu bar, the screen will *not* blank.

"Clear errors after disk inserts." This tells Replicator what to do after an error occurs.

What Is Replicator?

Replicator is a IIGS-specific, *desktop based disk duplicator*. Unlike other IIGS disk duplication programs, Replicator will work with any GS/OS disk and any device supported by GS/OS. Replicator will even work with your old UniDisk 3.5 drives! For complete documentation on how to use Replicator, be sure to read the file **Replicator.Docs** which is on your *GS+* Disk in the **Replicator** folder.

Sometimes it can be rather confusing when you are duplicating a lot of disks and an error occurs. Specifically, it can be hard to remember if the errors shown had been there before or not. Clearing the error dialog box after disk inserts insures that there are no old error messages being displayed.

"Verify disk blocks every [X] disks." This tells Replicator how often to verify blocks on target disks (after the copy has been made). Setting X to "0" means that Replicator will never verify blocks when duplicating. Setting X to "1" means that Replicator will verify blocks on *every* duplicate disk. Setting X to "2" means that Replicator will verify blocks on every other duplicate disk.

"Validate disk files every [X] disks." This tells Replicator how often to validate files on target disks (after the copy has been made). Setting X to "0" means that Replicator will never validate files when duplicating. Setting X to "1" means that Replicator will validate files on *every* duplicate disk. Setting X to "2" means that Replicator will validate files on every other duplicate disk.

"Compare disk images every [X] disks." This tells Replicator how often to compare the disk image with a target disk (after the copy has been made). Setting X to "0" means that Replicator will never compare the disk image with the duplicate disk. Setting X to "1" means that Replicator will compare the disk image to *every* duplicate disk. Setting X to "2" means that Replicator will compare the disk image to every other duplicate disk.

(Don't forget to refer to the "Replicator" article in *GS+* V3.N3 or the file **Replicator.Docs** on your *GS+* Disk for documentation on the preferences not discussed here.)

For example, to get our 20% verification, we set the "Verify disk blocks every [X] disks" option to "5." This tells Replicator to verify the blocks on every fifth disk that it copies.

Happy Replicating!

Version 1.1 of Replicator has every feature that *we* could think of (except for the compression of disk images). So, unless you let us know what other features *you* need, we are going to consider Replicator "finished" for a while—unless, of course, some bugs creep out. If *you* happen to find a bug, please fill out the problem form on your *GS+* Disk and send it in so that we can squash it (the bug that is, not the problem form). If you want to know more about the internal workings of Replicator, be sure to read the file **RepTech.Docs** which is on your *GS+* Disk in the **Replicator** folder.

We realize that Replicator isn't the fastest disk duplicator around, but it is extremely versatile; and with the new data validation options in this version, you can rest assured that if a customer gets a bad disk, it was damaged during shipment! ***GS+***

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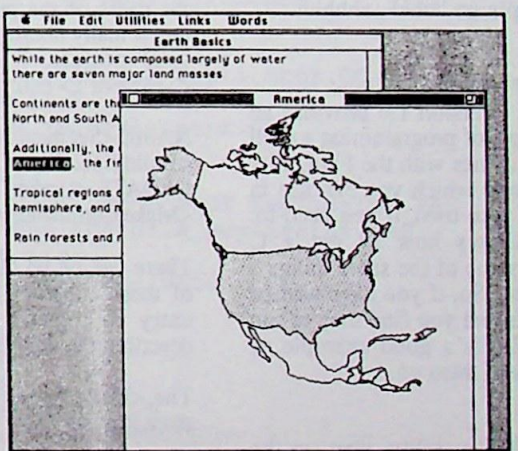

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A Make Utility For ORCA v2.0

By Josef W. Wankerl

A *long* time ago, I discussed a nifty little make script that I was using to automate compiling my programs. [See "The Molehill" in *GS+* V2.N2.] Well I've finally got fed up enough with it to create a new Make utility for the ORCA shell (version 2.0 and later) that correctly handles file dependencies, and it also knows if you've modified your source code! In fact, Make is such a handy utility, there are two versions of it on your *GS+* Disk.

Which Version?

Since there are two version of Make on your *GS+* Disk (versions 1.0 and 2.0) you might like to know what the difference is before you decide which one to use.

Version 1.0 is actually two utilities: Make and FileUtility. Version 1.0 is a shell script, and FileUtility was written using ORCA/C.

Version 2.0 is one utility, and was written entirely using ORCA/C.

Conceptually both versions get the job done in the same way, however v2.0 is *much* faster. Try comparing a Yugo to a Ferrari, they'll both get you there—it's just a matter of how fast you get there and how many people go "ohhh, ahhhhh . . ." along the way.

Why Two Versions?

Well why not? Version 1.0 provides an excellent example of programming a shell script and also comes with the FileUtility utility (see below) which you can use in shell scripts of your own, if you need to. Version 2.0 shows how to get a C program to do some of the same things a shell script does. So, if you have written any shell scripts and you find they're too slow, Make v2.0 is a good example of how you can speed them up.

Installation

To install the Make utility, start up the ORCA shell and run one of the MInstall scripts (there is one for each version of Make) from the backup copy of your *GS+* Disk.

The MInstall script for Make v1.0 is in the **Make:Make1.0** folder and it will copy the Make script, its help file, the FileUtility utility, and its help file to your **17:** (and **17:Help**) folder (which is where utilities and their help files are kept). Finally, the file **Add.To.SysCmnd** is appended to your **15:SysCmnd** file, and the new command set is switched in.

The MInstall script for Make v2.0 (which is in the **Make:Make2.0** folder) does not copy FileUtility or its help file since FileUtility is not used by Make v2.0.

If you use the `-tamper` option with either version of MInstall, the final step of appending the **Add.To.SysCmnd** file to the **15:SysCmnd** file is not done (type `MInstall -tamper`.)

Using Make

Both versions of Make run off of a file called **Make.Script** (which should be in the same folder as your source code). The **Make.Script** file contains information on the dependencies of your source code. The format of a typical **Make.Script** file is as follows:

```
<Application Name>
<Segment 1>
<Segment 2>
.
.
.
<Segment n>
```

There may be optional blank lines between each <Segment x> entry. The <Application Name> entry is a one line entry in the **Make.Script** file. It is simply the name of the project you are working on. It really doesn't matter what you name your project. The format for each <Segment x> entry is as follows:

```
NAME <Segment Name>
<Build Specifiers>
UPDATE <Update Segments>
<Make Commands>
```

There can be *no* blank lines between any of these entries. The <Segment Name> entry is a one word descriptor which describes the segment.

The <Build Specifiers> can be in one of three formats:

```
ALWAYS
or
COMMAND
or
NEWER <Newer Parameters 1>
NEWER <Newer Parameters 2>
.
.
.
NEWER <Newer Parameters n>
```

The ALWAYS build specifier means that the commands for making the segment should always be done.

The COMMAND build specifier means that the commands for making the segment should be done only when the segment name is entered on the make command line (for example, "make it" would build the segment named "it").

The NEWER build specifier means that the commands for making the segment should be done only when the ORCA shell utility, Newer, returns a non-zero result in the `{Status}` variable. See your ORCA manual (or type "help newer" from the ORCA command line) for more information on the Newer shell utility. The <Newer Parameters x> are passed directly to the Newer shell utility. There may be any number of NEWER build specifiers in a segment—if any one of them returns a non-zero result then the commands for making the segment will be executed.

The <Update Segments> entry is a list of segments that depend on the current segment. For example, if there are three source code files, and source code files B and C depend on A, then the <Update Segments> entry for the A segment should look like:

```
UPDATE B C
```

This tells Make that whenever A is built, B and C should also be rebuilt, whether the source code for the dependant segments has been modified or not.

The <Make Commands> entry contains all the necessary shell commands to build the segment. There may be any number of blank lines between lines in the <Make Commands> entry. A <Make Commands> entry ends with the NAME line for a new segment or the end of the **Make.Script** file.

So, to take a real example, the **Make.Script** shown in Figure 1 would be used to build Replicator, a program on your *GS+* Disk. Replicator is a program which consists of three source code files: **Replicator.ASM**, **Replicator.PAS**, and **Replicator.CC**. Each of the source code files has a dependant of Link, which will re-link the program. There is a Rez source code file, which is completely independent of everything. Finally, there is a Test command, that when used, will launch Replicator. To build Replicator completely (using Make v2.0) you can type `Make -All` from the ORCA command line. To build only the portions of Replicator that have changed, simply

type `Make`. To rebuild the Rez code of replicator (and nothing else), even if it has already been built, you should type `Make -Only Rez`. As a final example, to build all source code files that have changed, plus the assembly language source code file (even if it hasn't changed) and then launch Replicator, you should type `Make ASM Test`.

Note that the segments are built in the order they appear in the **Make.Script** file. In the case of the Replicator **Make.Script** file, the ASM segment is built first, followed by the CC segment, followed by the PAS segment. The Test segment is done last.

How Make v1.0 Works

The Make v1.0 script runs through three distinct phases. The first phase determines which segments need to be built, the second phase weeds out multiple segment names that need to be built, and the third phase actually builds each segment. The Make v1.0 script is not a simple one! If you *really* want to understand how and why it is working, I suggest that you print it out and match each `end` statement with its corresponding `If`, `For`, or `Loop` statement. Then, match each `Break` and `Continue` statement with the appropriate `For` or `Loop` statement. It's rather difficult to see which loop the `Break` statement is terminating unless you've matched up the `end` statements to their loops.

FileUtility

Make v1.0 makes extensive use of a utility called FileUtility. The FileUtility is used to read in the **Make.Script** file. FileUtility does all of its work with shell variables, and will only work under version 2.0 of the ORCA shell. The shell variables you need to know about are:

`{FileUtility}` - This variable tells the FileUtility program what to do. The variable can have one of three values: `Open`, `Read`, or `Close`. The `Open` value tells FileUtility to open a file. The `Read` value tells FileUtility to read a line from a file. The `Close` value tells FileUtility to close a file.

`{PathName}` - This variable tells the FileUtility program which file to open when an `Open` command is executed.

`{refNum}` - This variable tells the FileUtility program which file to close when a `Close` command is executed. The `{refNum}` variable is set when an `Open` command is executed.

`{Line}` - This variable is set by the FileUtility program when a `Read` command is executed. It contains the next line of the open file specified by the `{refNum}` variable.

v1.0: Going For Lightspeed!

Yeah, I know, version 1.0 of Make is *agonizingly* slow. And, sometimes the script doesn't work, for reasons only known to the insides of the ORCA shell. But both of those problems are properties of ORCA. However, the fact remains that it works (most of the time)! If you've ever wanted to write a useful program using ORCA's scripting language, here's an excellent example of what can be done. Just remember, if you decide you want to write something, be sure that it doesn't have to break any speed records.

v2.0: Achieving Lightspeed!

Version 2.0 of Make works in much the same way as version 1.0 does, except only two passes are made. The first pass determines the dependencies and the second pass builds the application. Most of the notes for understanding v1.0 apply for v2.0 as well—print out the source code and match up all the loops.

What More Could You Want?

When I finished Make v2.0, I kicked myself for not doing it sooner. Having it available has greatly improved my development environment. If you find a problem with either version of Make, fill out a problem form, which you will find on your *GS+* Disk, and send it in. ***GS+***

Figure 1 - Make.Script For Replicator
(The parameters for the MacGen command all go on one line.)

```
Replicator

NAME ASM
NEWER Notify.ROOT Replicator.ASM
NEWER Notify.A Replicator.ASM
UPDATE Link
MacGen Replicator.ASM
       Rep.Macros
       Rep.Macros
       13:AppleUtil:M16.=
       13:AInclude:M16.=
Assemble +W Replicator.ASM

NAME CC
NEWER MakeList.A Replicator.CC
UPDATE Link
Compile +W Replicator.CC

NAME PAS
NEWER Replicator.ROOT Replicator.PAS
NEWER Replicator.A Replicator.PAS
UPDATE Link
Compile +W Replicator.PAS

NAME Link
COMMAND
UPDATE
Set KeepType S16
Set AuxType $0000DB07
Link +W Replicator MakeList Notify
Keep=Replicator

NAME Rez
NEWER Replicator Replicator.Rez
UPDATE
Compile +W Replicator.Rez Keep=Replicator

NAME Test
COMMAND
UPDATE
Replicator
```

Working With The Toolbox

By Josef W. Wankerl

Part 7: The Window Manager

A giant step into the world of desktop programming is using the Window Manager. The Window Manager is the tool set responsible for maintaining the desktop, windows, and providing the programmer with an easier alternative to `GetNextEvent`, which we discussed in part five of this series (*GS+* V3.N2).

Window Dependencies

The Window Manager, Control Manager, and Menu Manager all depend on each other. In order to start one of those three up, you must start all of them. Even though we haven't talked about the Control Manager (wait for the next installment) or the Menu Manager (next installment + 1) you won't find any of the calls to them very complex. In fact, you won't find any calls at all in this issue's demo program since all that's needed are the the startup and shutdown calls, and they are done by the `StartUpTools` and `ShutDownTools` calls for you.

What Is A Window?

A window is a complete drawing environment, much like a grafPort. In fact, a window is actually a grafPort with a bit of additional information such as a refCon field, which an application can use to store specific data related to that window, and window-specific data such as handles to structure, content, and update regions. If you need to know what a grafPort is, check out the *Apple IIGS Toolbox Reference, Volume 2*, or see the QuickDraw II installment of "Working With The Toolbox" in *GS+* V3.N1. If you need to know *exactly* what information the Window Manager carries around with a window, look at page 52-15 of the *Apple IIGS Toolbox Reference, Volume 3*. Most likely you're familiar with what a window is from using desktop programs like the Finder. A window is used to display information. Sometimes a window contains more information than can be displayed all at once, so only portions of the information are displayed at a time. To view the rest of the information, you can use the scroll bars, which are part of the window's frame, to move around inside the window's content area. Most of the work of scrolling is done for you by the Window Manager.

Window Attributes

The best description of window frame attributes are on pages 25-6 to 25-8 and 25-85 to 25-88 in the *Apple IIGS Toolbox Reference, Volume 2*. The parts of a window you are already likely be familiar with are the close (go away) box, the zoom box, the resize (grow) box, scroll bars, and the window title string. Other window attributes determine whether the window is movable, if the window has an information bar, if the window's title bar is a drag region (i.e. an area that you can drag the window around the screen with), if a click in the content area of an inactive window translates into selecting the window or selecting the window and performing a click in the (now active) content area, and more.

How To Work A Window

The window manager takes care of drawing all the window frame information and title bar, so that leaves it up to your application to draw the contents of the window. When you create a window, usually with the `NewWindow2` call, one of the parameters you must pass is a pointer to your content drawing routine. This routine simply draws the window contents. When this routine gets called, the grafPort has already been set to the content region's grafPort (with the QuickDraw II call, `SetPort`.) Your routine will then draw the entire contents of the region, which QuickDraw II will clip to the *visible* content region. The visible region is just what the name says it is—the region that you can see. Since the window may not be large enough to display the entire contents, only a certain portion of the contents may be visible at a time. The visible region is the size of the window, minus any areas where objects (such as other windows or subtractions from the desktop) lie on top of the window.

The visible region of the window may not always contain the upper left-hand corner of the window's contents. In such a case, the *origin* has changed. When you think of your window's contents, the upper left-hand corner has coordinates of (0, 0). When you first create a window, the origin is set to (0, 0) so that the upper left-hand corner of the content is visible. If you scroll the contents down, the origin changes. So, for example, if you scroll down ten pixels, the origin for the window contents will change to (0, 10). What this means is that when your window content draw routine is called, the top of the window content area corresponds to ten pixels down in the contents that you are drawing (i.e. the top of the content area is no longer the top of the actual contents, instead, the top of the content area corresponds to ten pixels down in the actual contents). This may take a few pictures to understand, so break out your *Apple IIGS Toolbox Reference, Volume 2* and look at pages 25-29 to 25-31.

Drawing in the info bar of a window is conceptually similar to drawing in the content region of a window except that the info bar is not scrolled when the scroll bars are used. If you want to scroll the info bar as the contents scroll, you need to do origin calculations manually.

Prefabricated Windows

There are two kinds of windows that the Window Manager actually handles *everything* for: Alert and Error Windows. An alert window is created using the `AlertWindow` call. An alert window contains an (optional) icon, a string of text, and one to three simple buttons. Alert Windows can be used whenever a simple dialog with the user is required. For more information on Alert Windows (and there's a lot of it), turn to page 52-6 in the *Apple IIGS Toolbox Reference, Volume 3* and read the seven pages devoted to Alert Windows. The `AlertWindow` call is not a difficult one to understand, despite all the stuff you have to read.

An Error Window is an easy way to display an error that has occurred. You simply make the `ErrorWindow` call with the number of the error that occurred, and an appropriate error message is displayed. There are lots of known error messages for GS/OS errors, but not so many for Toolbox errors. The beauty in the ErrorWindow call is that you can create your own error messages if you need to. An Error Window is actually a special case of an Alert Window. It has an icon, text, and buttons. The only difference is that the text displayed is an error message derived from an error number. To see how to create custom error messages, take a peek at the source code for the Window Manager Demo program (which is on your *GS+* Disk) and page 52-28 in the *Apple IIGS Toolbox Reference, Volume 3*.

The Desktop

In addition to managing windows, the Window Manager also manages the desktop. The desktop is considered to be the entire screen. When a window is visible, it obscures part of the desktop. When a window is closed, windows underneath need to be redrawn, and if there are no windows underneath, the newly uncovered desktop region needs to be redrawn. The Window Manager handles

all of that. The Finder draws icons directly on the desktop. Have you ever wondered how it does that? You probably haven't given it much thought. Through a single Window Manager routine, aptly named `Desktop`, your application can control exactly how the desktop appears. The `Desktop` routine is actually comprised of eight different sub-functions:

`FromDesk` - A region that you pass (created with QuickDraw II region managing calls) is subtracted from the desktop. What this means is that a certain part of the desktop will *always* be visible. For example, the Menu Manager subtracts a rectangular region from the top of the desktop where the system menu bar is displayed. Another example is the "floating" region in the Window Manager Demo program on your *GS+* Disk.

`ToDesk` - A region that you pass is added to the desktop. This lets you give the desktop back a region that you recently subtracted. For example, when the "floating" region in the Window Manager Demo program has to move, the old region is added back to the desktop, and a new region is subtracted.

`GetDesktop` - The current desktop region is returned to you. You can then make modifications to, or do calculations on the region.

`SetDesktop` - A region that you pass is turned into the desktop region.

`GetDeskPat` - The desktop pattern information is returned. For more information on what comprises a desktop pattern, see page 25-43 of the *Apple IIGS Toolbox Reference, Volume 2*.

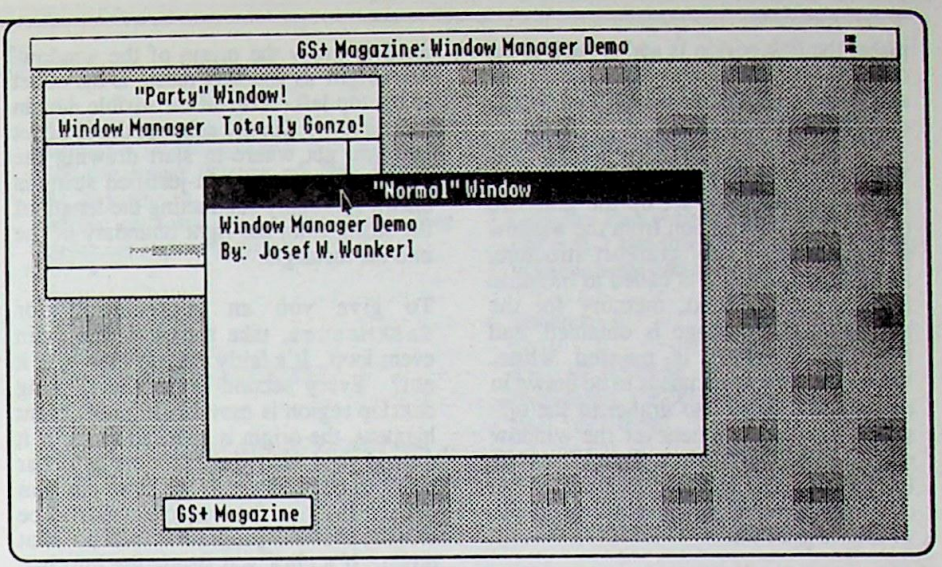
`SetDeskPat` - The desktop pattern is changed to a specified pattern. For more information on what comprises a desktop pattern, see page 25-43 of the *Apple IIGS Toolbox Reference, Volume 2*.

`GetVisDesktop` - Returns the visible region of the desktop. This is the region of the desktop that is not covered by any windows.

`BackGroundRgn` - This sub-function provides a very flexible way of drawing directly to the desktop, like the Finder does. For in-depth coverage of what this routine does, check out the *Apple IIGS Toolbox Reference: Volume 2*. For me to briefly describe this function would do it a great injustice—the real source is much more comprehensive than I could ever be.

What Is TaskMaster?

`TaskMaster` is a routine in the Window Manager that you can use instead of `GetNextEvent`. As a matter of fact, one of the (many) things `TaskMaster` does is call `GetNextEvent`. Depending on the event returned by `GetNextEvent`, `TaskMaster` will also perform actions related to that event. For example, if a mouse down event is detected, `TaskMaster` will check to see where the event occurred, and if it's in a window scroll bar, the window will scroll. If it occurred in the zoom box, `TaskMaster` will call `TrackZoom`. If it occurred in the close box, `TaskMaster` will call `TrackGoAway`. `TaskMaster` also takes care of recognizing when windows need to be redrawn. So, in a nutshell, `TaskMaster` takes away all the mundane routines of programming a desktop application. For a complete description of the `TaskMaster` call (with pseudo code of what goes on behind the scenes) break open your *Apple IIGS Toolbox Reference, Volume 3* and read pages 52-36 to 52-52. That's a *lot* of material to read, but it will help if you have a thorough understanding of what TaskMaster can, and can not, do.



Example

The Window Manager demo program on your *GS+* Disk provides some good examples of the most frequently used Window Manager calls. The program displays three windows. The first is an "about" type window which disappears when you click the mouse or press a key on the keyboard. The second window is a "normal" window in that it is very plain—the content region is simply two strings. The third window is where the fun comes in! The third window's contents are generated exactly the same way as the random shapes were in the Event Manager demo program from V3.N2. However, the shapes are drawn to an off-screen grafPort as well as to the window. Whenever the window needs to redraw its content region, the image from the off-screen grafPort is copied. Finally, the third window contains an info bar. Two strings are displayed in the info bar: a static string which is always right justified, and a toggle string (it changes when you click in the info bar) which is scrolled with the window's contents. Also, there's a floating desktop region that randomly moves around the screen! But before we dive into the fun stuff, let's take a look at what goes on to get all this ready.

First, the required tools are started. Next, the `Initialize` procedure is called to draw a string in the menu bar region, change the desktop color, open the windows, set up the off-screen grafPort, and set up the floating desktop region. Next, the procedure waits for a mouse button or a key press, and then closes the "about" window. If an error occurred in the `Initialize` procedure then the error number is displayed with an `ErrorWindow` call. If no error occurred, then the main event loop is entered. The main event loop handles events using `TaskMaster`. When it's time to quit, the off-screen grafPort is disposed of, the randomly floating desktop region is disposed of, and finally the tools are shut down and the program exits. Pretty simple, huh? Well, let's get into the meat of the program—the floating desktop region, the off-screen grafPort, the info bar drawing, and the window content drawing procedures!

The floating desktop region is a very simple concept. A rectangular region is first subtracted from the desktop. Next, the region is filled with white, framed with a black rectangle, and a string is drawn inside the rectangle. Whenever the region needs to move to another random

place, the first region is added back to the desktop, the desktop within the newly added rectangle is refreshed, and then a new region is subtracted.

The off-screen grafPort is also a very simple concept. To set up the grafPort, the grafPort information from the window is copied into a new grafPort structure, and then `OpenPort` is called to initialize the new port. Next, memory for the grafPort's pixel image is obtained, and then the grafPort is painted white. Whenever something needs to be drawn in the window, it is also drawn to the off-screen grafPort. Whenever the window needs to be updated, a QuickDraw II `PPToPort` call is made to transfer the data from the off-screen grafPort to the window's grafPort.

Using a window's info bar is really not very difficult. To have an info bar in the window, all you need to do is set the appropriate bit in the frame bits word when you design your window template for `NewWindow2`. For the Window Manager demo program, two strings are drawn in the info bar. To draw the string that is relative to the visible contents you need to know the origin of the window. The origin, as you may recall, is the offset to the top left corner of the visible data in the window. Simply subtract the X offset and you get where to start drawing the string. The static right-justified string is drawn by simply subtracting the length of the string from the right boundary of the info bar rectangle.

To give you an appreciation for `TaskMaster`, take a look at the main event loop. It's fairly easy to follow, is it not? Every second or so the floating desktop region is moved. If a null event happens, the origin is checked to see if it moved, and if it did then the info bar needs to be redrawn. If the close box was clicked in, then the window needs to be closed and the program needs to shut down. If a click was inside the info bar, then the next toggle string needs to be displayed. Without `TaskMaster`, the only events you would see (that you would need to handle) would be mouseDown events and update events. You'd have to update windows when update events occurred. Not too difficult. However, when you get a mouseDown event, you'd have to check where the mouseDown occurred. If it occurred in the close box of the window then you'd have to call `TrackClose`. If it occurred in the zoom box of the window then you'd have to call `TrackZoom`. If it occurred in the title bar or content region of a window then you'd have to select that window. There's *lots* more you'd have to do as well—but I don't have the space to go into that much detail. If you want to see what you would have to do, check out the `TaskMaster` pseudo code provided for you in the *Apple IIGS Toolbox Reference, Volume 3*. It's on page 52-36.

That's All, Folks!

There's a lot of information to take in when it comes to "doing" windows, so take it easy and learn a bit at a time. The source code for the Window Manager Demo program covers most of the more common (and even some of the obscure) Window Manager calls. If you need to do more than the Window Manager Demo program does, you're really getting a grasp of what's going on and should be able to read the Toolbox references without my help. Still, if you had trouble following this article, or the Toolbox references, let me know and I'll attempt to clarify. *GS+*

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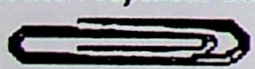

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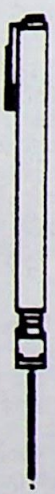

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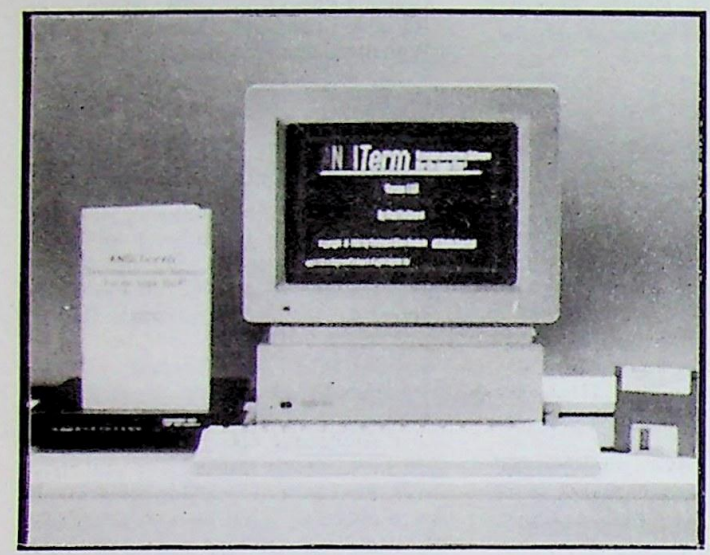

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Rumors, Wishes & Blatant Lies

By Prof. G. S. Gumby

EXPOse Yourself!

The Apple EXPO East, which was to have happened in Boston this April (see the **a.Read.Me** file from the *GS+* V3.N3 disk for more information), has been postponed, indefinitely. Apparently, they simply couldn't get enough exhibitors for the show. They were expecting over 5,000 Apple II and Macintosh users to show up, but they only had about 30 exhibitors lined up. While this sounds like a pretty good deal to us (from a potential exhibitors point of view), it probably wouldn't have paid for the rental on the convention hall!

Get Festive!

OK, that's pretty bad, but here's some good news! The fourth annual *A2-Central Summer Conference* is scheduled July 21st to the 24th of this year in Kansas City. This event, (more commonly known as KansasFest), is an annual gathering of Apple II enthusiasts with a slant towards programmer types (lovingly known as "wireheads" or "hackers"). Give the fabulous folks at Resource Central a call at 913-469-6502 for more information or to sign up for the conference—it's very much worth it!

EXPOse Yourself! (Part 2)

As if that weren't enough good news, we've just learned that there *will* be another Apple Central EXPO following KansasFest! The EXPO will be put together by Event Specialists and will be held on the 25th and 26th of July. The cost will be $15 per person to attend. They are already selling tickets and booth space, so give them a call at (617) 784-4531 to reserve yours now. And when I say "now," I mean *now*! These are the same people that cancelled the planned Apple EXPO East that I talked about earlier! Don't let it happen again!

Japan Bashing

It seems that a Japanese software firm is about to release a new computer game called "Japan Bashing." In this game, you play a lazy or illiterate (your choice) American worker trying to stop the Japanese from taking over the good old U. S. of A. When our morally bankrupt publisher heard this, he decided it was time to take action. "We'll do a MacZombies construction set!", he exclaimed. "You'll be able to change the Macs into anything—Republicans, Democrats, Pat Buchanans, Apple Executives—anything at all! And then you can smash 'em just like you've always wanted to! We'll call it, "HateWare" and we'll even do a version with Bigots to smash!" After we sedated him and reminded him that he's a bleeding-heart liberal that wept openly when the Supreme Court became "Conservative-Central," he seemed to come to his senses. Before he passed out, his last words were, "What good is ignorance and hatred if you can't make a buck off it?"

System 6 Is Here!

Oooh! They came so close! About the middle of February, various Apple employees posted messages on various information services that System 6 was completed and would be shipping soon. Unfortunately, they found some *very* nasty bugs that they simply couldn't let out (rumor has it that they misspelled Tim Swihart's last name as "Sweethart" throughout the software—they also misspelled Steve Glass' name, but we can't print that). At any rate, they went back to the drawing board and that delayed things a bit. However, they were able to get it done. That's right friends! At 5 p.m. Eastern Time, on March 30th of 1992, System 6 was unleashed on various online services. After five and a half hours of downloading, we held in our hot little hands the Holy Grail of IIGS users everywhere . . . System 6! (All *six* disks of it!) For more information on how you can get a copy of your very own, be sure to check out "Writer's Block" and our special "First Impressions Of System 6" article elsewhere in this issue.

BTIII & BTCS

That's all I'm giving you—the initials of two great games that are currently being ported from the PC to the IIGS. BH is the fellow doing the conversion (so you *know* it's going to be good!) and BRCC will probably be selling them. I wasn't supposed to print this rumor, so they'll probably pronounce me DOA when BH and JW at BRCC (which is in WA) get through with me!

AOL.COM

In just a few weeks, America Online will announce to its members that they can send and receive e-mail and files to and from the InterNet. Yes, even Apple II people will be able to do it! Unfortunately, this new feature will work transparently with the current America Online software for the Apple II, so they won't be forced to fix any of the current bugs or do a IIGS-specific version.

The Apple II Guide, 1992 Edition

The first edition of *The Apple II Guide* was such a hit, they've done it again! The Apple II Guide contains product listings, contact information and articles about how to use your Apple II. (An especially good article is the one on "The Operating System" by Matt Deatherage.) This new edition of the Guide is 205 pages long and can be obtained from your user group (your Apple User Group Connection representative should have gotten two copies of the Guide along with an order form for more), ask about it at your next meeting. If your group is not signed up with the Apple User Group Connection, give them a call at (408) 974-4060, or drop an e-mail to "Apple UGC" on America Online for more information.

The AII Gets Serious

When they first formed, The Alliance International Incorporated (the AII) said that they needed about 150 members to begin their quest to promote the Apple II. Well, after only a few months, the AII got the members (and money) that it needed and has begun to send out mailings, place ad s and otherwise promote the Apple II. If you are an Apple II owner that wants to do something positive for the II, I strongly suggest that you contact the AII to see how you can help them with their monumental task. If you are an Apple II *developer* you need to give the AII a call to get in on some of their promotional events. For more information, call the AII at (502) 491-6828 or write to them at:

The Alliance International Inc.
P. O. Box 20756
Louisville, KY 40250

Vote For Me!

Are you sick and tired of all the pinheads running the country? Well then, be sure to write in "G. S. Gumby" when you vote! If elected, I promise to put an Apple IIGS in every home and a copy of System 6 on every hard drive! (Which, if you think about it, is a more detailed platform than most of the real candidates have put forward.) In the meantime, I'm not quitting my day job, so send your hot IIGS rumors, wishes or blatant lies to me here at *GS+* Magazine. If I use yours, I'll either give you a *GS+* T-Shirt or extend your subscription for an issue (be sure to tell me which you want—and if you want a T-Shirt, be sure to tell me your size.) Send those rumors, wishes and blatant lies to:

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

How To Use Your 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) 843-3988. If your disk is damaged, let us know and we'll get a new one to you as soon as possible.

[Note that these instructions are written with System Software v5.0.4 in mind. We have not had System 6 long enough to safely rewrite these installation instructions.]

Installing The Software

To install the software on this issue's *GS+* Disk, start up your computer using System Software v5.0.4 or later, and then place your *backup* copy of the *GS+* Disk in a drive (You *did* make a backup didn't you?) Now run the Installer program that is on your *GS+* Disk. (From the Finder, you would double-click on the Installer icon.). *It is* extremely *important that you use the Installer that is on your* GS+ *Disk! Do* not *use any other copy of the Installer!* When the Installer window appears, select the item 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.

Before you attempt to use your *GS+* Disk, please read the **a.Read.Me** file for any last minute corrections or information.

The following is a detailed example of how to install EGOed. The other programs on your *GS+* Disk are installed in a similar manner.

- Start up your IIGS with System Software v5.0.4 or later. (Your *GS+* Disk is *not* a startup disk, so don't try starting your computer with it.)
- Insert your backup copy of the *GS+* Disk into a drive and run the Installer program that is on your backup *GS+* Disk. It is *very, very* important that you run the Installer that is on your backup *GS+* Disk and *not* some other copy of the Installer.
- When the Installer finishes loading, click on the Disk button on the right hand side of the Installer window until your startup disk appears (if you only have one 3.5-inch disk drive, you will have to remove the backup *GS+* Disk from the drive and replace it with your startup disk.)
- On the left-hand side of the Installer window, you will see a list of the items on the backup *GS+* Disk. One of the items in this list should be "EGOed." (If EGOed is *not* in this list, quit the Installer and begin again. Be sure that you are running the copy of the Installer that is on your backup *GS+* Disk!) Once you see the EGOed item, click the mouse on it so that it becomes highlighted.
- Click the mouse on the Install button in the middle of the Installer window. The Installer will then install EGOed on your startup disk. If you only have one 3.5-inch disk drive, you may have to switch disks several times. Simply insert each disk as the Installer asks for it.
- When the Installer has finished, click on the Quit button in the middle of the Installer window. This should cause your IIGS to restart.
- When your IIGS finishes restarting, pull down the Apple menu and select EGOed (note that you have to be in a desktop program like the Finder to have access to the Apple menu).
- When EGOed finishes loading, select Open from the EGOed File menu and then insert your backup *GS+* Disk into a drive. You should then see a list of the files and folders on the *GS+* Disk.
- Open the **EGOed** folder on your backup *GS+* Disk and then open the file **EGOed.Docs**. This file contains complete documentation on how to use EGOed. Please take a few minutes to read this documentation.

Making Room

If you do not have a hard drive, you will probably have to remove some files from your startup disk to make room for the New Desk Accessories, Control Panel Devices, and other system files that come on the *GS+* Disk. Towards that end, we have prepared the following list of "expendable" files that you can "safely" remove from your System Software v5.0.4 startup disk to free up some space. (We've put quotes around "expendable" and "safely" because almost *all* of the files in the IIGS System Software have some sort of use! The files we are presenting here are the ones that are the "least" useful for a specified hardware setup.)

Be sure that you *never* delete *any* files from your original **:System.Disk:**! Always work on a backup copy!

The standard **:System.Disk:** has 12K available on it. The following items can be deleted from the root directory of the disk: **Tutorial** (11K), and **AppleTalk** (0K).

After this, things get a bit tricky. Other files that you can safely delete depend on your *hardware setup*. If you have a ROM 01 IIGS, you may delete the file ***:System:System.Setup:TS3** (15K). If you have a ROM 03 IIGS, you may delete the following file: ***:System:System.Setup:TS2** (41K).

If you do *not* have a modem, you may delete the following files: ***:System:CDevs:Modem** (6K), and ***:System:Drivers:Modem** (3K).

If you do *not* have a printer, you may delete the following files: ***:System:CDevs:Printer** (6K), ***:System:Drivers:Printer** (3K), ***:System:Drivers:Printer.Setup** (1K) and ***:System:Drivers:ImageWriter** (26K). If you have a printer other than the ImageWriter, you can still delete the ***:System:Drivers:ImageWriter** file (unless your printer is an ImageWriter compatible).

If you do *not* have a 5.25-inch drive, you may delete the following file: ***:System:Drivers:AppleDisk5.25** (7K).

Removing some or all of these files should give you ample room (up to 90K on a ROM 01 IIGS and up to 116K on a ROM 03 IIGS) on your startup disk to install EGOed or any of the other system utilities on your *GS+* Disk.

Small Talk

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 v1.0.5 or later. If you do not have GS-ShrinkIt, check with your local user group or give us a call here at *GS+* Magazine and we will help you locate a copy.

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!

What's On The Disk

There are 15 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. Please read this file before you attempt to use the *GS+* Disk. This is a plain text file.

Demo.3D.II
This folder contains the demonstration program discussed in "Introduction To 3-D Graphics, Part 2: Surface Removal & Shading." This program can be run directly from your backup copy of the *GS+* Disk. To run this demo, simply open this folder and double-click on the **Demo.3D** file. This folder also contains the source code for the demonstration program in the GS-ShrinkIt archive, **ThreeD.SRC.SHK**.

EGOed
This folder contains EGOed v1.41. 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 user and technical documentation for EGOed v1.4 in the files **EGOed.Docs** and **EGOed.1.41.Tech**. The **EGOed.Docs** file is a plain ASCII text file while **EGOed.1.41.Tech** is a Teach file. EGOed must be installed on a startup disk with at least 50K free.

Feedback
This is the Feedback form for this issue. Fill it out, and send it to us to let us know what you thought of this issue of *GS+* Magazine and what you want to see in future issues of *GS+* Magazine. This is a plain ASCII text file. (Note that we did not have room for a printed Feedback form in this issue of *GS+* Magazine. If you do not get the *GS+* Disk, but know someone that does, ask them to print you out a copy of this file so that you may fill it out and send it in.)

Glossary
This is a plain text file containing all of the terms defined in the past installments of our "Glossary" department.

Icons
This folder contains Finder icons used by the various programs on the *GS+* Disk. Among these is the file, **Replicator.Icons**. These icons are for the Replicator program and, when Replicator is installed on your boot disk in a folder called **Replicator**, allow you to open Replicator documents simply by double clicking on them.

Installer
This is the Apple IIGS Installer. Run it to install the other programs on this issue's disk. For more information on using the Installer, refer to your IIGS owner's manual.

Make
This folder contains versions 1.0 and 2.0 of the Make utility discussed in "A Make Utility For ORCA v2.0" by Joe Wankerl. Each version is in it's own folder (**Make1.0** and **Make2.0**) inside the **Make** folder. For more information on installing these utilities, please refer to Joe's article.

NoDOS
This folder contains NoDOS v1.7.1. NoDOS is a New Desk Accessory that allows you to Delete, Rename and Get Information on files from inside any desktop program.. This folder also contains complete documentation for NoDOS v1.7.1 in the file **NoDOS.Docs**. This documentation file is a plain ASCII text file, you may use EGOed to view it. NoDOS must be installed on a startup disk with at least 21K free.

OSLibrary
(If all you want to do is *run* the programs

(continued on next page . . .)

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+ V3N4 Disk Offer
c/o EGO Systems
P.O. Box 15366
Chattanooga, TN 37415-0366

Or call us at 1-800-662-3634, Monday through Friday between 9 a.m. and 6 p.m. ET, to bill it to your MasterCard or VISA.

Tennessee residents add 7.75% sales tax.
Price includes First-Class delivery to the U.S., air mail to Canada and Mexico, or surface mail to all other countries. Add an extra $3.50 ($10 total) for air mail to all other foreign countries.

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

on the *GS+* Disk, forget that this folder even exists. You don't need it.) This folder contains the OS Library. This library is needed to recreate several of the programs on this *GS+* Disk. This folder also contains documentation for OS Library 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, *please* fill out this form and send it to us. This is a Teach file. You may use EGOed to view it.

Replicator

This folder contains version 1.1 of the Replicator program. Replicator can be installed on any disk and in any folder (you can even run it from a backup copy of your *GS+* Disk if you wish), but we recommend that you install it on a startup disk with at least 63K free. This folder also contains the file **RepTech.Docs**. This is a Teach file containing technical and programming information about Replicator. There is also a set of Replicator icons, which are described under "Icons" above.

Scripts

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

WindowManager

This folder contains the Window Manager demonstration program described in the "Working With The Toolbox" article. This program can be run directly from your backup copy of the *GS+* Disk. From the Finder, simply open the **WindowManager** folder and then double-click on the **Window** file. This folder also contains the ORCA/Pascal and APW REZ source code (**Window.PAS** and **Window.Rez**) required to recreate the **Window** program.

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+*

Advertisers Index

By Steven W. Disbrow

Raptor, Inc. - Page 7

The products advertised here are *image enhancement programs* for your black-and-white 320 mode graphics. It should be noted that these programs are not for the timid. However, I have finally found a reviewer that thinks he can handle it. Stay tuned.

TMS Peripherals - Pages 12 and 13

This is one of the few mail-order companies that takes the IIGS seriously. Not only that, but they constantly get high marks on our Feedback forms. So, if you are in the market for IIGS hardware, I give TMS my highest recommendation. Be sure to check out my review of their Shadow hard drive in this issue.

LinksWare - Page 15

I have to say that I have no experience with this product (or company) at all. (If you have used this product or dealt with this company, give me a call or jot down your experiences on the Feedback form.) However, if it does half of what it says it does, $39 would be a real steal. I'll try and have a review of it in the next issue or two.

App-L-Jack - Page 20

Well, we finally got our App-L-Jack "review units," and in all honesty, Joe and I were very surprised at what they were. Basically, it's a pointy bit, about an inch and a half long and the same diameter as a paper-clip, mounted in the end of a telescoping rod (sort of like the antennae on a cordless phone). So, not only can it eject your disks, it can act as a blackboard pointer at your next user group meeting. It also has a clip that you can use to secure it in your shirt pocket, but the pointy bit is *very* pointy, so I'm not really sure you would want to do that.. Other uses that Joe and I came up with include: finger-nail cleaner (very important when working with ORCA/C and other slow compilers), popcorn or marshmellow stabber, and office fencing. Wrap some cotton around the end, and it does a good job of cleaning your keyboard. The America Online software is a nice bonus and almost worth the $5 all by itself. (Notice that there are no snide paper clip remarks this time.)

Parkhurst Micro Products - Page 22

Don't look at me! Go and read Dave Adams review of ANSITerm It's in this very issue.

Advanced Printing Concepts - Page 32

In the Macintosh world, they call these sorts of businesses "Service Bureau's." You send them page layout and word processing files and they print them out on high-quality printers. I personally have not had any experience with this company (but I do talk to the owner on the phone quite often—he's quite a nice fellow), but I do think it's high time someone offered this sort of service to Apple II owners! They will be with us for the next few issues, so let me know what you think of them.

GravenStein User Group - Page 36

What's this? An ad for a *user group*? Sure, why not? 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 they are also one of the few places where you can get the elusive Octo-RAM memory board.

Triad Venture - Page 40 and 41

Ah! New products from Triad Venture! We reviewed Graphic Disk Labeler way back in *GS+* V1.N2 and the HyperStuff Collection in *GS+* V2.N5; both got good reviews, so I'll restrict my comments to the new products in the ad. SoundConvert: I haven't seen this one, would someone care to review it for us? Animated Icons: I have seen this (at KansasFest), and I loved it! These animations are really cool and a great example of how to do this kind of thing in your own stacks.

DreamWorld Software - Page 46

Drat! I wasn't able to get our review of DreamGrafix in this issue. However, I think the fact that this product was nominated for three Apple II Achievement Awards should tell you something about it. Once again though, I need to warn you that this is a very complex program and not for those who are unwilling to break open a manual. Hopefully, I'll get our review ready for next issue. Until then, give DreamWorld a call for more information.

Econ Technologies - Back Cover

Econ is a fairly new player in the IIGS internal hard drive market. At this point, I still have not had any first hand experience with the Econ drive, so I can not make a recommendation one way or the other. I'm still hoping to get a review unit so keep watching for that review. *GS+*

Shadow Hard Drive
Available only from TMS Peripherals.

Pricing:

52MB	$312
105MB	$449
120MB	$529
210MB	$689
240MB	$829
425MB	$1399

Prices include an external power supply and a SCSI cable. A SCSI controller card is *not* included in this price. The unit reviewed here is the 105MB drive.

TMS Peripherals
1120 Holland Dr. Ste. 16
Boca Raton, FL 33487
(407) 998-9958 Information
(800) 275-4867 Orders & Support

Reviewed by Steven W. Disbrow

Why Do They Call It "Shadow"?
Long time readers of *GS+* Magazine know that I have three cats, one of which is named Shadow. So, when TMS Peripherals introduced their Shadow series of hard disks (after months of "teaser" advertising), I called them up to see if I could get a unit to review. If nothing else, it had to be better behaved than my cat.

Much to my dismay, I found out that it wasn't named after my cat at all. The main reason they call this drive "Shadow" is that you can take it with you just about anywhere you go. In other words, it's very small and very lightweight. (It becomes your "shadow," get it?)

How Small Is It?
Actually, it's smaller than an Apple 3.5-inch drive in both length and width! Really! The Shadow will fit perfectly on top of, or beside, your 3.5-inch drive and you might even find yourself occasionally trying to stick a disk into it! (Not that *I've* ever tried to!)

If you don't want to put it on top of your 3.5-inch drive, you can even stand it on it's side without fear of harming it. According to the manual (which I'll talk about in a moment), the Shadow was designed to be positioned this way, so you don't have to worry about hurting it by standing it sideways.

If your desk is as cluttered as mine, you are already probably headed for the phone to order one. But, please, wait till the end of the review, OK? I mean, don't you even want to know how light it is?

OK, How Light Is It?
Well, my review unit (a 105MB drive) actually weighs *less* than an Apple 3.5-drives! (Do you see a common thread yet?) According to my incredibly accurate and precise postal scale, it actually weighs 25.5 *ounces*! Amazing.

Again, this low weight is intended to make the drive easy to transport.

But Where Would I Take It?
That's a good point. The main selling point of the Shadow is its small size and weight. But, since most IIGS owners use a different type of computer at work (if they use one at all), the transportability of the Shadow is not that big of a deal.

However, if you *do* have more than one IIGS in more than one location, the Shadow could very easily accompany you from one to the other. The main group that would benefit from this would probably be educators with a IIGS both at home and at school. (Imagine the joy of bringing assignments home to grade on your computer!)

Another group that might get some use out of this would be those with a IIGS at home and a Macintosh at work. You could partition part of the Shadow as an HFS drive (using System 6) and keep files common to your IIGS and Mac on that partition. Your Mac could get at the files at work, and your IIGS could get at the files at home.

Ironically, the Shadow's small size also hinders its transportability! Due to its small size, the Shadow must use an *external* power supply. This power supply plugs into the wall and then into the Shadow drive itself.

Now, those of you that had an Apple IIc probably remember the external power supply that it used. I used to call mine the "power brick," because it must have weighed about 10 pounds. Fortunately, that is not the case with the Shadow power supply. Believe it or not (I certainly didn't), the power supply weighs *less* than the drive itself! When the Shadow was delivered, I took the box from the U.P.S. man and, because the box was so light, I honestly thought that they had forgotten to pack the drive in it!

Still, even with its light weight, the external power supply does make it a bit difficult to use the Shadow at more than one location. To remedy that, TMS sells the power supplies separately so that you can buy one for each place you use the Shadow. TMS does not advertise the price of these additional power supplies, but the cost shown on my invoice was $65 and some change. So, if you want to compute at more than one location, be sure to take that cost into consideration.

So, Bigger Is Better?
Well, to be sure, there are some things missing from the Shadow due to its physical size. For instance, there are no power jacks on the back of the Shadow (most full size hard disks have two such jacks that you can plug other peripherals into). And instead of a push-button SCSI ID selector, the Shadow uses a thumbwheel. Worst of all, there is only room for one SCSI port on the back of the Shadow. So, unless you use a special Y-adapter SCSI cable (which TMS sells), the Shadow will have to be the last device in your SCSI chain.

Given the tiny size of the Shadow, however, all of these things are quite understandable. Unless your current setup is such that one of these shortcomings represents a major problem (perhaps you already have another SCSI device with only one SCSI port), I would not worry too much about them.

What About Features?
In addition to being tiny, the Shadow has several other features and options that make it an interesting piece of hardware. For instance, there is an optional carrying case that will hold the Shadow and its power supply for travelling. There is even an optional cable that allows the Shadow to draw power from your computer instead of having to use the external power supply. However, the manual states that some Shadow drives simply will not work this way and it advises you to call TMS for more information.

In addition to those features, the Shadow has the usual complement of indicator lights (a green light tells you that the power is on, and a red light shows disk access), and it has got to be one of the *quietest* drives that I have ever used.

Hey! What About The Manual?
Well, if you are sick and tired of all the "IIGS addendums" that seem to be thrown into manuals, you will be happy to know that the Shadow manual is written with both the IIGS and Macintosh in mind. There are specific sections for each machine and there is even a IIGS troubleshooting section and a special section on how to tell if your power supply is getting stressed out. As I've said on numerous occasions, TMS Peripherals really does care about IIGS owners and this manual is just one more bit of proof of that fact.

Will It Work With System 6?
You bet. After we got System 6, I decided

to reformat the Shadow drive with one 32MB ProDOS partition and a 68MB HFS partition. The drive has continued to work like a champ and I regularly run applications off of both the ProDOS and HFS partitions.

How Fast Is It?

I knew somebody would ask that! I ran Disk Timer GS v2.0 on the drive and I've put the results (along with some results for some other drives we have reviewed) in Figure 1. As you can see, the Shadow compares quite favorably with the other drives.

So, Should I Buy One?

If you need a hard disk (If you want to use System 6, believe me, you *need* a hard disk!), the Shadow is a good choice—especially if you are short on desk space or you need a drive that you can take back and forth to work or school.

Figure 1 - DiskTimer GS v2.0 Results

	Shadow 105MB	TMS 105 Pro*	Tulin Half Shell°
Read	36	33	36
Multi-Block Read	26	24	24
Seek	22	21	68
Adapt	21	20	22

All readings were taken with hard disks attached to the Apple II High-Speed SCSI card on an unaccelerated IIGS.

*See review in *GS+* V3.N1.
°See review in *GS+* V3.N3.

It is a solid little performer that is priced comparably to drives from other IIGS drive vendors. On top of that, it comes with about 26MB of Apple II public domain and shareware software (and it will probably even have System 6 already on it), TMS's toll-free technical support, a 30-day Money Back Guarantee, and a full 2-year warranty.

I really like the Shadow hard disk. But beyond its amazingly small size, the Shadow is just a hard disk. So, if you *aren't* short on desk space, and you *don't* need a tiny, transportable drive, you should definitely include full-sized drives in your search for a hard drive. If for no other reason than you might one day need that additional SCSI port. *GS+*

Glossary

In each issue of *GS+* Magazine, we 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. Past installments of the *GS+* Glossary can be found on your *GS+* Disk in the plain ASCII text file, **Glossary**. (Entries marked with an "*" have appeared in previous installments of the *GS+* Glossary and are repeated here for our beginning readers or because they have relevance to topics discussed in this issue. Entries marked with a "†" were requested by readers on Feedback forms.)

ANSI

"ANSI" stands for "American National Standards Institute." ANSI is a committee that sets standards for things. For example, in the computer field, ANSI recently established a standard version of the C computer language.

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.

Freeware

Freeware is software that the author has decided to distribute free of charge. This is similar to public domain software, except that the author retains his copyright on the software.

GS/OS *

The Apple IIGS Operating System.

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." By using the Installer (when provided) you reduce the possibility of the wrong file being copied to the wrong place.

Outline Font *

An outline font is a font whose characters are represented by a set of mathematical equations. By scaling these equations, the characters in the font can be accurately rendered at any size.

SCSI †

SCSI is an abbreviation for "Small Computer Systems Interface." Put simply, SCSI is a standardized way for computers to communicate with peripherals (hard disks, scanners, etc.) Because it *is* a standard, a single SCSI device can be used on many different types of computers. For example, most SCSI hard disks can work "out of the box" with both the Macintosh and NeXT computers. With the appropriate SCSI adapter card, the same drive could be used on a IIGS, IIe, Commodore Amiga, or IBM PC clone. The SCSI standard also allows devices to be be daisy-chained together so that you can have more than one SCSI device online at a time.

SCSI Terminator †

Like all other computer equipment, SCSI devices communicate with each other using electrical signals. When these signals come to the beginning or the end of the chain of SCSI devices, they need to be stopped, or they can "bounce back" to the other end of the chain and confuse the other SCSI devices. The job of a SCSI Terminator is to stop those signals before they can bounce back. Therefore, both the first and last device in a SCSI chain should have terminators. Devices in the *middle* of the chain should *not* have a terminator.

Some devices are *internally* terminated (that is, the terminator is inside the device case),while others require an external terminator to be attached to one of the devices external SCSI ports. The best way to tell if a device is internally or externally terminated is to check the manual that came with it.

TrueType *

TrueType is an outline font (see "Outline Font" above) format endorsed by Apple Computer, Inc. and Microsoft, Inc. *GS+*

Pointless

By Alan L. Bird

Retail price: $69
Typical mail-order price: $49
Not copy protected
Requires 1.25MB RAM. A hard disk is recommended.

WestCode Software, Inc.
15050 Avenue of Science, Suite 112
San Diego, CA 92128
(619) 679-9200 Information & Support
(619) 451-0276 Fax

Reviewed by Steven W. Disbrow

If It's Pointless, Why Bother?

Pointless is a Control Panel Device that allows your IIGS to use TrueType fonts just like the ones used by the Macintosh and Microsoft Windows. TrueType fonts are *outline* fonts, whereas ordinary IIGS fonts are *bitmapped* fonts. Since TrueType fonts are outline fonts, they can be scaled to *any* point size without losing any detail. (For a more complete explanation of TrueType and bit-mapped fonts, see "How Fonts Work" in *GS+* V3.N2 and "How Printing Works" in *GS+* V3.N3. You should also check the "Glossary" in this issue for brief definitions of these terms.) There are literally hundreds of professionally designed TrueType fonts available (for the Macintosh) and Pointless will let your IIGS use all of them.

Pointless Observations

In most reviews, I try to start out with all of the good things about a product and then move to the bad things. Unfortunately, this isn't possible with Pointless, because the one thing you will *continually* notice about Pointless is that it is fairly slow. This is completely understandable, turning a TrueType font into a bitmap on the fly is not a trivial task, even my wife's 16MHz Macintosh LC slows down occasionally when a new font is called up. But, depending on the number of fonts in a document, using Pointless can literally add *minutes* to the time it takes to open it. However, once a font is generated it remains in memory until you switch applications. So, if you start AppleWorks GS, do some work on a document, quit back to the Finder, and then go back to AppleWorks GS and open the same document, Pointless will have to generate the needed fonts once again. However, if you go to AppleWorks GS, open a document, close it and then, without leaving AppleWorks GS, open the same document again, the fonts that were generated the first time will still be in memory, so Pointless won't waste time generating them again. (It may be that Pointless *is* keeping its fonts in memory, but they are getting purged when I switch applications, but I have a little over 4MB of RAM on my system, so I should have plenty of room for lots of fonts to hang around without getting purged.)

Fortunately, the designers of Pointless realized that speed was going to be a problem and so Pointless gives you several ways to speed things up. The most useful of these is the ability to save a bit-mapped version of a particular size of a TrueType font to disk as a normal IIGS font file. It's the same font you would get if you let Pointless do it on the fly, but since its already generated and saved on disk, Pointless will simply use the disk file instead of generating a new font from scratch. This is a tremendous time saver, but it eats up the disk space you thought you were going to save by going to TrueType fonts. Still, if there are certain fonts that you *constantly* use, the time you will save is worth the disk space needed to hold the bit-mapped versions.

Another way to speed things up is to use the "Configure" option of Pointless. Using this option you can tell Pointless exactly which characters from a font that you want it to generate. For example, you could tell Pointless to only generate the alphabetic characters from a font. Since there are only 52 alphabetic characters ("A" to "Z" and "a" to "z") this would be much faster than having Pointless generate all 256 characters in a font. While this is a very slick way to speed things up, I've found that I always end up needing special characters that I didn't anticipate. Things like ™, © and †. Oh, and of course I need curly quotes, "Like these."

Pointless Complaints

Other than the speed problem, there are only a few real bugs in Pointless. Most of these seem tied to the fact that for any font family (i.e. Courier) there can be separate TrueType fonts for stylistic variations of the family (i.e. you could have separate TrueType fonts for Courier, Courier Bold, Courier Bold-Italic, Courier Bold-Italic-Underline, etc.). Pointless tries to resolve this problem by combining all of these different fonts into one font menu item (i.e. if you did have TrueType fonts for Courier, Courier Bold, Courier Bold-Italic, and Courier Bold-Italic-Underline, only Courier would show up in your font menu). But it can lead to some bizarre behavior in the Size and Style menus and in the standard Choose Font dialog. For example, with Courier and Courier Bold installed in my system, after Pointless has generated a 10 point version of each font, the standard Choose Font dialog will show two 10 point entries in the Size list when I click on Courier in the font list. While this isn't dangerous, it is confusing and needs to be fixed.

The worst problem that Pointless has is that, sometimes, requested fonts simply aren't generated. So the system ends up using Shaston instead—which can be very, very ugly. On my system, this has happened mostly in HyperCard IIGS and it usually happens to fonts that have had one style or another applied to them (i.e. Monaco Bold when I have installed a

Pointless Tips

Don't just delete all of your old bitmap fonts! If you do, and you later decide that you don't like the way TrueType fonts look, you could have a real problem reconstructing your fonts folder. I would recommend that before you install Pointless, you copy all of your old fonts to a floppy (or floppies). After you install Pointless, use it to generate bitmap fonts for all of your old fonts. Why not just keep your old bitmap fonts and simply use Pointless for the occasional odd-sized font? Well, if you did, the spacing might not be consistent from point size to point size (i.e. the 20 point Times generated by Pointless might not be 100% larger than the 10 point Times provided with the IIGS System Software.) This could lead to some real problems in page layout programs and some word processors.

Don't forget that most TrueType fonts are copyrighted just like any other software. Don't just go giving them to (or accepting them from) everyone you know. And don't give away (or accept) bitmapped fonts created with Pointless either.

If you are going to save a bitmapped version of a font, be *sure* to select *all* of the characters in that font with the Configure option before you save the bitmap. If you don't, your bitmapped version will only contain a subset of the font.

Buy a hard drive. TrueType fonts are relatively huge and you really won't be able to fit that many on a floppy of any size.

TrueType version of Monaco, but not Monaco Bold). Fortunately, I have not yet noticed this happening in any of my printouts, it only seems to affect text on the screen.

Another problem is that at some of the smaller point sizes (usually less than 12 points—it depends on the font you are using), text styles don't always show up on the screen. For example, on paper you can see that this "*GS+*" has had **bold** and *italic* applied to it, but I can't see the **bold** effect on my screen as I am writing it. This can also be annoying, but is easily solved by changing to a larger point size.

A slightly more serious problem is that Pointless seems to cause desktop communications programs to drop incoming characters. This was most obvious in the AppleWorks GS communications module and the only way to fix it was to deactivate Pointless.

If you ever do any desktop publishing, there is one more problem that you will probably have with Pointless: the fonts created by Pointless will probably look different from your old bit-mapped fonts. The reason for this is that they *are* different. This can take some getting used to, but, in my opinion, the fonts created by Pointless look better (at the larger sizes anyway, anything less than 12 points is fairly difficult to read on screen.) In addition to *looking* differently, the fonts created by Pointless will probably have different horizontal spacing between characters and different vertical spacing between lines. Because of this, the formatting that you have in your old page-layout documents will probably be slightly off when you open them with Pointless installed. If your page layout program allows you to adjust these values, you should be able to overcome this problem with a minimum of effort. I need to note here that this isn't the fault of Pointless, *anytime* you replace old fonts with new ones you run the risk of messing up the formatting in your old documents.

And there are a few minor problems in the Pointless user interface. For example, the "Configure" button is always available, even though you have to select a font before you can configure it. Along those same lines, the "Remove" button is always available, even though you have to first select the font that you want to remove. A complete mystery is the "Active" check box in the help dialog. It isn't mentioned in the manual and it doesn't seem to serve any purpose, but it's in there. I freely admit that this is nit-picking, but little things like this shouldn't make it past beta-testing and, for me, really detract from the otherwise very professional appearance of the product.

Finally, there is a problem with the Installer script that is provided with Pointless. When you install Pointless, the Chicago font is not installed along with the other fonts. However, you can easily copy it from the Pointless disk using the Finder.

Pointless Praise

Now, even if all of this seems bad (and it is), Pointless is still a valuable tool to have because of its ability to generate bitmapped equivalents of hundreds of TrueType fonts that you would not otherwise have access to. This alone makes it worth the asking price, but the real value of Pointless becomes obvious when you see what it can do for your printouts.

If you have any printer other than a LaserWriter (ImageWriter, DeskJet, LaserJet, etc.) and the appropriate driver software (the ones supplied by Apple, Harmonie, Independence or Perfect Image), you should get Pointless. Why? Well, since Pointless can generate any size font up to 255 points, it can easily supply printer drivers such as the Apple ImageWriter Driver, Harmonie, Independence and Perfect Image with the large fonts that they need to do their high quality printouts. For example, if you try to print a document that uses 13 point Times, the printer driver will ask the system to supply it with a font that is two, three or four times that size (i.e. 26 point, 39 point, or 52 point). If the system can give the font to the driver, the driver will use the larger font for the printout. Since bigger fonts contain more *detail* than smaller fonts, the end result is that your printout looks much better that it normally would. With Pointless installed, the system will *always* be able to give the printer driver the sizes it needs to create the best printouts possible. (For a more detailed explanation of all of this, read "How Fonts Work" and "How Printing Works" by Matt Deatherage in *GS+* V3.N2 and V3.N3 respectively.) For a more visual example, compare Figure 1 with Figure 2. Figure 1 was generated on an ImageWriter II using the standard ImageWriter driver that comes with System Software v5.0.4. Figure 2 was generated by the same driver, with the help of Pointless.

Unfortunately, if you *do* have a LaserWriter, there really isn't that much reason for you to get Pointless—the current LaserWriter driver simply won't take advantage of it (i.e. it won't ask the system for any fonts that aren't built into the LaserWriter). However, if you simply can't stand the fonts you currently have and want to see if anything in the TrueType world looks better, Pointless is the only way to go.

Pointless Details

Pointless allows you to keep your TrueType fonts on any online volume. You do not have to keep your TrueType fonts in your ***:System:Fonts** folder. You can keep some fonts on a floppy while you keep others on your hard disk, you can even keep them on an AppleShare file server! Pointless keeps track of the location of each font and loads it from there when it's needed. This is very handy for those that don't yet have a hard disk.

The Pointless manual is very well done. It does a nice job of explaining a very complicated piece of software and making it easy to use. It also has a "troubleshooting" section and printouts of all of the characters in all of the included TrueType fonts (Chicago, Courier, Courier Bold, Geneva, Monaco, New York, and Symbol) complete with key equivalents. The manual also explains how to get TrueType fonts from Macintosh disks

Figure 1

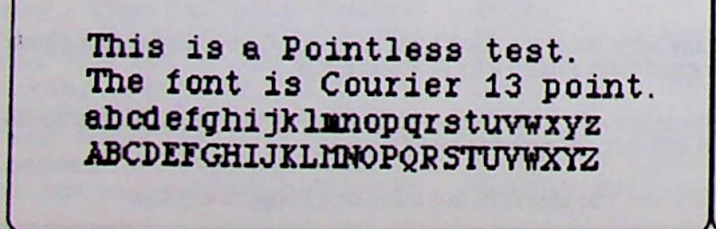
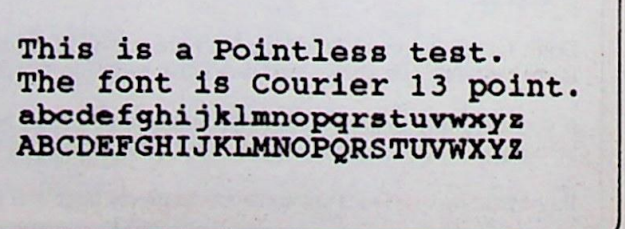


Figure 2



onto your IIGS disks. Of course now that System 6 is *finally* available, this is a moot point, as you can now read Macintosh disks directly on your IIGS. The absolute best thing about the manual is that there are very few jokes involving the word "pointless." In fact, this review contains about 30 such jokes compared to only one or two in the manual.

Pointless Conclusions

While my list of problems is a bit longer than my list of good things, I have to say that Pointless is a really neat piece of software. Most of the problems I've listed are actually very minor by themselves (but when you put them all together they seem fairly major) and could probably be resolved with only a small amount of work.

If you don't have an accelerator in your IIGS, I'd have to say that you might be better off without Pointless. I have a TransWarp in my IIGS and I can barely tolerate all of the waiting. Of course, if you have hard disk space to burn and can afford to have lots of bit-mapped fonts and TrueType fonts laying around, speed won't be a problem.

If your main printer is anything other than a LaserWriter, you really need to get Pointless simply for the improvements it will give your printed output. If your main printer *is* a LaserWriter, there is really not any reason for you to get Pointless—unless you are just a font monger and have to have every font there is for your on-screen enjoyment.

Another group that should definitely give consideration to Pointless are those folks with visual impairments. If you simply can not read anything under 48 points on your IIGS screen, the large, smooth fonts created by Pointless will literally be a sight for sore eyes. *GS+*

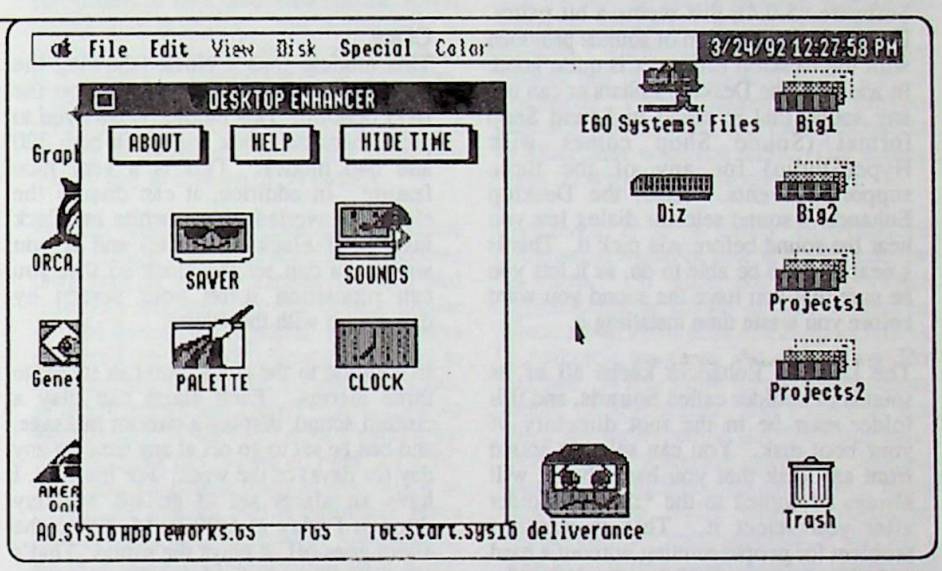
Desktop Enhancer v1.1

By Steven R. McQueen

Retail price: $24.95
User group discounts are available. Contact Simplexity Software for details.
Not copy protected
Requires System Software v5.0.4 or later, hard disk drive, 1MB RAM

Simplexity Software
13045 Chapman Ave., Ste. 302
Orange, CA 92668
(714) 283-3957

Reviewed by Steven W. Disbrow



Desktop Enhancer is a New Desk Accessory (NDA) and Init combination that provides you with four ways to customize your IIGS. Included in Desktop Enhancer are a Screen Saver module, a Desktop Palette changing module, a Clock/Alarm module, and a Custom Sounds module. When you select Desktop Enhancer from the Apple menu, a window appears which allows you to select the module you wish to work with (see screen shot.) This main window also allows you to easily toggle the on-screen clock on or off without having to go into the Clock module—this is a very nice touch.

Also available in the main window is a Help button that presents you with a dialog containing helpful information about how to use the Desktop Enhancer. In fact, every single window in the Desktop Enhancer has a Help button! This is extremely cool. More software should have online help like this.

That's the overview, now I'll look at the individual modules. Along the way, I'll compare the features in the Desktop Enhancer to those of its main competitor, Signature GS. (A review of Signature GS can be found in *GS+* V3.N3.)

Screen Saver

The screen saver in the Desktop Enhancer is fairly nice. A scroll bar allows you to set the blanking delay from 1 to 30 minutes—at the end of that time the blanker takes over and starts running its display on your screen. There are seven different screen blankers included—the same number as Signature GS. Also like Signature GS, the Desktop Enhancer blankers are imbedded in the program itself, there are no instructions on how to create your own blankers, and the blankers do not take effect in programs other than true desktop programs. (In other words, the blankers won't work in ProDOS 8 programs or with 16-bit programs like ProSel-16 or the ORCA/Shell.) However, unlike Signature GS, there is no provision for adding new blankers at a later time. In a conversation with the author, I was told that *all* of these shortcomings would be addressed in the next major release of the Desktop Enhancer.

All in all, this is a very usable screen blanker. The only real problem I found in it is that if you attempt to access the Classic Desk Accessory menu while the Desktop Enhancer screen saver is active, the computer will hang up, forcing you to reboot.

Desktop Palette Changer

I'm not really sure why this is called a "Palette" changer, because what it actually changes is the *pattern* displayed on the IIGS desktop.

Whatever you call it, there are lots of desktop pattern changers available for the IIGS (most are shareware), but the one in the Desktop Enhancer uses a method that I had not seen before. The Desktop Enhancer pattern changer allows you to pick two colors and then select a method for mixing those colors on the desktop.

The two colors can be dithered (put closely together so that they seem to make another color), layered in horizontal stripes (200 stripes down your desktop, each stripe alternating between the two colors you choose), or you can ignore the second color and only use the first as a solid desktop color.

The only problem with this module is that you can't edit or save patterns (as you can in Signature GS). This drastically limits what you can do (creatively speaking) with this module of the Desktop Enhancer.

Custom Sounds

If there is one thing that gets computer owners excited, it's the ability to make their computers emit disgusting noises. Unfortunately, the custom sounds feature of Desktop Enhancer is fairly limited—you can only assign custom sounds to three events: the System Beep, a Disk Insert, and a Disk Eject. Compared to the thirteen events that Signature GS can generate sounds for (under System Software v5.0.4), this seems a bit paltry. However, the selection of sounds provided with the Desktop Enhancer is quite good. In addition, the Desktop Enhancer can use any sound that is saved in Sound Shop format (Sound Shop comes with HyperStudio) for any of the three supported events. Also, the Desktop Enhancer's sound selector dialog lets you hear the sound before you pick it. This is a neat thing to be able to do, as it lets you be sure that you have the sound you want before you waste time installing it.

The Desktop Enhancer keeps all of its sounds in a folder called **Sounds**, and this folder *must* be in the root directory of your boot disk. You can select a sound from any disk that you have, but it will always be copied to the ***:Sounds** folder after you select it. This is a major problem for people running without a hard disk, but Signature GS has basically the same problem (Signature GS keeps all of its sounds inside the Sonics Control Panel, which must also be on your boot disk).

Problem-wise, the only difficulty I had with this module was that, when I had a custom System Beep installed, my America Online software would hang up when it beeped to tell me that I had mail waiting. I have to go on America Online every day, so this is a big problem for me.

Finally, potential purchasers of the Desktop Enhancer should be aware that one of the included sounds contains a four-letter word that some might find objectionable.

Clock

This module puts a clock (showing the date, hour, minute and seconds) on the IIGS desktop. This module allows you to pick where the clock will go in both 320 and 640 modes. This is a very nice feature. In addition, it can display the clock in inverted video (white on black instead of black on white) and if you want, you can set the clock so that you can reposition it on your screen by dragging it with the mouse.

In addition to the clock, you can set up to three alarms. Each alarm can play a custom sound, display a custom message, and can be set to go off at any time on any day (or days) of the week. For instance, I have an alarm set to go off Monday through Friday at 6:00 P. M. When the alarm goes off, it plays the sound "That's all folks!" and displays the message, "Quitting time!" I *really* like that!

The only problem I have with this module is that I wish you could turn the seconds display off. Other than that, this is my favorite module in the Desktop Enhancer.

Conclusions

For me, the most disappointing aspect of the Desktop Enhancer is that it is implemented as a single New Desk Accessory and not as four separate Control Panel Devices. If it were, I would be able to use the Clock module along with the modules from Signature GS. As it is, I have to take an all or nothing approach and, since I find the comparable modules of Signature GS to be more flexible, turn Desktop Enhancer off completely. I wish this weren't the case, because I *really* like the alarm capability of the Desktop Enhancer.

The Desktop Enhancer is a nice package, but, with the exception of the Clock module, Signature GS by QLabs provides the same functions in a more flexible environment. It supports more custom sounds and (if QLabs ever releases any) you will be able to add more screen saver modules in the future. However, Signature GS is $5 more than the Desktop Enhancer (if you include shipping, which is about $6, Signature GS is actually about $11 more than the Desktop Enhancer). Until the Desktop Enhancer becomes more extensible (i.e. supports more sounds, additional screen blankers, etc.), I would have to say that Signature GS is a better package and a better buy. *GS+*

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Reviewed by "Big" Dave Adams

ANSI!

Finally somebody got it right! Now we Apple IIGS users can finally see what was previously indistinguishable from line noise on all of those heathen IBM and Mac BBSs. For years I have secretly resented the fact that users of inferior machines were able to look at graphics and neat special effects when they called up a BBS. Several shareware programs have tried to address these problems but all they did was let you log on, see the graphics, and that was about it. No downloading, no capture buffer, nothing along the lines of a full telecomm program. ANSITerm is the first program that I have seen that lets you see ANSI graphics in color and has many of the utilities that a good telecomm program should have.

What Is All This "ANSI" Anyway?

"ANSI" stands for "American National Standards Institute." ANSI is a committee that sets standards for things. In this case, it's a standard set of codes that computers can interpret to create graphics. So, by sending these codes over a modem, a BBS can create a graphic to be displayed on the remote terminal. Which, translated into plain English, means that you can look at pictures and colored backgrounds when you call a BBS. PC machines use a special ANSI set (PC-ANSI) that also includes some special characters that supplement the ANSI set. PC-ANSI is used on just about every PC BBS. Of course, the better BBS packages will ask you (usually when you first log on) if your terminal can handle ANSI. If you can't, it reverts to a standard BBS. Unfortunately, many BBS packages simply assume that you are using a nasty clone and skip this. Consequently, we Apple users can get a lot of garbage running across our screen when we call one of these BBSs. ANSITerm seeks to rectify the situation.

But Wait! There's More!

As stated earlier, ANSITerm is the first IIGS program that combines ANSI capability with most of the features that one expects in a telecomm program. First of all, ANSITerm is written exclusively for the IIGS. It runs under ProDOS 8 (it isn't a desktop program) and loads very quickly. It comes on a 3.5-inch disk and includes a detailed manual. It uses a custom super high resolution character generator to speed up the display. It supports high speed modems (9600 baud and such) as well as the more common 1200 and 2400 baud modems. It supports the Super Serial card and many printer cards. It has a scrollback feature which is very useful. (This is similar to a capture buffer. All incoming text is saved in the computer's memory and can be reviewed while online or offline. This is very useful when the screen redraws itself and you didn't get to see the response to your last command.) ANSITerm allows you to save or print sections of the scrollback to disk and also retains ANSI colors and graphics. The scrollback is limited by the size of your available RAM. It features the various types of Xmodem, Ymodem, and Zmodem file transfer protocols and automatic extraction of Binary II archives. A dialing directory allows you to save up to 34 entries.

In other words, ANSITerm has just about every feature you could want in a telecomm program. It is very simple to learn and features a nice interface that is very similar to IBM telecomm programs. I have always preferred the PC-style character displays to the standard Apple text screen (that's one of the reasons I use SnowTerm, despite its limitations). ANSITerm does a superb job of emulating the "Look & Feel" of a PC program. Of course some of you might be turned off by that, but it definitely gives ANSITerm a distinctive look. Considering the type of program that ANSITerm is (i.e. specifically designed to emulate PC-ANSI) it is only fitting that it has a unique display.

One of the strengths of ANSITerm is in its file transfer protocols. Given the various types of each, it supports eleven types in all. The Zmodem protocol works fine and I have never had one file transfer fail to work. As a matter of fact, I can say that of all the telecomm programs that I have used (and I have used just about all of them at one time or another) I feel ANSITerm's file transfers are the easiest to use. They are much easier to use than ProTERM's.

As for displaying color graphics and such, ANSITerm succeeds better than any other IIGS program that I have seen. With ANSITerm, there is not much difference between ANSI on my IIGS, and ANSI on my PC. The only problems occur when the BBS uses some horrid color selection. The characters just look funny. The manual explains that this problem comes from using 640 mode for the display. ANSITerm provides a keyboard command to change the colors of the background and the foreground to make characters easier to read, but that's about it. In addition to PC-ANSI emulation, ANSITerm can also emulate "Special" (which is used by some Apple II BBS programs) or you can choose to use no emulation at all.

All That Glitters . . .

Despite ANSITerm's powerful strengths it does have some weaknesses. One of the most glaring omissions is the lack of a "Break" key. I was in a bulk message dump before I noticed this and had to wait several minutes before I could get out of it. This definitely needs to be addressed. Although the scrollback buffer is nice it does not send you a warning when it is full. When the buffer gets full you should have the option of clearing it or saving it to disk. Unfortunately ANSITerm just pushes out the information at the start of the buffer. I was disappointed to find out that many of the messages I had planned on reading later were not there. The manual gave no warning this would happen.

Although it is a fairly full-featured program, it would be nice if ANSITerm had an editor. I'd rather not have to switch applications to create or edit messages. Since ANSITerm does not support NDAs, it makes it tough to use something like EGOed. A few more terminal emulations would be appropriate, and I suppose that there are some people out there that can't live without a Kermit protocol. Macros would be a definite plus and would make this program really shine. Although ANSITerm is a good program, it still has a way to go before it can really be considered "Full Featured." But, if ANSITerm incorporated these features, it could give ProTERM a serious run for its money.

The Bottom Line

I really like ANSITerm. It has a good "look and feel" to it and is a very solid term program. But before I would make it my favorite program I would like to see the features mentioned above included. As an ANSI emulator, it is without peer in the IIGS world. Although ProTERM does ANSI, it only does it in monochrome (which makes me wonder why they did it at all). ANSITerm is a good program, but it needs some more work to become the powerful program that it could be. If you are desperate to see ANSI on your IIGS, get this program. Sixty-nine dollars is pretty steep just to look at graphics though. If you have to get the best all-around telecomm program, I would have to recommend ProTERM simply because it has many more features. However, ANSITerm is definitely a diamond in the rough, and its ANSI emulation runs rings around everything else available, including ProTERM's. *GS+*

GS+ Back Issue Information

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- $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 Arkanoid II (new custom levels on disk), Crystal Quest, ORCA/C, Rocket Ranger, Silpheed, Test Drive II, TransWarp GS, Turbo Mouse ADB

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- EGOed - An NDA text editor (TML Pascal II source code on disk)
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- $6.50 disk (magazine is sold out!)
- All About Control Panel Devices - with Desk Color CDev and ORCA/C source code on disk
- Brush with Greatness - Architecture on your IIGS with pictures of the CitiCorp building and Frank Lloyd Wright's house on disk

May-Jun 1990 (V1.N5)
- $4.50 mag • $6.50 disk • $9.50 both
- 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

Jul-Aug 1990 (V1.N6)
- $4.50 mag • $6.50 disk • $9.50 both
- KansasFest Report
- Beginner's Guide to System Disks - Part 2
- Transfusion - An NDA terminal program (ORCA/C)
- 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?

Sep-Oct 1990 (V2.N1)
- $4.50 mag • $6.50 disk • $9.50 both
- Brush With Greatness - making the most of your digitizer
- Interview with Brian Greenstone (programmer of Xenocide)
- PING - video table tennis program (Merlin assembly)
- Shuffle - an Init 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

Nov-Dec 1990 (V2.N2)
- $6.50 disk (magazine is sold out)
- LaserWriting - LaserWriter fonts on disk
- TeachText Translator - import and export TeachText files in GWIII
- *GS+* program updates - EGOed v1.32, Transfusion v1.1

Jan-Feb 1991 (V2.N3)
- $4.50 mag • $6.50 disk • $9.50 both
- 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, Sinbad and the Throne of the Falcon

Mar-Apr 1991 (V2.N4)
- $4.50 mag • $6.50 disk • $9.50 both
- Interview with Dave Hecker of Seven Hills Software
- Working with the Toolbox - Part 1: The Tool Locator
- Quick NDA - an init 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

May-Jun 1991 (V2.N5)
- $4.50 mag • $6.50 disk • $9.50 both
- 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

Jul-Aug 1991 (V2.N6)
- $6.50 disk (magazine is sold out!)
- 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
- HyperActivities - Address book stack for HyperCard

Sep-Oct 1991 (V3.N1)
- $4.50 mag • $6.50 disk • $9.50 both
- Protecting Your Investment - A Guide to Surge Protection
- A Conversation with Roger Wagner - Part 2
- Working with the Toolbox - Part 4: QuickDraw II
- FGS (Fractal Graphics & Such) - A Fractal Generator written in ORCA/C
- *GS+* program updates - EGOed v1.36, Autopilot v1.1, NoDOS v1.6
- Reviews of two 100MB hard drives, Nite Owl Slide-On Battery, ORCA/Integer BASIC, ORCA Talking Tools, Storybook Weaver: World of Adventure, HyperBole, HoverBlade, Shareware: DeskTop Paintter, SoundSmith, IIGS Classic: The Bard's Tale IIGS

Nov-Dec 1991 (V3.N2)
- $4.50 mag • $6.50 disk • $9.50 both
- How Fonts Work - an article by Matt Deatherage
- Working with the Toolbox - Part 5: The Event Manager
- Introduction to 3-D Graphics - with demo program written in ORCA/C on disk
- Buying Used IIGS Equipment
- AutoSave - NDA written in ORCA/M that periodically saves documents on the IIGS desktop
- *GS+* program updates - EGOed v1.37, NoDOS v1.7, RAM Namer v2.0
- Reviews of Octo-RAM Memory Board, DataLink II Express, Talking First Words, Talking Cloze Technique Greek Mythology, Shareware: CosmoCADE, Star Trek Classic

Jan-Feb 1992 (V3.N3)
- $4.50 mag • $6.50 disk • $9.50 both
- How Printing Works - an article by Matt Deatherage
- Working with the Toolbox - Part 6: The Resource Manager
- Buying & Using Mac Hard Disks
- Cool Cursor - A Control Panel that replaces the old watch cursor with an animation. (ORCA/M and ORCA/C)
- Replicator - A Desktop based disk duplication program that works with any GS/OS device and file system. Almost 3,000 lines of ORCA/Pascal code!
- *GS+* program updates - EGOed v1.4: Find and Replace fonts, sizes and styles
- Reviews of MacLand 105MB Hard Drive, Tulin 120MD Hard Drive, SuperConvert, Signature GS, Learn to Program in C, 4 shareware reviews.

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Learn to Program in Pascal

By Mike Westerfield

Learn to Program in Pascal bundle
(Includes ORCA/Pascal)
Retail price: $200.00
Typical mail order price: $120.00

Learn to Program in Pascal
Retail price: $50.00
Not copy-protected
Requires 1.25 MB RAM

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

Reviewed by David Farber

The Intro

Well, here we are again: treading the muddy, unpaved roads of computer language tutorials. Journeying down the twisting, perilous paths left by the trailblazers who came before us. Making our way toward that one, all encompassing end: a worthwhile knowledge of a computer language. OK, Hemingway I'm not, but even a computer language tutorial review needs a good intro.

Take It Away, Hemingway

The purpose of this review, and the review of Learn to Program in C in the last issue of *GS+*, is to see if these two products are worth your time and money should you decide that you want to be a programmer. To put it succinctly, a good programming language tutorial should give the clueless a *good clue*. That entails two things; first the tutorial must provide a clue, and second, the clue must be a good one. Both Learn to Program tutorials bill themselves as being a course for the beginner, but as such, do they succeed? And do they present a good fundamental introduction into their respective languages? Both of these questions must be addressed when evaluating any computer language tutorial. As I said in the last issue's review, it is hard for one reviewer to take both approaches. Either you're a beginner and you can tell your readers how it fares as an beginner's level tutorial, or, as someone who is well versed in a language, you can explain how well the tutorial covers the language as a whole. But coming from one direction excludes the other. So, in a valiant attempt to thwart this dilemma, I said that I, having a solid C background, would review Learn to Program in C to see how well the package covered the language and then, having no Pascal background, would review Learn to Program in Pascal to see how it fared as a course for beginners. So, bearing all this in mind, let the games begin!

Learn to Program in Pascal is a sixteen lesson Pascal language tutorial. Like its sister course, the tutorial comes in a large 1-inch binder and the course comes with a disk containing the source code to all the problems in the lessons. (I'm going to take a quick aside to say that the Samples disk that comes with ORCA/M, ORCA/C, and ORCA/Pascal is an *excellent* source for Apple IIGS specific source code; i.e. NDAs, CDAs, and desktop programs. Unfortunately, this little gold mine gets overlooked all too often.) Like its twin, the course bills itself as an introduction to programming in the Pascal language, *not* an introduction to Apple IIGS desktop programming. The course assumes that you have ORCA/Pascal and that you are using the PRISM desktop shell. I'm going to take a few lines and impress upon you just how alike the two courses are. All of the Pascal lessons parallel the C lessons (the C course picks up an extra lesson entitled "More Miscellaneous Stuff") right down to lesson titles and subtitles. There is a little discrepancy, but with two unique languages, that is to be expected. At the beginning of lessons, it is easy to see where information was simply cut from one course and pasted into the other. In fact, there are a few places in Learn to Program in C where "ORCA/Pascal" was not changed to "ORCA/C". Now there's absolutely nothing wrong with cutting and pasting like this, (especially if you've already got a good programming tutorial outline; if it ain't broke, don't fix it!), and it might even encourage you to purchase the other tutorial if you bought and liked one. For now, this trivial point serves to reinforce that we can indeed apply the observations we make from one course to the other.

Where's The Beef?

So where's the beef, you ask? Well, its here in Learn to Program in Pascal. Before I went through the course, I had absolutely no experience with Pascal. The only thing I could tell you was that Pascal used the funky ":=" for variable assignments instead of a less cryptic, stand alone equal sign. (There is a good reason for using something funky like the ":=" symbol. It helps beginners think about the difference between variable assignment and a logical equality comparison.) As I went through the lessons, I could not help but be struck at the sheer number of programming examples. Sound familiar? Yeah, I harped on that feature of the C tutorial last issue, but let me just make sure you understand where I am coming from. I taught myself Applesoft BASIC and 65816 Assembly Language, and I did so by going through books and typing in examples. I *never* finished a programming tutorial. Half of the time, I would skip whole chapters if it bored me, but I never regretted the way I learned BASIC or Assembly. I would run an example, decide I wanted to do something slightly different, and then rewrite the code. When I got stuck, I went back to the book to see if I could find an answer. (What really would make me mad was when I would type in examples from the book and they wouldn't work, or were poorly written; then I would spend my time writing a better example!) Learn to Program in Pascal is the kind of course I would have loved to have learned BASIC with. You simply cannot have too many programming examples or problems to solve. Or to put it to you in Mr. Westerfield's words, "Programming is a skill. If you don't practice the skill, you will never learn it." I could not agree more.

So what else did I like about Learn to Program in Pascal? Well, it is very obvious that Mike Westerfield has gone to great lengths to provide a course that is on the level of a true novice. And I've got to say that I like that. If you're a natural when it comes to programming, then just about any programming book you can pick up will give you something you can use. But if you're not a hot shot, then it takes a little more time and a little more energy to get off the ground. I can appreciate the extra effort Mike has put into the tutorial to help the first time beginner get into the air for the first time. And I'm sure you'll appreciate it too.

Function? Function Anyone?

OK, so what about the stuff I didn't like? Well, this one isn't going to be much of a surprise. Learn to Program in Pascal does not have an index, and frankly, I think it is a big draw back. Case in point: I know from casual conversation with some friends of mine that Pascal had both procedures and functions, and that the difference was that one could return a parameter and the other couldn't. Well it didn't take long before I ran into the procedure (which, incidentally, can not return a parameter). But after getting through most of the course, I realized that I had not seen one mention of a function. Well, needless to say, I didn't have an index to flip through. It was only because I already had a good command of programming in general that I instinctively turned to the lesson on recursion, where I found an example of a function. So Learn to Program in Pascal gets it coming and going on this one. First, it almost tried to sweep functions under the rug, and second, had my guess been wrong, I might have walked away from the course convinced that functions were not even a part of the Pascal language. That is not good. I am

also wondering if the number of built in Pascal functions is in the double digits, because I can count all the Pascal functions I encountered in the course on one hand. Because of my experience with the C course, I'm positive that there must be more Pascal functions than the ones presented. So, don't buy Learn to Program in Pascal and expect it to be the last word in Pascal programming.

The Envelope Please

So, what is our final pronouncement on our two programming tutorials? If you are a true programming novice, and are wondering if you have the "gift" to be a programmer, I wholeheartedly recommend Learn to Program in Pascal. If you want to learn the Pascal language then this course won't disappoint you. However, (and this is the only category that the tutorial loses in) if you are already well versed in computer programing and don't need much more than language syntax to get your Pascal career underway, do not buy this tutorial. It will give you want you want, but not in the way you want it. You'll be weighed down by all of the catering to the novice, and you'll be shooting in the dark if you need to find something quick. Like I said last issue, I do not recommend Learn to Program in C to the novice, simply because C is a rough language to cut your teeth on. It expects you to know exactly what you are doing. And if you don't know what you are doing, then you will get nowhere fast! If you feel that you simply *must* learn C, then go ahead, you'll not be disappointed with the treatment of the language. Regardless of the course you choose, you'll need a good second reference book. Now I know I said that I was going to find a good second reference for the C language last month, but when I realized that I was going to have to find a good Pascal book as well, I decided to put the whole thing off until we meet again next issue. That's right, I said *next* issue!

Announcing . . .

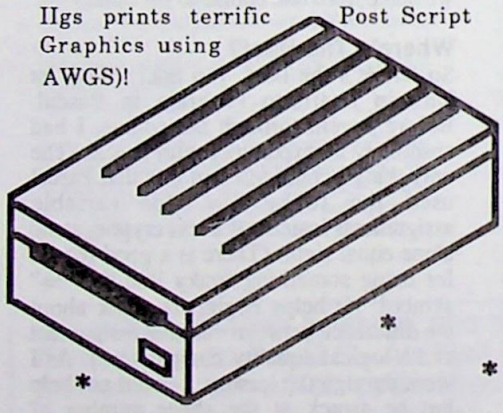
Now I know that there are a lot of you out there just itching to get programming. Well wait no more! Get out there, get yourself a tutorial, and stay tuned for a brand new feature here at *GS+* starting next issue. I'm going to have my own column and I'm going to pick up where these tutorials left off. We're going to cover the basic computer programming skills, that, unlike everything else here in *GS+*, are not IIGS specific. Now, this column is *not* meant to replace either of the Learn to Program tutorials, and it will assume that you have at least a slight grasp of either the Pascal or C language. (Just to give you a taste of what I'm talking about, my first installment will talk about arrays and all the neat things you can do with them.) So, what are you waiting for? You've got a language to learn! *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, and around the world. With over 250 MEGs of Public Domain IIgs software, and growing, the club claims one of the largest selections of software for all members. All for only $3.50 a disk, shipping included! 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, reviews, and the use of EPS graphics. (Yes, the IIgs prints terrific Post Script Graphics using AWGS)!



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This ad, graphics, and layout was done entirely on a IIgs using AWGS & a LaserWriter IInt.

GSAUG

ORCA/M v2.0

By Mike Westerfield & Phil Montoya

Retail price: $125
Typical mail order price: $79.95
Not copy protected
Requires 3.5-inch drive, 1.25MB RAM.
Extra RAM & hard disk are recommended!

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

Reviewed by Josef W. Wankerl

ORCA: The name inspires mixed emotions. On one hand, it's the only IIGS native development environment that has support for multiple languages (C, Pascal, Integer BASIC, and Assembly at this point). On the other hand, it's not always been the most reliable software to use. ORCA/M v2.0 is an improvement in that it uses GS/OS instead of ProDOS 16, plus it's a stab at improving reliability.

Assembler

Perhaps the fewest changes in ORCA/M v2.0 are in the Assembler. This is good! If you've ever worked with a previous ORCA/M Assembler, you'll feel right at home with the new version. Of all the components of ORCA/M v2.0, I've not had a single problem with the Assembler. And MacGen, the Assembler's trusty sidekick that scans source code files for macros and creates macro files, is faster than ever.

Shell

With the Assembler and MacGen staying relatively the same, you might be asking yourself why you should get ORCA/M v2.0. The answer is, "for the new shell!" Bugs in FastFile have been repaired (FastFile is a file caching mechanism used by ORCA), and the shell now supports GS/OS! You can take advantage of the long pathnames that AppleShare and HFS offer you, filenames are no longer forced to all upper case, the command line can be 255 characters long, and the command line expansion can be up to 64K in length! However, there are still a few drawbacks to the shell. Using the new HFS FST, or the AppleShare FST, filenames can contain characters which will not show up on the command line. "™", "©", "®", and "•" for example. There is no way to access those files directly from the command line.

Editor

Imagine a seed. Imagine a flower. That's the difference between the old ORCA editor and the new one. The new editor allows you to edit up to ten files simultaneously, files can be over 64K in length, there is support for real tabs, and improved search and replace features are present. The editor now has a Standard File-like interface that is used to open or save files. This allows you to access those files which have names you cannot type on the command line. But it doesn't mimic Standard File closely enough. For example, Command-1 through 4 are used for Disk, Open, Close and Cancel respectively. Standard File uses Tab, return, escape, and Command-period for those same functions. It would be nice if the interface resembled the real Standard File a bit more.

Another problem is that some of the command keystrokes from older editors have been changed. Most notably, the Command-A keystroke (which used to move the cursor to the previous tab position) has turned into the Command-Tab command. I got pretty confused when pressing Command-A brought up the new Save As dialog! You'll probably spend a lot of time cursing the new keys, but after you get used to them you'll find that they're much more logical. There's also one very nasty "bug" in the editor that has caused me to lose countless days of work. If you close one of the files you're working on, and the file has changed, the editor asks if you want to save it. If you say "yes," and an error occurs during the save, the file is still closed. This means that any changes you made are lost since they didn't get saved but the file still got closed! Very nasty! The way around this is to save the file *before* you close it. Learning the hard way isn't fun.

Linker

The new ZapLink v2.0 linker is as fast as ever. All the good things that you may have heard of the old linkers, you can apply to ZapLink v2.0. Linking is blazing fast. The need to write script files for the new linker has almost disappeared because the command line can handle 64K of filename expansion. It's hard to find fault with the new linker. But, I did . . .

While developing Replicator, Diz and I kept our source code on our AppleShare file server. Diz would update the C code, and I would update the Pascal code, and then we'd compile and link the results. That should work, right? Well . . . not exactly. The linker has a problem dealing with pathnames that contain spaces. We were working inside the folder **":EGO Systems' Files:Replicator"**. Apparently the spaces in the pathname caused the linker to choke. I had to use a script to copy the object modules from the server to a RAM disk, and then link from there.

Manual

The manual that comes with ORCA/M v2.0 is the best that the Byte Works has ever produced—and that's saying something! Information is easy to find, and clear when you find it. The section on how to use and write those powerful macros that ORCA is famous for (ORCA/M is M/ACRO backwards, ya' know) has been revised extensively. The end result is a complete and informative section on how to write macros. It has an index, like all manuals should, which is very useful when you need to find information quickly.

General Utilities

The traditional assortment of utilities that comes with ORCA/M v2.0 have also been revised to support GS/OS. For example, the Copy command can now copy resource forks, and the Delete command can now delete folders and their contents. Basically, if you ever wished that an old utility could make use of GS/OS, your wish has come true!

One of the more useful new utilities is *entab*. It takes source code files and replaces long strings of spaces with tabs. This cuts down the physical size of source code files since one tab character can take the place of many space characters.

Extras

Included in the ORCA/M v2.0 package are two products that have previously only been available from APDA (now available from Resource Central): GSBug, and the APW Tools & Interfaces v1.1 package. GSBug is Apple's 65186 assembly code debugger. If you program using assembly then you will rejoice at how easily you can debug your programs with GSBug. The APW Tools & Interfaces contains all the tools and interfaces (obviously) necessary to write desktop programs using System Software v5.0.4. This also includes Rez, Apple's resource compiler. The ORCA manual also contains full documentation for both the Rez compiler and GSBug. This is a wonderful bonus!

Is It Worth It?

If you own an older version of ORCA/M, you definitely want to upgrade, even if it's only to get the improved editor! If you don't yet have an ORCA product, and are considering diving into the development world, I would recommend ORCA/M v2.0 as a great starting point.

You can only get the new shell and editor with the Assembler. So, if you want to program in C or Pascal, you will need to buy both the C or Pascal package *plus* the ORCA/M v2.0 package to get the new shell, editor, and utilities. This should change in the near future as the Byte Works enhances C and Pascal to take full advantage of the new shell. It's also a great way to get GSBug and Rez complete with full documentation. ***GS+***

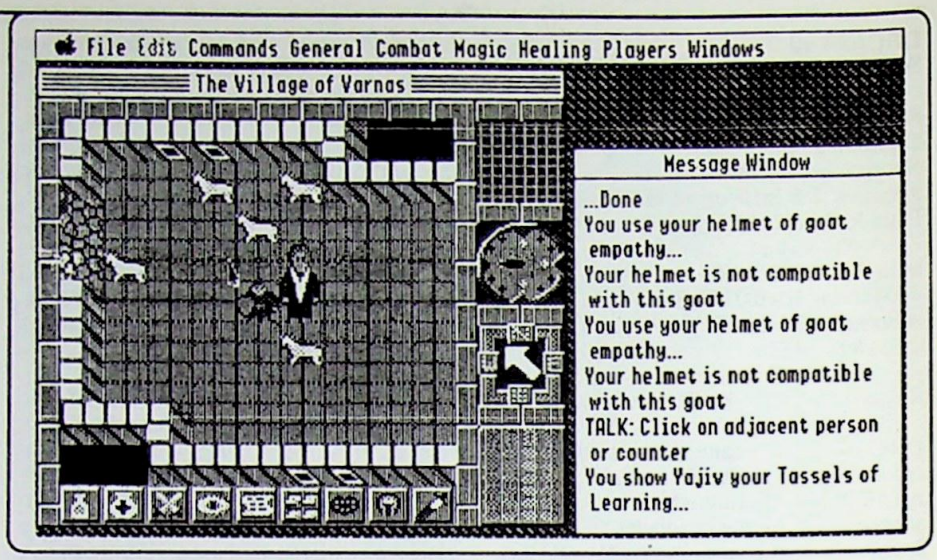
Secrets Of Bharas

By Vivek and Vijay Pai

Retail price: $69.95
Typical mail-order price: $44.95
Not copy protected
Requires 3.5-inch disk drive and 1.25MB RAM

Victory Software
P. O. Box 821381
Houston, Texas 77282-1381
(713) 493-3232

Reviewed by "Big" Dave Adams



The Land Of Goats And Honey . . .

Yeah, *goats*. Lot's of 'em. Just when you thought you understood those cryptic messages from 2088: The Second Scenario, you find yourself in a world where goats are the most important creatures around. For the uninitiated, let me pause and explain what "The Secrets of Bharas" is. Quite simply, it is the latest game from Victory Software, those great folks who brought us both 2088: The Cryllan Mission and 2088: The Second Scenario [see reviews in *GS+* V1.N6 and V2.N3, respectively]. They develop software exclusively for the Apple IIGS (I told you they were great folks) and use the desktop interface extensively. The game comes on three 3.5-inch disks and can run on a stock ROM 03 IIGS or a ROM 01 with 1.25MB of RAM. It can be installed on a hard drive and is not copy protected. Now that we have that boring stuff out of the way and Diz is happy, I can continue with the real business of discussing the game. For those fellow Cryllan Explorers out there you will find much of Bharas similar to the Second Scenario. If you are new to Victory Software, then you will find a detailed world in which the whole gaming system is designed to let you concentrate on having fun rather than figuring out how to attack in combat or unequip your armor.

The Good Stuff

Bharas is an extremely detailed and developed world. It is also large. This game will definitely take you a long time to finish. There are many towns, villages, and cities to explore with literally hundreds of persons to talk to. In addition to the inhabited areas, there are about 18 different dungeons which contain fabulous prizes (oops, sorry . . . been watching too much television) just sitting there for the taking. Of course you have to battle down into the lowest regions past a few thousand monsters to get there. All of this exploring fun is made easier by the famous desktop environment and an extensive point and click interface. All of the innovations of The Second Scenario are still there . . . with a twist. Many of the features that you took for granted in The Second Scenario (lifeform scan, terrain scans, and monster scans) are only given to you in items that you have to find during your quest. To get that special advantage you're gonna have to spend a lot of sweat and blood to earn it.

One of the neater things about Bharas is the way magic has been incorporated into the 2088 gaming system. Spells are learned by level and experience. Spells have components that must be mixed properly (the key word in that phrase is *properly*) before they can be cast. Improperly mixed spells tend to explode in your face. Properly mixed components can then be kept on hand for immediate spell casting. Casting the spell reduces the number of magic points that each spell caster has. Magic points are based upon your intellect—the smarter you are the more you start out with. These points are replenished on the surface by walking around or resting. The more powerful spells require you to seek out a sage for instruction.

The biggest features of the game are the detail of the gaming world and the interaction of the gamer with the game.

I am constantly amazed at the amount of detail in talking with the townspeople. There are literally hundreds of detailed conversations. These folks talk about everything under the sun and occasionally give you helpful information or objects to assist you in your quest. Although some people may find this constant searching tedious, I feel that this is a major strength of the game. These people add a special atmosphere to the game in that they discuss the things that normal people talk about. They add a realism to the game and also serve as a nice contrast to your band of heroic adventurers. After spending six hours in a dungeon you will return to a town and still find the people talking about such mundane subjects as farming, goat hair, and animal rights. This contrast really enhanced the game for me.

If you are still wondering about goats, I have some great news for you. You can actually talk to the goats in Bharas! But, before you get too excited, I should point out that you will need to procure a "Helmet of Goat Empathy" to do so.

The manual that comes with the game is very detailed and helpful. It follows the Victory Software style in that it is straightforward and gets right to the point. The Bharas manual includes a history of Bharas that is very rich and detailed. In addition, it covers hard drive installation, possible errors and how to correct them, game advice, and hints on creating characters.

As for other improvements, I can safely say that many of the animations are new and improved. Most of the new animations in the game are related to the magic system. The game sounds are exactly the same as the Second Scenario. No new improvements there. For those of you wondering about the graphics (as opposed to the animations), I have good news and bad news. The good news is that there are substantial improvements in the graphics. The bad news is that the graphics are still in 640 mode and there is room for still more improvement.

And Now The Bad Stuff . . .

It really pains me to say this because I am a big supporter of any IIGS game development and a fan of Victory Software, but there isn't all that much new to Bharas and it suffers a bit from overkill.

There was an awful lot of combat in the Second Scenario but it's nothing compared to Bharas. Each dungeon has eight levels. Veterans will quickly develop an accurate idea of where the elevator for the next level is by simply analyzing the location of the current one. The dungeon design gets redundant. There are so many combats that you get annoyed at the prospects of going into the dungeons. To make things worse, magic points are not regenerated inside the dungeons. It really gets tiring to fight your way down several levels and be making good progress and then having to bug out just to replenish your magic points.

I don't like saying this but I feel I must: I actually got bored playing this game. I should point out that this only took place after investing about 45 hours of playing time in the game. After my characters got to a high enough level, I just let the computer control all of the combats and read a book until the combat was over. Then I could get back to exploring until the next (and all too soon) encounter. I even cut the sound off so I could concentrate more on my book. I like a good hack and slash just as much as the next guy (maybe more—just ask Diz) but when it gets *that* bad something must be done. One thing that would help would be the ability to flee from combat in the dungeons. It has been my experience that you can flee from any *surface* encounter (simply by dropping some money) but I have yet to successfully flee from a dungeon encounter. A lot of boredom could be avoided simply by allowing that option.

Another complaint is one that I noticed in the first 2088 and was corrected on the Second Scenario but somehow reappeared in Bharas. You are unable to dump, sell, or otherwise get rid of excess magic armor or weapons. My party is carrying *hundreds* of extra goodies that they shouldn't. It also doesn't make much sense. You would expect weapon and armor merchants to foam at the mouth over this magic stuff, but in this game it might as well be ping-pong balls as far as they are concerned.

Character development is also disappointing at higher levels. Once you max out, you are finished. I was especially disappointed in the fact that I was limited to a maximum of 270 magic points. After your basic stats reach 99 and your health points hit 12,000, there's not that much more that you can do. Your EGO stat (which affects the damage that you inflict in combat) rises very slowly and it would have been a good idea to have the other stats rise at about the same speed. You still get messages that your stats increase after each level but they do not change. It's just an illusion . . . or maybe a bug.

Some more minor improvements that could simplify game play are:

1. A "select all players" button for entering and exiting transports. As many times as you must do this during the game I am amazed that this has not been implemented.

2. Regenerating magic points in dungeons *or* not placing a limit on magic points. Either would make life a whole lot easier.

3. Granting the ability to flee dungeon encounters. The millions of combats only slow you down and frustrate your exploring. I don't mind combat, I just got jaded on it.

4. Slowing down stat or level advancement. My party had maxed out on all stats except EGO before I had cleared my *first* dungeon.

5. Dumping excess magic armor and weapons.

The Bottom Line

Although I have hammered many parts of the game, I still strongly recommend it. I make this recommendation because the strengths of this game make up for the weaknesses. Veteran 2088 players should take this game in smaller doses to avoid burnout, but new players should dive right in and charge ahead. This game is like its predecessors (and that's a pretty good bloodline to follow) in that it has a richly developed game world and wonderful gaming interface. Bells and whistles like "awesome" graphics and "way cool" sounds have been eliminated so you can focus on the game and its incredible detail. I can honestly think of no other game in which you get so much *game* for the money. On that criteria alone it is worth buying. But, if you have played both 2088s, there is a chance that you can get jaded. It's up to Victory to take their next project over this hurdle and move it to a higher level. I have no doubt that they can do it. I wholeheartedly recommend The Secrets of Bharas. I also challenge Victory Software to turn it up a notch and once again put more innovations into their next game. Let's see less hack and slash and a more situations in which you have to *outhink* your opponent and use some genuine strategy. Force us to work smarter, not harder. ***GS+***

Errata

The following are corrections for the January-February, 1992 issue of *GS+*.

Uncool Cursor

Several people have reported problems with our Cool Cursor Control Panel. The main complaint is that the cursor simply won't animate. We don't yet have enough evidence to really tell what the problem is, but one thing we have noticed is that 99% of the complaints have come from people with RamFAST *Revision C* SCSI cards. One individual reported that when he deactivated the RamFAST driver, Cool Cursor would work, but when the driver was active, Cool Cursor would not work. We have not had any complaints from owners of Revision D RamFAST cards. If you are having a problem with Cool Cursor, be *sure* to fill out and send in the problem form on your *GS+* Disk!

Review Copy Follies

We neglected to mention that the copy of SuperConvert used by Dave Adams for his review was provided by Seven Hills Software. Our thanks to Seven Hills for providing us with it.

In our review of Astronomer GS, we got confused on the pricing. If you have already downloaded the software, the *shareware* fee is $19 and it will get you a copy of the manual. If you want the whole package (software and manuals), the price is $34. Also, our copy of Astronomer GS was provided by the author. Our thanks.

It Didn't Ad Up

We goofed when putting together the ad from TMS Peripherals. A few pictures and graphics that should have been included were lost on our end. Our apologies to TMS Peripherals.

How Printing *Should* Have Worked

Despite our best efforts, some errors crept into Matt's "How Printing Works" article. These corrections were in last issue's **a.Read.Me** file on the *GS+* Disk and most were in the form of a new paragraph added here or there—the overall meaning of the article was not changed. If you don't get the *GS+* Disk, and would like a printout of the **a.Read.Me** file, send us a Self Addressed Stamped Envelope and we'll be happy to send you a copy. ***GS+***

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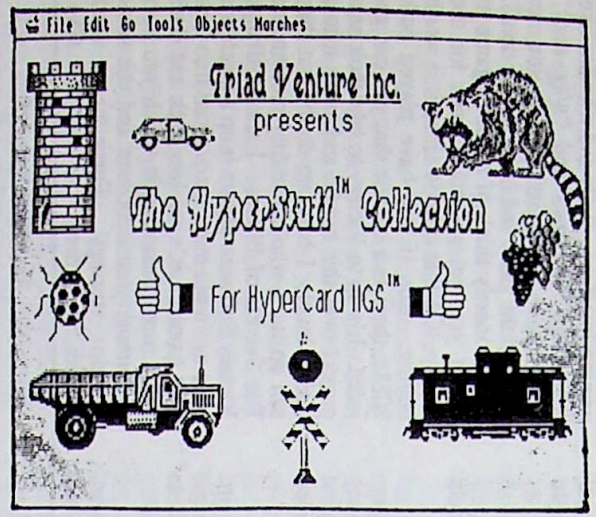

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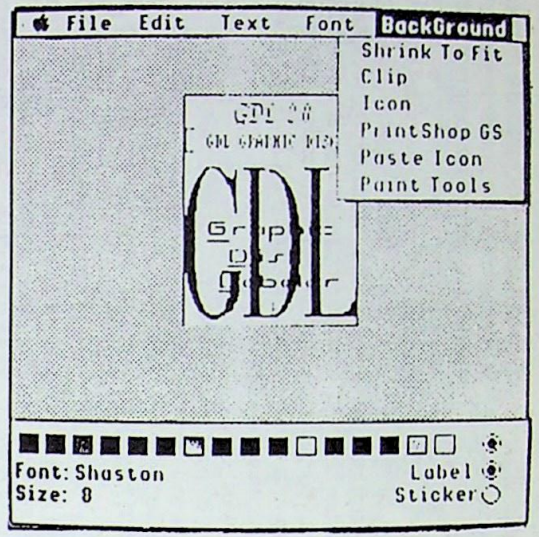

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Also included on this disk is a New Desk Accessory, NDA that will allow you to digitize from any application that supports desk accessories. It supports the same digitizing cards as SoundConvert. The formats supported for saving are slightly different from those of SoundConvert. They are: HyperCard IIGS (HyperCard / rSound), HyperStudio Sound, RAW Sound (BIN), and the popular SoundSmith Sound (sounds that will load into the SoundSmith Program).

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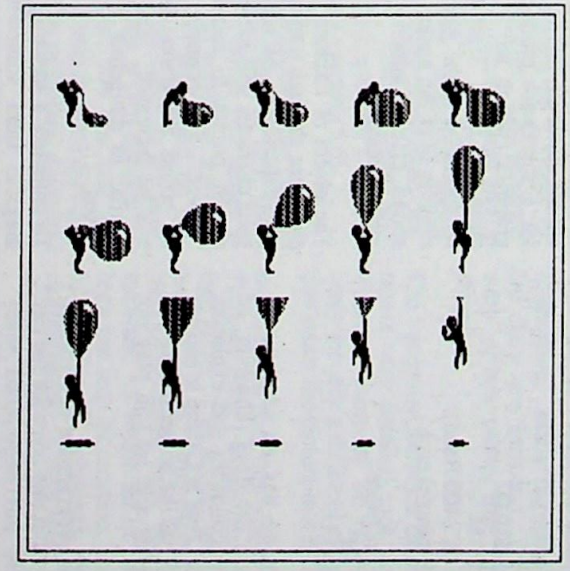

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The Software Bargain Bin

By Brian M. Winn

Back To Fun

I know all of you have been working hard since our last "bargain bin" game installment. Well, it's time to relax again. I have reviews of two excellent new IIGS games in this issue—and our friend Robert Ribaric has a treat for all of you who are fans of *Star Trek: The Next Generation*. First, however, let's talk about *Freeware*.

Freeware software, like shareware software, is copyrighted by its author. However, freeware software is unique in that the author does not require you to send in a shareware fee to register your copy of the program. One of the most famous freeware programs for the IIGS is GS-ShrinkIt by Andy Nicholas. In this issue, we review our first freeware program, Sensei GS.

Explorer! & GameMaker

By Jason Smart

Shareware price: $10.00
Requires 768K RAM
Download time (at 2400 Baud):
Approximately 8 minutes each

Travelling Faire Software
1158 Panoramic Dr.
Martinez, CA 94553

I believe everyone has an adventurous spirit. Gone are the days, however, of discovering new countries and exploring lost civilizations. Fear not, there is another way. Your IIGS has the power to take you to different worlds and let you play out your fantasies.

Jason Smart, the programmer of Explorer, has been aiding us in this quest for the past few years. He has introduced many exciting shareware and freeware games, including Golem, Castle Metacus, and Mazegame. I would have to say, though, that the Explorer/GameMaker combo is his best effort yet.

If you have ever played any of the Ultima series of games, you will be accustomed to the look and feel of Explorer. The landscape is composed of several little square icons. Each icon represents something such as lava, a wall, a door, another person, a monster, or a sailing ship. The screen is filled with these icons. When you move your character (movement is controlled with the keyboard) off the current edge of the screen, for example off to the left, the next screen in that direction will be displayed.

Explorer is not nearly as complex as Ultima, however, it is surprisingly detailed for a shareware product. The colorful graphics (which are in 320 mode) are quite well done. Unfortunately, there is no animation in the game, such as waves rippling over the water. There are a few sound effects added to the game to increase realism.

The object of Explorer is to guide your character through various scenarios and gain experience. As you gain experience, your character will increase in levels and obtain points to increase his or her "power." For example, spell points and hit points are among the statistics that will be increased. The concept is very similar to dungeons and dragons type games.

To complete a scenario, you must find a magical item somewhere within the scenario. This item is typically an emerald necklace, a staff, a crown, or one of several other items defined by the scenario's creator. This makes the missions somewhat limited and repetitive among scenarios; however, if the designer is imaginative, they will be able to intertwine several sub-plots within the game. You probably won't see a mission like Ultima's "Quest of the Avatar" though.

What makes Explorer unique is the ability to make your own scenarios with GameMaker. This is a program that allows you to edit and create your own scenarios for the Explorer game. You simply point and click on one of the 96 icons, and then click on the screen where you want to place that icon.

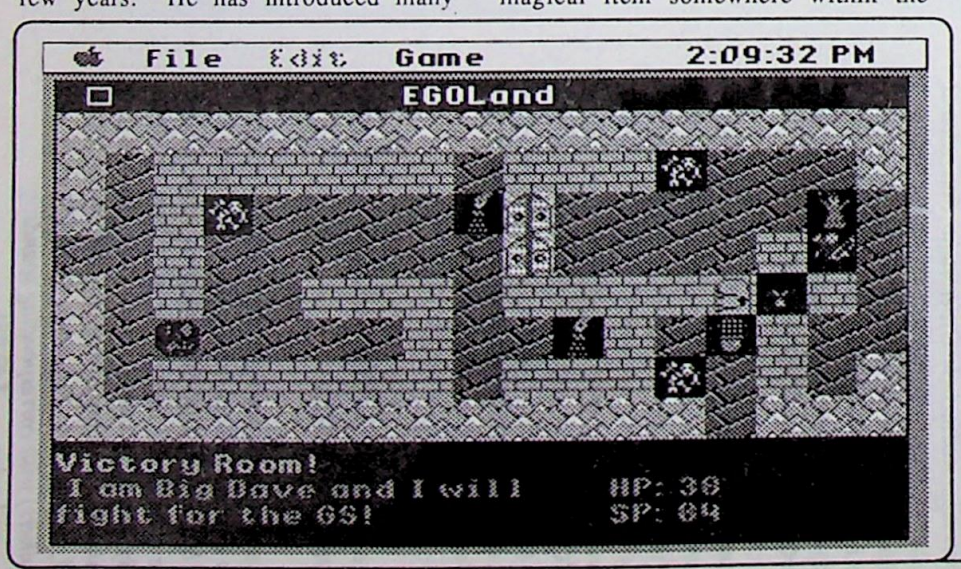
You can also control various details of the game such as monster strength, random encounter odds, and the maximum amount a treasure chest can hold. The concept of creating a scenario is fairly simple, but it takes time to create a detailed scenario without flaws. You have to play your creation many times and go back and refine the scenario until all the little quirks are eliminated. The game comes with two beginning scenarios to get you started.

You can also create new characters for use in Explorer with this utility. You have up to twenty-eight different races to choose from, each with their own unique qualities.

The result of all this is dozens of unique scenarios and characters in the public domain. You can try and best your friends by creating the ultimate scenario. Included on your *GS+* Disk is "EGOLand," a fairly detailed scenario for Explorer, and a few characters to try out.

It is encouraging to see games of this quality in the shareware market. True, there are various improvements Jason could make to his creation, such as animated icons, more sounds, and more complex mission objectives, but overall this is a wonderful product. I was running version 1.0 of the GameMaker and it seemed like there were a few little bugs in it, but none of them were fatal.

I encourage you to obtain Explorer and GameMaker and try them out.



Sensei GS
By Miami Beach Productions &
ToolBox Mag

Freeware
Download time (at 2400 Baud):
About 50 minutes

Both companies are out of business.
No valid addresses available.

Sad but true, the French have jumped ship. As you probably read in last issue's "Rumors, Wishes & Blatant Lies" column, the "French Connection" has decided to break-up. We have seen many great products from these groups over the years including many awesome demos, utilities, and games. As a going away present they have taken many of their IIGS disks and released them to the public domain. Among the cream of the crop is Sensei GS.

Sensei GS is very reminiscent of karate simulation games that you may have seen in the arcade. You try and defeat a computer-controlled character or take on another human player (the first player can use a joystick, the second must use the keyboard).

Like many other French programs, you must boot directly from the disk. Within seconds you will be presented with the title page accompanied by a stereo song. The game will then load to the main menu. This is were you can look at the high-scores, get help on how to fight, and start a new match.

The game's animated graphics are phenomenal. The screen presents you with two large animated karate figures, a referee, and a detailed Japanesque backdrop. There are at least ten different moves you can perform to score points over your opponent. But you must be quick and accurate, or your opponent might decide to put his foot in your face. As you fight, beautiful stereo music plays in the background. In addition to the music, you will hear the fighters grunting and groaning and the referee calling the shots. You begin with a white belt and slowly advance to black belt. I personally could only make it to blue belt. The background changes frequently, and you must take part in bonus rounds where you karate "chop" through bricks.

You must get your hands on this game if you are a karate fan or just love a good action game. The game is fast-paced and the hitting is hard. Like most first versions, there are a few minor quirks, mainly in two-player mode, but you will not notice many. Overall, this is a wonderful example of the type of work that ToolBox Mag and Miami Beach Productions did for the IIGS community. Get it and enjoy.

Star Trek: The Next Generation® HyperStudio Stack
By Scott Everts & Friends

Shareware price: $10.00
Download time (at 2400 Baud):
Approximately 2 hours and 10 minutes

Scott Everts
P.O. Box 277
Placentia, CA 92670

Reviewed by Robert A. Ribaric

Star Trek® fans, pay attention—this one's for you. If you like *The Next Generation* television series, you'll love this shareware stack. This stack runs under HyperStudio v2.1, and it includes graphics and sound effects, as well as every possible piece of information pertaining to the show.

Starting with the first season in 1987, it completely covers the first three seasons and part of the fourth. This massive amount of data occupies about 4MB on a hard drive! It also requires a minimum of 1.25MB of RAM from your computer. The program itself is divided into six areas. These are: a season/episode guide, a Star Trek encyclopedia, character biographs, sound effects, an Enterprise technical database, and "allies and enemies." Unfortunately, this last section and the biographs don't work in this version of the stack (version 5.6).

The menus are patterned after the control consoles on the Enterprise—in fact, they look just like them. When you select a section's "button," the computer emits a familiar "beep" that is also heard on the show. The screen then fades to the next menu. Each of the areas is then divided by season. For example, you can use the encyclopedia to find a ship featured during a particular season. The individual episodes are also sorted by season.

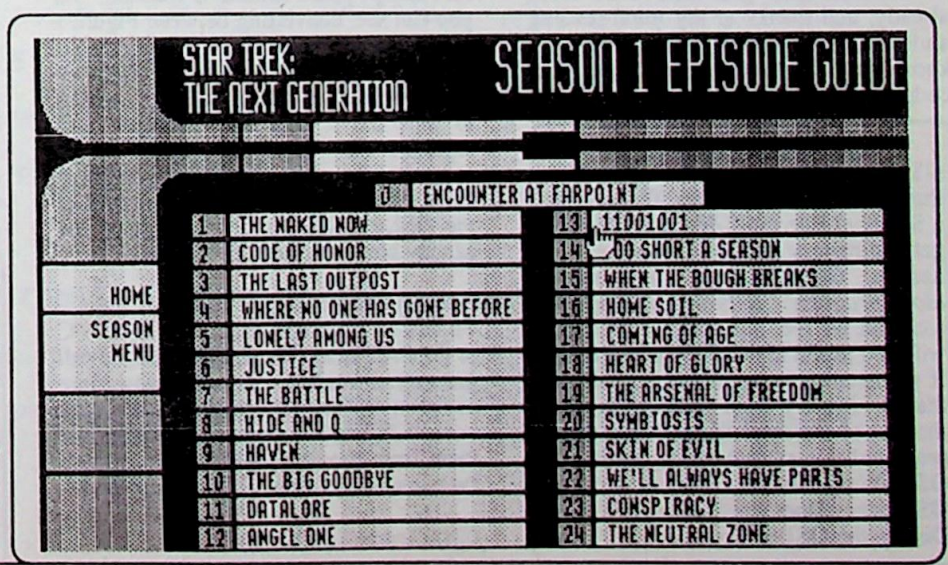
The first and most useful reference is the season/episode guide. You can look up any episode from *Encounter at Farpoint* to *Remember Me*. A wealth of information can be accessed when examining individual episodes. You are given the show's stardate, premiere week, Paramount code, writer, director, music composer, and guest stars. A story summary is also given. One interesting feature is the "notes" portion at the end. It gives facts such as, "the first episode to show Romulans" or "the first time an actual year is given." If you missed a show, this will tell you what you missed.

The Star Trek encyclopedia surprised me, a serious fan, with its tremendously detailed listings. For instance, every character is noted—not just Picard or Riker, but even the bass player from the holodeck! You can also reference an alphabetized list of locations, subjects, or starships. The ship index is particularly interesting and very thorough.

The sound effects section is very impressive. Many digitized sounds from the show are included. You can "enter warp" or hear phaser fire. This part is just plain fun.

The Enterprise technical database gives the user a very detailed look at the starship. You can "zoom-in" on various sections to study the ship's different systems. You can also rotate the picture in a 3-D simulation.

For the most part, this program is excellent. The only thing I would change is the screen fade effect. This is cute, but it simply takes too much time. Otherwise, *Star Trek: The Next Generation* fans should love this software. A whole lot of time must have been put into its creation, and I commend Scott Everts' obvious patience and thoroughness. I only wish there was an original series version . . . ***GS+***



More Fun With OS Library

By Josef W. Wankerl

I put on my mind-reading helmet the other day to find out what you wanted . . . and I clearly heard several of you think, "Gee, I sure wish Joe would do something new with OS Library!" So, to keep you happy, guess what I did! I made some enhancements to the OS Library. Well . . . not exactly to OS Library itself, but to how it is used. If you program in a high level language such as ORCA/C or ORCA/Pascal, you can now make use of OS Library without resorting to inline assembly code or other dirty tricks.

No Dirty Tricks

I've been calling the OS Library (OSLib) from ORCA/C for a long time by using inline assembly code. It wasn't very pretty, and in fact, subscriber Ken Kashmarek took the time to inform me of that fact. And I agreed with him. It is ugly. He even suggested new interfaces and wrote some glue code so his source code looked prettier. "Good idea!" I thought, and then promptly got swamped with other projects. And then along came Replicator. (Isn't it neat how all of this ties together?)

Diz wanted the ability to validate all the files on a volume, just like the Finder. I said, "no problem, I'll just use OSLib to traverse the disk files." And then I tried to write the code in ORCA/Pascal to call OSLib. Uh oh! There's no way to code inline assembly statements in ORCA/Pascal! So, I ended up writing my own glue code. (I would have used Ken's, but his didn't have glue for all the OSLib routines, just a select few.)

Glue

I've used the term "glue code" a few times already, and thanks to my mind-reading abilities, I can tell that some of you don't know what glue code is. Simply put, glue code converts one protocol to another.

> **What Is OS Library?**
>
> *OS Library* is a collection of routines that allow you to do things like traverse a Standard File multi-file reply record, get a directory and save a prefix in a handle. *OS Library is not a stand alone program!* It is a programming tool that we feel our advanced readers will find useful in developing programs. If you aren't a programmer, just forget that OS Library even exists and enjoy the rest of the magazine. If you *are* a programmer, complete documentation on OS Library can be found in the file **OSLibrary.Docs** which is on your *GS+* Disk in the **OSLibrary** folder.

For example, when calling a Toolbox routine, results are returned on the stack. ORCA/C and ORCA/Pascal expect results to be returned in registers. A glue routine would make the Toolbox call (pushing space for the result on the stack first) and then pull the results off the stack into registers, then return control to the high level language. Sometimes, however, results can't be placed in registers. For example, the Integer Math routine `LongMul` takes two long values, multiplies them, and returns a double-long result on the stack. Since there aren't enough registers to hold the result, it must be placed in a variable instead (usually a struct in C, or a record in Pascal.) The glue code for `LongMul` takes the result off the stack and sticks (no pun intended) it into a variable for you.

Sticky Coding

Creating glue code isn't very difficult. All you need to know is which two protocols you'll be converting between. For OSLib, the conversion is between the stack-based protocol, as used by the Toolbox, and the ORCA protocol, which passes values on the stack and returns results in registers. The first step to writing glue code is to figure out what is passed by the caller and what needs to be passed to the receiver. As an example, I'll show what's required to glue the `FillReplyRec` routine from OSLib. Figure 1 is a diagram of the stack when the glue code gets control. Figure 2 is a diagram of what `FillReplyRec` wants the stack to look like. Figure 3 is a diagram of the stack after the glue code has converted the protocol. Figure 4 is a diagram of the stack after the `FillReplyRec` routine is finished. As you can see, converting between Figure 1 and Figure 3 is fairly easy—result space is added, and the parameters are juggled a bit. From Figure 4, all that needs to be done is to pull the results off the stack into registers and perform a `RTL` to return control to the caller. Now that you know what's being done, you can take a look at the **OSLib.ASM** source code file to see exactly how the glue does its work.

Calling OS Library

To call an OSLib routine from ORCA/C or ORCA/Pascal, you simply code the call just as you would for any other procedure or function. The OSLib glue routines all have "OS" at the front to differentiate them from the real routines. So, to call `DeleteFiles` from C, you would code:

```
OSDeleteFiles ();
```

And to call it from Pascal, you would code:

```
OSDeleteFiles;
```

Simple enough, right? For exhaustive examples of calling OSLib routines using the new glue, check out the source code for NoDOS and Replicator which is provided on your *GS+* Disk.

TraverseNames

There is one OSLib routine, `TraverseNames`, which needs special consideration. The `TraverseNames` routine calls a function that must return a value on the stack. Since ORCA/C and ORCA/Pascal can't handle being called that way, a special routine is included in the new glue code: *`TraverseEntry`*. When calling `TraverseNames` from a high level language, your `RoutinePtr` field should be a pointer to `TraverseEntry`. When the `TraverseEntry` routine gets control, it calls a function called `TraverseRoutine`. You should code a routine named `TraverseRoutine` to process the new-style reply record and then return the appropriate `Continue`, `SkipFile`, or `QuitTraversing` result. You also need to make sure that your compiler sets the databank register correctly so you can access global variables. If you are using ORCA/C, you should code your `TraverseRoutine` as shown in Figure 5. If you're using ORCA/Pascal, you should code your `TraverseRoutine` as shown in Figure 6.

NoDOS?

What? Yet another NoDOS version? Yes, indeed. Since I was doing all of this new glue code, I thought I should give you as many examples to study as possible. You won't find any new functionality in NoDOS v1.7.1, but you will find that the source code has changed to take advantage of the new OS Library glue routines. I did this as an example of how to change an existing program to use the glue code.

> **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.

And there was one other change in this version . . . .

Fork It Over

This new version of NoDOS changes the way its resource fork is opened. The resource fork is now opened with an internal file level. If an application issues a `Close` call with a refNum of zero, all open files will be closed. If, however, a file has been opened at an internal file level, the refNum zero `Close` call will not affect the file opened at an internal level. Apple has suggested that this be done with NDAs, and so NoDOS now does this.

That's It

So now there's no excuse for you to not use the OS Library from any language. So what are you waiting for? Start programming that monster project you've been putting off! As always, If you have any questions about the OS Library, NoDOS, or the new glue code, write to me and let me know! *GS+*

Figure 1 - Stack When Glue Code Gets Control

```
| previous contents |
|    ReplyRecPtr    |          LONG-Pointer to new-style reply record
|    namesHandle    |          LONG-Handle to multi-file get namesHandle
|      entryNum     |          WORD-Entry number to copy to reply record
|   ReturnAddress   |          3 Bytes-Address to RTL to
|-------------------|<-- SP
```

Figure 2 - Stack That FillReplyRec Wants

```
| previous contents |
|     longspace     |          LONG-Space for result
|    ReplyRecPtr    |          LONG-Pointer to the new-style reply record
|    namesHandle    |          LONG-Handle to the multi-file get namesHandle
|      entryNum     |          WORD-Entry number to copy to the reply record
|-------------------|<-- SP
```

Figure 3 - Stack That The Glue Code Makes For FillReplyRec

```
| previous contents |
|   ReturnAddress   |          3 Bytes-Address to RTL to
|     longspace     |          LONG-Space for result
|    ReplyRecPtr    |          LONG-Pointer to the new-style reply record
|    namesHandle    |          LONG-Handle to the multi-file get namesHandle
|      entryNum     |          WORD-Entry number to copy to the reply record
|-------------------|<-- SP
```

Figure 4 - Stack After FillReplyRec Is Done

```
| previous contents |
|   ReturnAddress   |          3 Bytes-Address to RTL to
|   entryPointer    |          LONG-Pointer the the entry in the namesHandle
|-------------------|<-- SP
```

Figure 5 - ORCA/C Version Of TraverseRoutine

```
#pragma databank 1
pascal int TraverseRoutine (void)
{
   /* your code to process the new-style reply record goes here */
   return Continue;  /* ...or SkipFile, or QuitTraversing... */
}
#pragma databank 0
```

Figure 6 - ORCA/Pascal Version Of TraverseRoutine

```
{$DataBank+}
Function TraverseRoutine : Integer;
Begin
   { your code to process the new-style reply record goes here }
   TraverseRoutine := Continue  { ...or SkipFile, or QuitTraversing... }
End;
{$DataBank-}
```

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EGOed v1.41

By Steven W. Disbrow

Welcome Back!

At the end of last issue's EGOed article ("EGOed v1.4" in *GS+* V3.N3), I said that I would be putting in the ability to do a case sensitive Find and the ability to search for whole words. Well, you'll find those things in EGOed v1.41 . . . and a lot more! In fact, if you thought the Find & Replace in EGOed v1.4 was cool and revolutionary, wait till you see what's in v1.41! Those of you who are just joining us will want to check out the "What is EGOed?" sidebar and the file EGOed.Docs on your *GS+* Disk.)

A Bug Fix

But first, let me tell you about a bug that several of our alert readers found. If you used EGOed v1.4 to save a file in AppleWorks Classic format, it was given an incorrect file type and would not show up when you tried to open it with AppleWorks Classic. This has been fixed.

New Find & Replace Options

As promised, EGOed v1.41 lets you do a case sensitive Find operation and it lets you look only for "whole word" occurrences of the text you want to find. In other words, if you were looking for the letter "a" and told EGOed to only match whole words, it would find the "a" in "This is a fine time to die!", but it would not find either of the "a" characters in "What do you mean 'die'?".

In addition to these two new Find options, EGOed v1.41 has one other new Find option (for a total of six) and four new *replace* options. That's a total of ten find and replace options. If you remember from last time, I had a hard enough time fitting three find options into the Find and Replace dialogs, so to fit ten options, I had to come up with a completely new dialog. To get to this dialog, pull up either the Find or Replace window and click on the new Options button. This will bring up the Find & Replace options dialog. The dialog is divided into two sections, Find options and Replace options. (If you bring up this dialog from the Find window, the Replace options will be dimmed.) Each option is represented by a check box and each has a Command key equivalent which is shown in parentheses next to the name of the option. To turn an option on or off, simply click on it with the mouse or press the corresponding Command key combination.

Rather than giving an overview of how to use these options, I'll just list each option and what it does. That should give you a good idea of what's possible. Note that in all of these descriptions, "Original Text" refers to the text and styles in the Original Text box, "Text To Find" refers to the text and styles in the Text To Find box and "Replacement Text" refers to the text and styles in the "Replace With" box.

Find Options

Text - If this option is checked, EGOed searches the Original Text for the Text To Find. If this option is not checked, EGOed ignores the text in the "Text To Find" TextEdit box and bases its comparisons on the values of the Font, Size and Style options. Also, if this option is not checked, the Case and Whole Word options become unavailable.

Case - If this option is checked, EGOed compares the Text To Find with the text it finds in the Original Text to make sure that all characters are the same case (i.e. uppercase or lowercase). If this option is not checked, EGOed ignores the case of both the Text To Find and the Original Text.

Whole Word - If this option is checked, EGOed checks to see that the text it has found is not in preceded or followed by alphabetic characters.

Font - If this option and the Text option are checked, EGOed first finds the specified text in the Original Text and then compares the font information of the found text with the font information of the Text To Find. If this option is checked and the Text option is *not* checked, EGOed searches the Original Text for the font applied to the *first character* in the "Text To Find" TextEdit box.

Size - If this option and the Text option are checked, EGOed first finds the specified text in the Original Text and then compares the size information of the found text with the size information of the Text To Find. If this option is checked and the Text option is *not* checked, EGOed searches the Original Text for the size applied to the *first character* in the "Text To Find" TextEdit box.

Style - If this option and the Text option are checked, EGOed first finds the specified text in the Original Text and then compares the style information of the found text with the style information of the Text To Find. If this option is checked and the Text option is *not* checked, EGOed searches the Original Text for the style applied to the *first character* in the "Text To Find" TextEdit box.

Replace Options

Text - If this option is checked, EGOed will replace the current selection in the Original Text with the Replacement Text.

Font - If this option and the Text replacement options are checked, EGOed will replace the font information for the current selection in the Original Text with the font information of the Replacement Text. If the Text replacement option is *not* checked, EGOed will replace the font information for the current selection in the Original Text with the font information of the *first character* in the Replacement Text.

Size - If this option and the Text replacement options are checked, EGOed will replace the size information for the current selection in the Original Text with the size information of the Replacement Text. If the Text replacement option is *not* checked, EGOed will replace the size information for the current selection in the Original Text with the size information of the *first character* in the Replacement Text.

Style - If this option and the Text replacement options are checked, EGOed will replace the style information for the current selection in the Original Text with the style information of the Replacement Text. If the Text replacement option is *not* checked, EGOed will replace the style information for the current selection in the Original Text with the style information of the *first character* in the Replacement Text.

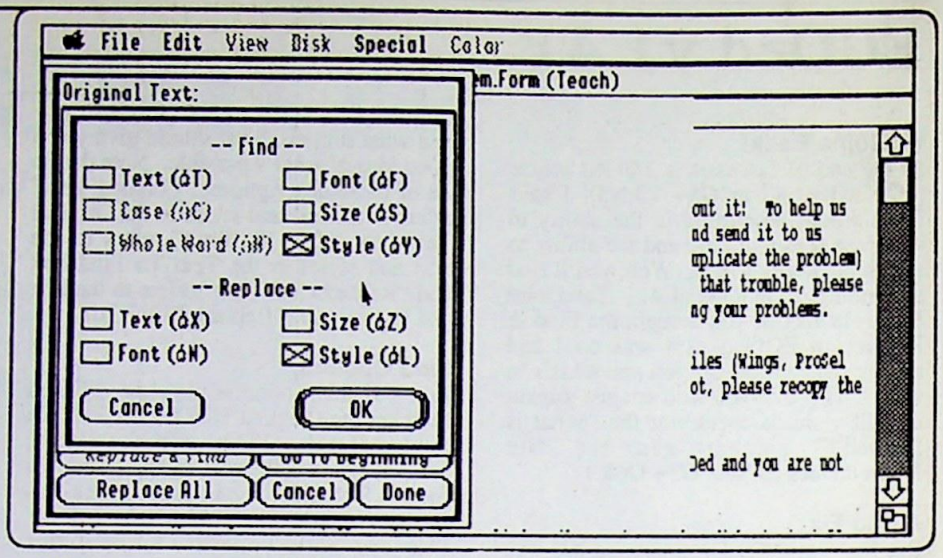
Confused?

I certainly got confused writing those descriptions, so I can just imagine how

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 v1.41, you *must* install it on a IIGS System Software v5.0.2 (or later) startup disk with at least 50K of free space. For more information on installing and using EGOed, see "How To Use The *GS+* Disk."

you feel! As usual, the easiest way to understand all of these new options is to try using them. So, lets try a little example to show just how powerful all of this is. I'll assume that you have installed EGOed on your system and rebooted (for a detailed example of installing EGOed, refer to "How To Use The *GS+* Disk" in this issue.) Now, select EGOed from the Apple menu and, after the EGOed window appears, press Command-O to select the Open item from the EGOed File menu. Insert your backup copy of your *GS+* Disk into a drive and scroll down through the list of files until you see the file **Problem.Form**. Open this file and then press Command-R to bring up the EGOed Replace window. At this point, all of the text in the Text To Find box should be selected. If it isn't, select it with the mouse and then click on the Font button. When the font chooser dialog comes up, click on the Bold check box and click OK. Then select all of the text in the Replace With box and click on the Font button again. This time, click on the Italic check box and then click OK. At this point, the text in the Text To Find box should be shown in **boldface** and the text in the Replace With box should be shown in *italics*. Now, click on the Options button. When the Options dialog appears, press Command-Y (to turn on the Find Style option), Command-T (to turn *off* the Find Text option), Command-X (to turn *off* the Replace Text option), Command-N (to turn *off* the Replace Font option), Command-Z (to turn off the Replace Size option). At this point, you should only have the Find Style and Replace Style options checked. (Compare your screen with the screen shot on the right.) Now click on the OK button to return to the Replace window. Then, click on the Replace All button. EGOed will then go through the Original Text, searching for all occurrences of **bold** text (note that it will only match **bold**! If the bold style is combined with other styles [***bold-italic*** for example], EGOed won't find it.) When it finds one, it will change it to *italic* and then resume its search for the next bit of **bold** text. Note that the *text* in the Original Text box won't affected at all! (If you remembered to turn off the Replace Text option that is.)



Now, if what you just did seems pretty neat, consider that all of these options (with the exception of the Find Text, Case and Whole Word options) operate independently of each other!

Other Enhancements

So, that was the big news in EGOed v1.41. In addition to that, there is one other change to make the Replace dialog easier to use. In EGOed v1.41, pressing Command-Tab in the Replace dialog will move you from one TextEdit box to the next. This means that you can now control the Replace dialog completely from the keyboard with no need to touch the mouse (unless you really want to). Don't worry, you can still type a Tab character into any of the TextEdit boxes, just press Tab *without* holding down the Command key.

Finally, the Find operation is a bit faster than in EGOed v1.4. This speed increase is slight (but it's there!) and will be most apparent when you use Replace All.

That's it for the new features in EGOed v1.41. I hope that you like the power and flexibility of the new Find and Replace!

If you want to know how all this neat stuff is done, be sure to check out the file **EGOed.1.41.Tech** on you *GS+* Disk. And don't forget to read the file **EGOed.Docs** (also on your *GS+* Disk) for complete information on everything EGOed can do! *GS+*

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Writer's Block

. . . continued from Inside Front Cover

Now, if you are a developer, you are probably saying, "Steve, I'd love to do those programs, but the IIGS market just won't support the effort." In other words, "IIGS owners don't pay for software." Software theft *is* a problem, but I don't think it's as big a problem as it used to be in the IIGS market.

The truth is that IIGS owners won't pay for *overpriced* software. If you come out with a Microsoft Excel clone and charge $300 for it, you aren't going to last too long. "Whatever the market will bear" may work in other markets, but it certainly won't work in this one. In my opinion, the maximum that most IIGS owners are willing to pay for an individual piece of software is in the $150 to $200 range. And if you are going to charge that much, you had better be giving them a *lot* of value for their money! (Like HyperStudio does.) A more reasonable price range is about $50 to $100. (In my opinion, an example of an almost perfectly priced product would be Signature GS.)

And if you think it's insane to try and sell high volume at low prices in the IIGS market, just ask the folks at Big Red Computer Club if they had a good Christmas.

And Another Thing!

Now, don't get me wrong, I appreciate everything that they have done for the IIGS, but I really wish shareware and freeware authors would get serious about the IIGS and start producing and *selling* some real software. The classic example of this is the FTA. For years they put out one amazing demo after another. Every time they did one, I would look at it and go, "Wow! Incredible! Spectacular! Oh well, back to work. Pity they didn't do a spreadsheet—I could really use a good one." They were amazing programs, but they were also amazingly useless. Photonix, the one useful program they did, was hampered by the fact that they never could learn to follow the rules of programming the IIGS.

There are literally *hundreds* (maybe *thousands*) of you out there doing shareware and freeware software for the IIGS. Why not send a résumé and some examples of your work to one of the major IIGS developers and see if they are interested in your services? All they can say is "no." And even if they do, you can always start your own business! If you *really* get desperate, call me! I can't pay as much as the big guys, but I'll get you some exposure and that's worth quite a bit all by itself.

What's My Point?

My point is this: now that System 6 is finally *out*, we need some good commercial software to take advantage of it and give the IIGS market the shot in the arm that it desperately needs. If we don't get it, and relatively soon, the time and effort that Apple's IIGS team have put into System 6 will have been wasted. *GS+*

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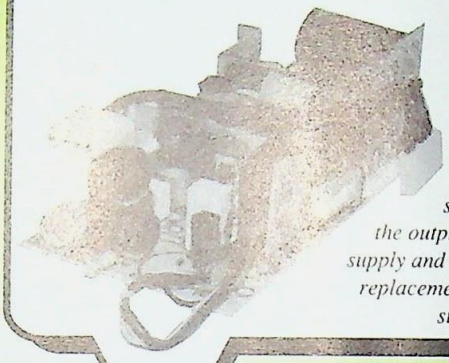

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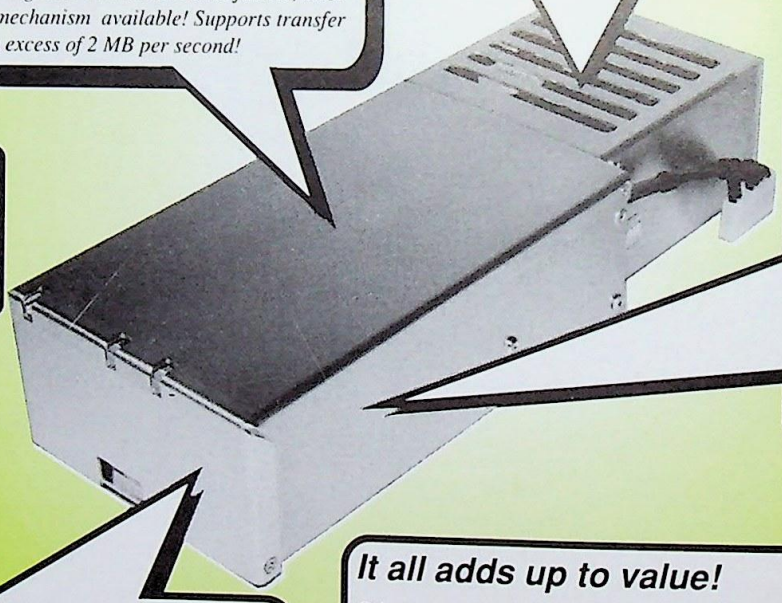

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