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The Hypermedia System for the Apple® IIGS

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- Microphone
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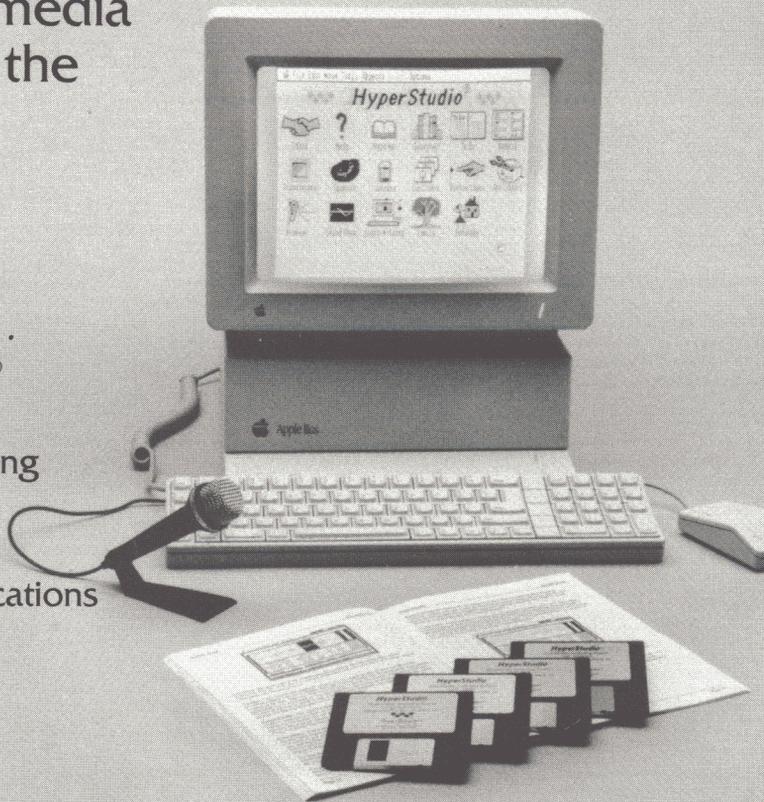
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What is the make and model of your computer? _____
What is the make and model of your printer? _____
Which do you own? ☐ Mouse ☐ Modem ☐ Large RAM Card
Other cards etc. _____

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HyperStudio®

Hypermedia System
for the Apple® IIGS

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Introduction to HyperStudio

Welcome to the world of HyperStudio and hypermedia! HyperStudio provides you with the complete system to create things on your computer that will make it more useful, more educational, and just plain more fun than you can probably imagine.

What is Hypermedia?

If you're new to the subject, it's probably in order to answer the question "What is hypermedia?" You're already familiar with the various ways of exchanging information that currently exist. Newspapers, books, movies - all these are referred to as the media, and are those channels that handle the mass distribution of information. In addition, the term media also refers to the specific physical form that carries the information. This can be the printed word, a colorful artistic graphic, or an electronic image. However, for the most part, all of the current ways of conveying information in the modern world are passive. That is, you act as a silent viewer of the information presented.

The word "hyper" is derived from a Greek word meaning extreme or beyond. The word hypermedia was coined to describe a way of communicating that went beyond the current notions of the media.

Imagine starting with something commonplace, like a book. This is a typical form that information in our world takes. Now imagine seeing not only text and pictures on each page of the book, but certain areas that you could touch with your finger that would suddenly expand into a whole new page of information, or that would perhaps instantly take you to an entirely different part of the book, perhaps even to a completely different book. While you're thinking of that, wouldn't it be nice if the pictures on the page could actually be animated to show a bird flying, or the path that an army during the Civil War followed? Better still, imagine hearing the sounds of the battle while you read the text!

Well, imagine no more, because this is exactly what hypermedia offers, and in particular, what HyperStudio delivers! In the coming chapters of this manual, you'll start by looking at some sample Hyperstudio applications ("stacks"), and then move into a tutorial of how to use the tools provided in the HyperStudio package to create your own stacks. HyperStudio also gives you the tools to take existing HyperStudio stacks, and to enhance and change them as you wish. You'll find it's easy to take an existing HyperStudio application, and to use it as the starting point for an entirely new application of your own.

What HyperStudio Can Do For You

At this point, the relevance of hypermedia to your own sitiuation may not be obvious, so let's look at some specific ways that HyperStudio may be of immediate use to you.

When you made your decision to buy the Apple IIGS, you were probably attracted to its terrific graphics, realistic sound abilities, and overall power of the system. At the same time, the Apple IIGS is one of the easiest-to-use computers every created.

You've probably seen programs that take advantage of many of these features on the Apple IIGS, but found it difficult to find something that combines them all in one environment. HyperStudio's first big feature is that it gives you one environment where you can use all the abilities of the Apple IIGS in a wide variety of applications, or in creating your own.

This brings us to HyperStudio's second big use: creating your own software programs on the computer, without having to spend a lot of time, or needing a lot of technical knowledge.

If your family has young children learning the alphabet, the names of states, or other skills, you could try to buy a program that teaches these concepts. Chances are, however, that it would be relatively expensive, take time to find, and might not even be readily available.

With HyperStudio, it's easy to create a few screens with letters of the alphabet, or words and common objects, even a map of the Unitied States, and add your own voice prompting to click on the right image or state. Best of all, the whole family can participate in creating this kind of software, helping with voice prompts and responses, creating graphics, recording sound effects.

However, HyperStudio isn't just for creating software for young children. What it *is* good at is communicating ideas and information. If you're a teacher, this can be lessons, presentations, even tests on many kinds of material. From foreign languages to complex concepts, Hyper-Studio is the perfect tool, and requires no more effort than preparing any other kind of a lesson presentation.

If you're a student, HyperStudio offers the most dynamic environment for reports ever created. It can also be used to record and organize notes and ideas for the more traditional written report.

Even if you are neither teacher nor student, but would like to share knowledge you have with others, record your family tree, introduce customers in your business to new products or show them how to find something their looking for, keep track of your music or magazine collection, or any number of other applications that hypermedia is an idea solution for, then HyperStudio is for you.

The HyperStudio disks come with many example stacks to get your started, and give you ideas for your own stacks. For now, though, let's get started by making a backup of the HyperStudio disks, and then looking at some HyperStudio applications that we have included in the package.

Backing Up Your HyperStudio Disks...

Although the chances of physically damaging a disk in normal daily use are fairly small, it is still a good idea to make a duplicate copy, or "backup disk", of the original disks provided in the HyperStudio package. This process is very easy, takes only a few minutes, and is a very worthwhile "insurance" provision for the possibility that something does ever happen to the disks you use on a daily basis.

So, before proceeding further, take a moment now to make backup copies of the HyperStudio disks. You can do this with the Finder software provided with your Apple IIGS (on the Apple System Disk) as you would any other 3.5" disk, or you can use your own disk copy utilities, as you prefer. Do make sure that the names of your final backup disks are the same as the originals, i.e., /HyperStudio, /HS.Demo, /HS.Art, and /HS.Sounds. The Finder can be used to rename disks, if necessary.

Since there is not much space remaining on the HyperStudio disks for additional files, we recommend you make a data disk for the stacks you create. The Finder on the Apple System Disk will also format new disks for you. You can name this disk HS.Data if you wish.

If you are unsure of how to make backup copies, or create data disks, see the manual "Apple IIGS System Utilities", that came with your computer.

After making your backup copies and a new data disk, continue with the next section.

System Requirements

HyperStudio requires an Apple IIGS with **at least 1Mb** total RAM, and a 3.5" disk drive. It is compatible with GSOS, and can be run on hard disks, as well as the Appleshare Network.

While working through the examples on the Home Card, and the tutorial, we recommend you **set your RAM disk to 0K** (zero K), using the RAM disk option in the Control Panel. This will give HyperStudio access to all of the RAM in your computer for the various stacks.

The memory requirements for any particular stack depend entirely on the individual characteristics of the stack you create. That is, depending on how many different backgrounds, graphic objects, and imbedded sounds you use for a stack, the memory used by the stack can vary over quite a range. With no imbedded sounds, and simple card backgrounds, your stack could have hundreds of cards in it. HyperStudio is designed to optimize memory usage by compressing memory, and other techniques.

Digitized sound require approximately 10K of RAM per second of sound. Thus, a 10-second sound would require 100K of memory. However, HyperStudio does not require that every sound in a given stack be loaded all at the same time, and in practice, the amount of sound available in a stack is more a function of disk size.

Installing the Hardware

Part of the HyperStudio package is a set of sound digitizing (recording) equipment. These tools are provided to make it as easy as possible to not only enjoy the excellent sound quality of HyperStudio applications, but to also allow you to easily record your own voice, music, and sound effects for hypermedia applications that you create yourself.

Before proceeding, verify that the following components are in the box:

• (1) HyperStudio digitizing board.
• (2) bolts, and (2) nuts.
• (1) microphone with stand.

You'll also need a small flat-bladed screwdriver, to tighten the bolts on the digitizing card.

Installation of these components in your computer is very easy, and is comparable to attaching any common interface card, such as a hard disk controller card.

Installation Steps

1) Turn off the computer.

2) Remove the cover to the computer itself by gently pressing down on each plastic tab at the back of the computer. While the tabs are depressed, use the palms of your hands to lift the back of the cover up, and remove.

3) Looking down at the computer, with the front closest to you, you'll see seven "slots" towards the back of the computer, and one more to the far right, and closer to the front.

The good news is that the HyperStudio digitizer doesn't go in any of these slots. This has two immediate benefits. First, your recordings will have much less background noise than recordings done with many alternative boards that do have to go in a slot. This is because the computer itself is the source of background "hiss" or occasional "pops", and this electronic noise is strongest in the slot connectors. Second, there are a limited number of slots in your computer, and those users who are quickly filling them up will appreciate the fact that the HyperStudio digitizer doesn't require any of this valuable "real estate."

4) To install the recording hardware, first insert the bolt through the lower hole in the mounting bracket of the circuit board. Insert the bolt so that the head is on the side of the plate opposite the circuit board, and the threaded end points towards the board. Now attach the nut to the bolt, but do not turn the nut more than 3-4 turns. You want there to be a lot of open area left between the nut and the head of the bolt. (See fig. 1)
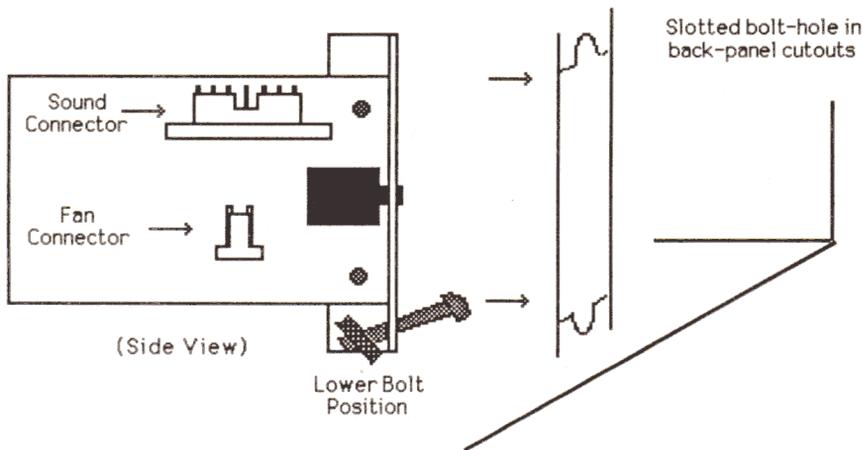
Figure 1

5) Looking at the back of the computer, you will see that there are openings ("cutouts") in the back panel, which are closed off with plastic covers. On the interior side of the back panel, these covers are attached with a metal clip. Identify the opening at the far left (closest to the power supply), and turn the clip counter-clockwise one-half turn. The clip should now be easily removable by gently pulling it directly towards the front of the computer, at which point the plastic cover will also fall free.

6) It is behind this opening, inside the computer, that you will mount the circuit board. Pre-pare now by making sure that you have located the second mounting bolt, and nut, but do not attach them to the board yet.

7) Before inserting the board, remove any interface card, such as a printer card, that may be present in slot #1 (the slot closest to the power supply).

8) The power for the digitizing card is picked up from two small wire posts near the back of the computer, and which are marked "fan". These posts are usually used for powering an internal cooling fan in the computer. If you have an internal fan, disconnect it now from the power connector. (See figure 2)

(Front)
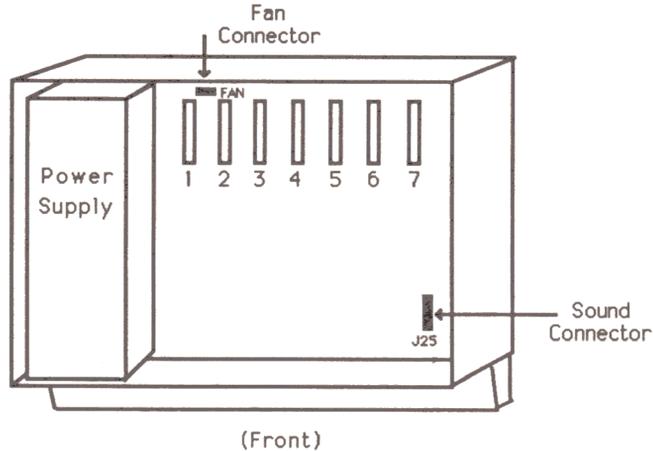
Figure 2

9) Locate the small two-wire connector coming from the digitizing card, and push it onto the post marked "fan" near the back of the computer. The plug is "keyed" which means that it is very difficult to install backwards. However, just to be sure, verify that the red wire is on your left, as you look towards the back of the computer, with the front of the computer closest to you.

10) If you have an internal fan, you can now attach its connector to the 2-pin connector on the digitizing board. This replaces the function of the connector on the computer's main circuit board, and can be used for anything that would otherwise require the connector used by the HyperStudio digitizer card.

11) With the lower bolt and nut as loose as they can be without the nut falling off, pull the head of the bolt away from the bracket. With the 7-pin connector on the right side of the board, and facing up, place the board and its mounting bracket against the inside back of the computer so that the loose bolt drops into the notch at the bottom of the cutout. The idea here is to fit the card into position with the head of the bolt on the outside of the back of the computer.

12) Once in position, gently tighten the bolt and nut with your fingers. DO NOT TIGHTEN COMPLETELY! You will want to leave a little "slack" for the moment so that you can insert and tighten the upper bolt. It may be necessary to gently push down on, or fold to the right, the wires that go from the power supply to the computer's main circuit board to make room for the digitizer card.

NOTE: Although the first opening (from the left) in the back of the computer is generally the most convenient location for the HyperStudio digitizer, there are also three other possible positions that you can use. Use of these will probably require that the slot in front of the cutout

does not have an interface card in it, but you are welcome to use whatever cutout is the most convenient for you.

13) Now insert the bolt though the top hole in the back of the computer and the mounting bracket on the card. Attach the nut to the end of the bolt on the inside. It is a little cramped here, but with patience you should be able to get it in place. It works best if you work on turning the head of the bolt with the screwdriver, rather than the nut. Aren't you glad you set up the lower bolt before putting it in the computer?

If you drop the nut while trying to attach it to the bolt, don't panic. You can just lift out the digitizer board, retrieve the nut, and then replace the board and try again. If your screwdriver is magnetized, it will be a lot easier to pick up the nut by just touching the end of the screwdriver to it.

ALTERNATE INSTALLATION TECHNIQUE: If you find that trying to thread the top bolt *after* placing the digitizer card in place is too difficult, you can try this alternate approach.

Before trying to put the board in the computer, partially thread *both* nuts onto each bolt, both top and bottom, leaving as much free play in the bolt as possible. Now, lower the head of the lower bolt into its slot in the cutout, and use the tip of your finger, or the screwdriver, to push the head of the top bolt down as you pass it through the cutout. Once the heads of both bolts are through the cutout, adjust them into the proper position in each slot, and tighten with the screwdriver. (See figure 3)
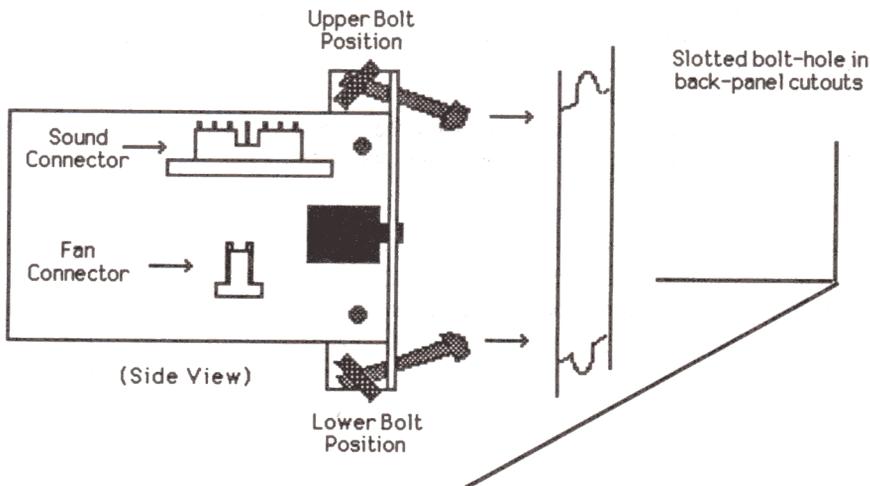
Figure 3

14) Once the nut is threaded onto the bolt, tighten both the top and bottom bolts. DO NOT OVERTIGHTEN! It is not necessary to turn the bolt head until it absolutely won't budge. It is only necessary to make sure that the connecting bolts are firm.

15) If you have removed a printer interface card, or any cards from the other slots, you can now replace them.

16) Now that the circuit board is mounted, find the 7-pin connector towards the front of the computer, and on the right side. It is marked "J25", and is right next to the connector for the speaker. If you already have another sound-related hardware device in your computer, such as the MDIdeas or FutureSound cards, unplug their connector from this post.

17) Now plug the long ribbon cable that comes from the HyperStudio digitizer into the 7-pin connector on the computer's main circuit board. It is also "keyed" so that connecting it improperly is very difficult. However, you should verify that the red wire on the ribbon cable is closest to the front of the computer as it enters the connector at J25. The cable is deliberately made just long enough to reach the J25 connector, so as to reduce electrical noise. If you have a lot of extra cards in the slots of your computer, run the ribbon cable over the tops of all of them, rather than trying to snake the cable between cards.

18) If you have disconnected an existing sound hardware device, you can now plug it into the replacement connector at the top of the HyperStudio circuit board.

19) The installation of the board itself is now done. Before putting the cover back on the computer, you should take one last look around inside to make sure that everything has been properly attached, and that there are no loose wires left hanging. Once you have checked, you can then put the cover back onto the computer.

20) The microphone is plugged into the connector on the mounting plate for the HyperStudio digitizer, and is generally placed on the left side of the computer.

That's it! The HyperStudio hardware is now installed. Should you need to move your computer, simply unplug the speaker and microphone from the back of the computer. It should not ever be necessary to remove the circuit board, although you may want to check the tightness of the connecting bolts occasionally if you move your computer often.

Special Features Note

The microphone connector on the HyperStudio digitizing card has a special convenience feature built into it that you should know about.

The microphone connection has a switching function. When the microphone is plugged in, the HyperStudio digitizer is active, and any sound *input* device connected to the card is disabled. When the microphone is unplugged, any sound input device is enabled, and can be used in the customary way. This makes it easy to switch between the HyperStudio digitizer, and an alternate device.

The sound *output* function of any device (stereo card, etc.) connected to the HyperStudio digitizer is always active, regardless of whether or not the microphone is plugged in.

HyperStudio: A Quick Look

The best way to see what HyperStudio can do is to look at some of the demonstration files provided as part of the package. This will give you a sense of where you're headed in the tutorial section as you construct the sample hypermedia applications, and will also give you some good ideas as you start your own creations.

To begin, just start up your Apple IIGS with the main HyperStudio disk (/Hyperstudio). This will load GSOS (the GS Operating System), HyperStudio, and also automatically load a stack.

The stack loaded is rather special, and is called the **Home Stack**. The screen that first comes up is called the Home Card. The Home Card is a central reference point from which you can launch other stacks or application programs. When finished, the stacks you use, or the application programs you launch, will return back to the **Home Card.**

On the Home Card you'll see a number of small graphic pictures, called *icons*. These represent the stacks and applications that you can get to from the Home Card. When you move the mouse, you'll see that the cursor is a small hand. By positioning the hand over the item you want, and clicking the mouse, you can select which stack or application you want to use.

Some of the Home Card items will be explained later, but there are a few that you'll want to know about now.

First, the Sound Shop, Sight 'n Sound, and Browser icons are for launching separate programs provided on the HyperStudio disk.

Sound Shop is a dedicated sound recording and editing utility. **Sight 'n Sound** lets you put a startup picture and sound on a disk, and **Browser** lets you quickly scan a disk with recorded sounds. All three of these are described later in this manual, and it's best to leave them for the time being, while you explore HyperStudio.

The remaining icons are all used to access existing stacks on the HyperStudio disks. When you click on any of these, if the disk that is needed for the loading of that particular stack is not in memory, HyperStudio will prompt you to insert the needed disk.

You could experiment by just clicking on the various icons, but for now, let's start with the stack called Intro. The Intro stack is located on the disk labeled /HS.Demo. If you have two 3.5" disk drives, insert the HS.Demo disk in the second drive. If you only have one 3.5" drive, remove the HyperStudio disk, and insert the HS.Demo disk.

Position the mouse cursor over the icon labeled Intro, and click the mouse. There will be a pause while this stack is loaded from the HS.Demo disk, after which the screen will fade to the opening card of the Intro stack.

The "Intro" Stack

This stack is an introduction to HyperStudio and the elements that make up a stack. It will give you an idea of the various objects that can be on a given card in a stack, and also what actions can be done by pressing a button. Use the mouse to click on buttons as directed. At the end of the Intro stack, you'll be returned to the main Home Card on the HyperStudio disk.

The important things to notice in moving through the cards that make up this stack are, first, how easy it is for a user to move through a hypermedia presentation. Hypermedia is also sometimes called "interactive multimedia."

Second, you'll notice that with just a few simple building blocks, a wide variety of software applications are possible. Although the Intro stack does not attempt to show all the possible applications itself, it should be quickly evident how powerful a tool HyperStudio can be, and all without requiring any programming knowledge, and with a minimum investment of time. When you return to the Home Card, you can explore other example stacks that have been provided.

Other Stacks

After viewing the Intro stack, and learning about the various elements that make up a card and its stack, try exploring the other stacks provided on the HS.Demo, HS.Art, and HS.Sounds disks. These stacks are already connected to the Home Card. When you click on an icon in the Home Card, you will be prompted to insert the proper disk.

If you have installed the HyperStudio software on your hard disk, the Home Card will work best if you put all the stacks from the various HyperStudio disks in the same folder on our hard disk.

Following is a brief description of each of the other sample stacks. After browsing through the existing stacks, continue with the next section, "Using HyperStudio".

Demonstration Stacks:

Button Ideas: This stack has a collection of graphic images that can be used as buttons on a card. To use a graphic as a button, use the Get Clip-art function in the File menu of HyperStudio. After pasting it onto your card, you simply define an "invisible button" that overlays the graphic image. For more details, see the section on invisible buttons later in this manual.

Card Ideas: This stack concentrates more on the possible layouts of cards, rather than particular applications. Remember, you can always use the images and cards from any of the stacks on this disk as the starting point for your own stacks.

Jukebox: This stack plays a collection of music and sound effects on the HS.Sounds disk.

Saturday: This is an example of how a young child could use HyperStudio to tell a story.

Spanish: An example of a foreign-language lesson created with HyperStudio.

Family: A geneology stack that you can use as the basis for your own family tree.

Art Library: This is a "slide show" of some of the clipart provided on the HS.Art disk. When your run this stack, you will be prompted to insert the disk "HS.Art". If necessary, you can remove either the HyperStudio or the HS.Demo disk to insert the HS.Art disk.

This also demonstrates the use of one of HyperStudio's extended features, the "User-defined Button Action", in the form of a stack that sequentially loads and displays whatever Super Hi-Res pictures are in the same directory as this stack. The user-defined button action is a "hook" into HyperStudio that lets assembly-language (or Pascal, or other language) programmers add their own special functions to HyperStudio.

Testing Stack. This stack shows how HyperStudio can be used to give a test, and displays the results of the file created by the test stack.

Read and Listen. This is a limited version of a stack from the Manchester Apple Users' Group, which was created to reinforce word recognition for early reading skills.

Video Overlay Demo. If you have the Apple II Video Overlay Card and a Pioneer 4200 LaserDisc player, be sure to look at this stack. If you only have the Video Overlay Card, but not the Pioneer 4200, use the Open Stack function in the File menu, and look in the folder Video, inside the Xcmds folder, on the HS.Demo disk. There you'll find an alternate demonstration stack that can be used with live video sources like video cameras, VCRs, etc.

Other Stacks: As time goes on, and space on the disk permit, some stacks may be added to the Home Card that are not described here. It is also possible that some stacks listed above may have been deleted in the interest of presenting a more useful example of another kind. However, you should find all the stacks on the disk sufficiently self-explanatory.

Sources of Other Stacks

It is not necessary to create your own stacks to find HyperStudio a useful addition to your computer. Many user groups, schools, and modem-accessed bulletin board systems have public-domain stacks that are readily available. In addition, commercial software publishers also will no doubt offer many different types of stacks to HyperStudio users.

Roger Wagner Publishing, Inc. is planning a catalog of available stacks, and this is a good reason to return the Software Registration Card at the front of this manual. By letting us know where you are, we'll also be able to send you that catalog of available stacks.

The final source of HyperStudio stacks, and we think one of the most rewarding, is to simply create them yourself. "Authoring" a HyperStudio application is very easy, and the resulting stack can be distributed to others with no license fee required. The Software License at the front of this manual gives you permission to distribute stacks in any way you wish, as long as the HyperStudio software itself is not passed on to others.

To see how easy creating a stack can be, read on to the next section.

Creating Your Own Stacks:
HyperStudio Applications

By now we hope that you have explored the stacks that are presented as examples on the HyperStudio Home Card. This section will lead you through an introduction on how to create your own stacks. It's actually quite easy, and we hope you'll be inspired to use your Apple IIGS computer to the best use imaginable - as a *personal* computer for use by yourself and others in the communication of the information and ideas that are of interest to *you*.

We like to think of HyperStudio as a tool for "disktop publishing". You may have already heard of "desktop publishing." That's where you use your computer to do the layout and printing of a newsletter, brochure, perhaps even an entire book. However, when you're done using all your great computer tools, what you end up with is the same thing that Gutenburg did: Sheets of paper with ink on them. To get your ideas duplicated, you'll still need to go to a printer, and in the case of a book, spend perhaps thousands of dollars to share your ideas with others.

Once they get the book, your readers will be forced by the medium - the book itself - to go through your ideas in a linear fashion. That is, they'll start on page 1, and finish on page 599, or wherever. They won't have the option to suddenly jump ahead to find out more about a certain part that interests them. In addition, if your subject is something not easily explained in a straight-line path, you'll have to force your ideas into the traditional form anyway. That is, if you don't have HyperStudio.

With HyperStudio, you can now put subjects as diverse as your family tree, or everything you know about gardening, onto a *disk*. If the person using your stack wants to jump from one place to another because the ideas are connected, they simply click on a button you've added, which then takes them to that part of the stack. When you've finished your stack, you don't need to go to anyone to duplicate the information. For the cost of a single disk, you can distribute the information to anyone you want. No minimum printing quantities, no special equipment needed. Just copy your disk, and you've entered the age of hypermedia, and desktop publishing.

We believe that there are two immediate benefits to every computer user as a result of this process. First, more than ever before, a method is provided for an individual to record, organize, and distribute their ideas, without requiring that there be a "mass market" for their work, or requiring the "approval" and financial cooperation of a large publisher.

Secondly, in the area of computer software, we think you'll finally see a wider range of affordable software. For most programs, including HyperStudio, a tremendous amount of effort goes into the development of the software itself, independent of the information content. In the case of educational software, for example, this means that most companies spend much more time

and money on the part of the software that puts an image on the screen, than they do the actual information content.

With HyperStudio, virtually all the time invested in creating a new software product can be put into the information in a stack, rather than the "core" routines necessary to display the information. This means that it will be possible to create better software in less time, and to you that means more software at a smaller cost.

Well, enough discussion. Let's dig in and see just what's involved in creating a new stack.

Creating a Stack: A Simple Example

Any stack is nothing more than a series of cards, on which are placed various objects. These objects can include:

- Text
- Graphics
- Buttons
- Sounds
- Video sequences

The buttons are used to move between cards, or to trigger certain actions like the playing of a sound or an animation sequence.

The steps to creating a stack are fairly simple:

1) Choose New Stack from the File menu.
2) Create a series of cards with the desired backgrounds.
3) Add information to each card in the way of text and graphics.
4) Add buttons to move between cards, or trigger actions on a card.

That's it! Since cards can be added anywhere in a stack, moved from one position to another, deleted, copied, and in general manipulated in many ways by the computer, you can use the computer itself to help you organize your thoughts. In general, you'll get off to a better start if you try to conceptualize your project as well as you can before beginning, but HyperStudio is flexible enough to let you change things as you go along.

For our first stack, let's suppose you wanted to create a stack like the "Spanish" stack, that teaches a foreign language.

Step 1: Go to the **File** menu in HyperStudio and **choose New Stack**. Of course, if you haven't started up the HyperStudio disk, you'll need to do this first! When the Home Card

appears, just choose New Stack. It won't hurt anything as you see the screen clear to a blank white card. The system has now been cleared of the existing stack, and is ready for you to begin.

Don't worry about the Home Card. It's still on the HyperStudio disk. Choosing New Stack only affects what is in the computer's *memory*, not what is on the disk.

Step 2: Prepare the cards and their backgrounds. For our example stack, we'll start with a map of the world as the first card. The next card will be a scene of a plaza, with various things typical of a foreign location - a passport, room keys, taxi, etc. In this background, we've even included a guitarist and dancer!

a. To load the first background, go to the **File** menu again, and **choose Load Background**. The standard file selection box will appear. If the disk HS.Art is not already in the disk drive, insert it now, and click on Disk (or press the Tab key) to show the list of files on the disk. If you have several disk drives, it may be necessary to use the Disk button several times to finally list the HS.Art disk.

When the list of pictures on the HS.Art disk is displayed, use the scroll bar controls, or the arrow keys on your keyboard, to scroll down until you see the file **"World.Map"** high-lighted. As a short-cut, you can also press the "W" key.

When the file World.Map is highlighted, press Return, or click on the Open button. You can also just double-click on a file name to load it. The screen will then fill in with the picture of the world map. This is the background for your first card.

b. Before adding anything to the first card, let's finish setting up the background for the second card. Pull down the **Edit** menu, and **choose New Card**. The screen will erase again as a new card is created, and the upper-right corner of the screen will now display "Card 2".

c. Now load the background for the second card by again choosing **Load Background** from the **File** menu. This time load the picture file **"Spanish.Pic"**, also located on the HS.Art disk.

d. You have now created two cards, each with a unique background. To move back to the first card, pull down the **Move** menu, and choose **First Card**. This will move you back to the first card, which has the picture of the world map.

Step 3: Now you can add some objects to the first card. To begin with, we'll add a small box of text that tells the the user what you expect them to do. To do that, go to the **Objects** menu, and choose **Add a Text Item**. This is used to add a body of text, as an object, to a card. It's called an object, because when you come back to the card you can move the block of text around, edit the text, delete it, and do other actions, independent of the graphics background on

the card itself. This is in contrast, for example, to the *paint tools* text entry, where once you type something on the card, it becomes a permanent part of the background. More on that later, however.

a. The first time you add text, a dialog box will appear reminding you that the box you are typing in can be moved and resized as desired, and that when you're finished entering text you should click outside the text box. Click on the Continue button once you've read the message. This box only appears once in any given time that you use HyperStudio.

Next, a rectangle will appear, that represents the area that you want the text to appear in on your card. By putting the mouse on any corner of the rectangle, holding down the mouse button, and then dragging the mouse, you can re-size the box to make it larger or smaller. By putting the mouse on the *frame* or interior of the rectangle, you can use the mouse to drag the box to a new position. For now, position the box in the **upper right corner** of the world map, and then click the mouse anywhere outside the rectangle. This tells HyperStudio that you are done positioning the rectangle, and to drop it in that position.

b. Now, a dialog box will appear giving you a choice of styles for the text box, and also asking you if you want to type text in now, or load a file from disk. Click on the check boxes, if necessary, so that Draw Scroll Bar, Allow Scrolling, and Draw Rectangle Around Text, are checked; Text is Read-Only should *not* be checked. Then click on "Type Text Now." This will bring up the built-in word processor in HyperStudio, and let you type in the window that you've defined.

c. **Type in the text:** "The spanish language is spoken all over the world. Click on the button for one of the countries for an example."

Step 4: That's it for adding the text! Now let's add a button. Go back to the **Objects** menu, and choose **Add a Button.**

a. The first screen that appears will present you with a selection of button styles. Choose the square button, with the small shadow, by clicking on it with the mouse. To add text within the button, just type on the line provided. For this button, **type "Mexico"**, and press Return (or click on the "OK" button).

b. The button will now appear in the upper-left corner of the world map. Use the mouse to **position the button** just to the left of where Mexico is located on the world map. **Click outside of the button**, anywhere on the world map. As with the text item, this "drops" the button, and tells HyperStudio you're finished positioning the button.

c. The next dialog box that appears is provided to let you choose what action should be taken when the button is pressed. Under "Connect to:", is a list of possible "targets" that Hyper-Studio will move to when the button is pressed. Since we want this button to move to the next card, the one with the Spanish scene, **click on "Another Card"**, at the top of the Connect To list.

d. The screen will now clear, and you'll see a dialog box that says "Move to the card which is the target of this button, click OK when the proper card is displayed." The idea here is to use the commands in the Move menu to move to the card that you want. Choose **Next Card** in the **Move** menu. You'll now see your Spanish scene. Now click on **"OK"** to tell HyperStudio that this is where you want to move to when the button is pressed.

e. The next choice you get is what type of visual effect, or transition, you want when the user moves to the new card. You've probably seen a number of these transitions by now, in the example stacks of the Home Card. For this transition, choose **"Fade to white"**, and click on the "OK" button (or press Return). As you create your own stacks later, you'll want to experiment with the different transitions to see how they look.

f. Once that's done, you're back at the Button Actions section. In addition to moving to another card, you can still decide whether you want a test score kept ("Test functions"), and whether a sound should be played, or an animation (when available) started. For now, just **click on "Done"** (or press "Return").

g. You could use Next Card in the Move menu to move to the next card, but you can also just use the button you defined. **Click on the "Mexico" button** to move to the Spanish scene.

h. On this card, we'll suppose that you want to set things up so that when the user clicks on something in the scene (like the passport, taxi, etc.), they'll hear the Spanish word pronounced. To do this, you'll want to put an *invisible* button over each image, and have the button play a sound when pressed. An invisible button is used for those cases where you want to define a graphic image, such as the Home Card Icon, or an arrow, or in this case, the passport, as a button. It is also used for those cases where you don't want the user to see where you're expecting them to click the mouse. An example of this was in the "About Computers" example in the Intro stack, where you were asked to click on the disk drive. (Look for this stack on the Home Card, if you haven't tried it already).

The first item in the picture we'll try will be for the passport, in the lower-right corner of the screen. Since you're again adding a button, go to the Objects menu, and choose **Add a Button**.

i. This time, choose **Invisible** button, and click on "OK" (or press Return). Now, instead of a floating button, you'll see a twinkling rectangle, indicating the "hot" area for an invisible button. Positioning and sizing this rectangle is done in the same way that you worked with the text rectangle. Use the mouse pointer to drag the corners of the rectangle to

resize it. If you hold down the mouse button and drag the mouse with the cursor inside the rectangle, you can reposition the button wherever you want. This rectangle will define where the user will be able to click with the mouse to get the same result as clicking on a button.

j. Use the mouse to **position (drag) the rectangle over the passport.** Pressing the mouse button down with the cursor in the middle of the rectangle, and dragging the mouse will move the rectangle. **Size the box** to just fit around the passport.

k. As before, to tell HyperStudio you're finished with the rectangle, just click outside the rectangle somewhere. You'll get the same dialog box of Button Actions as before. This time, leave the "Connect To:" setting to "No Connection", and click on **"Play a sound..."**.

l. A new dialog box will appear that will give you the choice as to whether you want to record the sound now, or use a Disk File. We've included a pre-recorded voice of the spanish word for passport on the HS.Demo disk. Insert the HS.Demo disk in your disk drive, and then click on **Disk File** to begin the loading process.

m. If the files on the HS.Demo disk are not already listed, click on the Disk button until they are. Then press "P" to highlight the file **"Passport.Span"**, and press Return (or click on Open).

n. After the sound has been loaded, a picture of a tape recorder will appear. This lets you play the sound to see if it is the one you want. **Click on the Play** button on the tape player to hear the sound. You can also use the volume control to adjust the volume to your liking. Click on the **"OK"** button near the bottom of the screen when finished.

o. After telling HyperStudio what sound to use with this button, you'll be returned to the Button Actions menu again. The dialog box should display "No Connection", a check-mark in "Play Sound", and "No Test Functions". Click on **Done.**

p. The card will now reappear. If you now **click on the passport**, you should hear the Spanish word for passport!

Trying It Out

To try your stack out, choose First Card in the Move menu. Then click on Mexico. When the Spanish scene appears, click on the picture of the passport to hear the Spanish word.

Saving Your Stack

Saving a stack is easy. Just choose **Save Stack As** from the **File** menu. Since there is not much remaining room on the HyperStudio disks for new files, you'll have to save your stack on your own data disk. If it is not already in a drive, insert your data disk (HS.Data if you've created one as suggested earlier), and use the Disk command until you see the disk name in the dialog box. For now, use the name **My.Spanish**. Once saved, you can run the stack again by just re-loading the stack, using the Open Stack option in the File menu.

Adding it to the Home Card

Although you can now run your stack by loading it directly, let's see what's involved in adding your stack to the Home Card itself. Basically, what is required is:

1) Create a graphic image on the Home Card.
2) Define an "invisible button" over the graphic that connects to your stack.
3) Save the modified Home Card Stack back to disk.

This process is very easy. To begin, your *working copy* of the HyperStudio disk should be in your drive. Go the **File** menu and choose **Open a Stack**. Use the Disk button, if necessary, to list the stacks on the HyperStudio disk, then load the **Home.Stack**.

Step 1: Although HyperStudio has built-in painting tools with which you can create a graphic image, it also lets you use existing graphics that you may have from other Apple IIGS paint programs, such as PaintWorks Gold™, 8/16 Paint™, or others. HyperStudio also includes its own extensive set of "clip-art" that you can use in creating your stacks. These graphics are located on the disk labeled "HS.Art".

a.   To use an existing graphic, you can use the Add Clip-art function, located in the File menu. If the disk HS.Art is not already in one of your disk drives, insert the disk now, and then choose **Add Clip-art**. If necessary, use the Disk button to list the graphic files on the HyperStudio.Art disk. Select the file **"Icons"** (press "I" to jump to the file!), and click on Open.

   This file is a collection of graphic images like the Home Card Icon, arrows, and other items you'll find handy. We'll use one of the graphics on this page as the icon for the sample stack you just created. Look in the upper-right corner of the graphics page. In the second row, you'll see two images of stacks of cards. Let's use one of these as the icon for your stack.

b.   Across the top of the Add Clip-art window are four icons that indicate what you can do while in this window. The rectangle on the left is a selection tool that selects a square chunk of graphics from the page. The lasso tool lets you draw a line around the graphic

you want, and then copies just the graphic, leaving the white background behind. Since you're copying the card icon to a colored (yellow) background, you'll need to use the lasso.

Click on the lasso with the mouse. It will highlight, showing it is now the active tool. Now use the mouse to **draw a line all the way around the card icon**. It's a rather tight squeeze between each of the graphics, so you'll have to draw carefully. If you make a mistake, and run into one of the other graphics, or accidentally hit part of the card, don't worry. Just release the mouse button, and try again. When you have successfully circled the card icon, the edges of the image should "shimmer", showing the image is selected. Now use the mouse to click on the "OK" icon at the top of the clip-art window.

d. The clip-art window will disappear, and you'll see the image of the card icon floating over the Home Card. Put the mouse pointer over the middle of the card image, and hold down the mouse button while you move the mouse to **position the card icon** in one of the open positions on the Home Card. When you get the icon where you want it, just let go of the mouse button, and then click anywhere outside of the icon. The card icon will then be "pasted" onto the Home Card image. (If later you decide to erase this image, you can always use one of the paint tools, and paint, in yellow, over the image to erase it.

e. Last of all, you'll probably want to add a few words under the card icon to describe it. For this you can use the painting tool's "text tool". The painting text tool is different from the "Add a Text Item" function in the Objects menu. When you add a text item, it is separate from the background, and can be moved around and resized at a later time. The paint tools directly alter the background graphic by "painting" what you do onto the background. For the Home Card, this makes more sense than creating a text item.

Use the mouse to select the **Tools** menu, and **choose the Text tool**. This is the icon that looks like the letter "T" near the bottom of the menu. The mouse cursor will now change to what is called an "insertion cursor", indicating HyperStudio is ready to let you type text.

Before typing, you should also know that HyperStudio lets you type the text in any of the allowable painting colors. The labels for the other icons on the Home Card are typed in the dark red color, rather than black. Use the mouse to open the **Options** menu, and **choose Set Text Color**. Choose the red color square, then click on Ok.

f. Now **position the cursor under the card icon**, and a little to the left of center, and click the mouse. A blinking insertion point will now appear. Type the words **"My Spanish"**. You don't need to press Return. Now, look to see if the text is where you want it. If not, you can use the backspace or Delete key to erase what you've typed, then move the mouse cursor and click more to the left or right, or up or down, as needed. You signal that you're finished creating text by either clicking the mouse again somewhere else on the screen, or choosing another tool (like the browse tool) from the Tools menu.

If you're still having trouble getting the text exactly where you want it, you can also just type the words you want, without worrying if they're exactly where you want them. Then go to the Tools menu, and select the dotted rectangle tool in the third row from the top. Now position the mouse just a little to the left, and above, the words you've typed, then press the mouse button and hold it down while you move the mouse to the right, and down.

Use this motion to draw a box that completely contains your text. Then release the mouse button, and the rectangle will become a moving line. Now place the mouse in the middle of the box (the cursor will change to an arrow). By holding down the mouse button, and moving the mouse, you can "drag" the words to the exact position under the card icon that you want. The closer the dotted-line box is to the text itself (that is, the smaller the box), the easier it will be to get the text next to other graphics without erasing part of them. When you've got the text where you want it, click outside of the box to finish placing it.

If you want to try drawing a different-sized box again, choose Undo from the Edit menu, and try again. Until you actually drag the selected rectangle, you can also cancel a box that's been drawn by just clicking outside the box.

Step 2: The next step is to create an invisible button over the card icon. You've already created an invisible button in the earlier example, so this next part should be easy.

a. First, go to the **Objects** menu, and choose **"Add a Button"**. As before, choose the **"Invisible"** button, and then position and size the rectangle so that it forms a box **around your card icon.** You'll probably want it to include the text as well. Then click the mouse outside the box to finish the placement.

b. The Button Actions dialog box will then appear. This time, you want to **"Connect to Another Stack..."**. When you click on this, the Standard File Interface box will appear, displaying only the stacks on your disks. If needed, insert the disk with your sample stack saved on it (HS.Data if you've been following along), and select the file **My.Spanish**, and press Return. The Standard File Interface dialog box will then disappear, and you'll be allowed to select what transition effect you want used when your stack is started. Choose whatever seems best to you. After clicking on **OK** (or pressing Return), you'll be returned to the Button Actions screen. You could elect to have a sound played as you moved to the new stack, but for now, just click on Done (or press Return).

c. Finally, you'll want to save the new Home Card stack back to your working copy of the HyperStudio disk. Save this in the same way you saved the stack you created earlier. Insert the HyperStudio disk (a backup, we hope!) into your disk drive, and then choose **Save Stack As** from the **File** menu, and save the stack using the name **Home.Stack**. If the list of files for the HyperStudio disk doesn't appear immediately, click on the Disk button to switch to the HyperStudio disk.

When you click on Save, a dialog box will appear reminding you that the stack Home.Stack already exists on that disk. Click on Replace to continue the save process.

Special Note: In the interest of minimizing the number of times you have to switch disks, the Home.Stack has been placed on both the HyperStudio and HS.Demo disks. The Home.Stack on the HyperStudio disk is only used when your first start up the Hyper-Studio disk. After that, control passes to the HS.Demo disk, and it is that copy of the Home.Stack that is used from then on. If you want the My.Spanish icon to show up on the Home.Card all the time, you should save a copy of the new Home.Stack to the HS.Demo disk as well.

If you are using HyperStudio on a hard disk, you would only have one copy of the Home.Stack, presumably in the folder HyperStudio.

By the way, the difference between Save Stack As... and Save Stack is related simply to whether you are saving a stack that HyperStudio already knows the name and location of, or whether you are saving a stack for the first time (or giving it a new name and location). When you begin a stack with "New Stack", it has no name. To save it the first time, you would use Save Stack As... to give it a name, and to choose the disk you want to save it on.

However, once you've already saved the stack (or if you've loaded it earler from disk), HyperStudio then knows the name and location of the stack, and you can just use Save Stack. This avoids having to re-type the name of the stack every time you want to save it. If you want to save a current stack under a new name, or on a different disk than the one it was last loaded from, or saved to, you can always use Save Stack As... again.

Step 3: After modifying the Home Card, you may also want to add the Home Card Icon to your own stack so that users can easily return to the Home Card. This is basically just a matter of doing the same thing you did to add an icon for your stack to the Home Card, but in reverse. In this case you'll use the Add Clip-art function to copy the Home Card Icon from the Icons file, and paste it onto each card of your own stack. (Or at least those where you want the user to have the option of returning to the Home Card.)

a.   Load your stack (presumably named "My.Spanish") from your data disk (HS.Data). If you're still on the Home Card, you can also just click on the My Spanish icon that you added a little while ago!

b.   While viewing the first card, the world map, choose **"Add Clip-art"** from the Edit menu. Get the file **Icons** from the HS.Art disk. If you're unsure of how to do this, review the instructions given earlier about using the Add Clip-art function (or look in the Reference section of this manual, later) when using the Icons file for the card icon that was added to your Home Card.

c. Use the lasso tool to grab whichever **Home Card Icon** you prefer from the upper-right corner of the graphics page. Click on **OK**.

d. Now use the mouse to **position the Home Card image** in the lower-left corner of the world map background. Click outside the image to finishing placing it.

e. Now use "**Add a Button**" from the **Objects** menu, and use the **Invisible** button option to define an **invisible button** over the Home Card Icon.

f. Select "**Connect to Another Stack...**" in the Button Actions dialog box, and choose the **Home.Stack** on the HyperStudio disk as the destination for your button. Select a transition that you like, and click on **OK**. Finally, click on **Done**. (You may have to put the HyperStudio disk back in the drive here).

   Note: Whenever you finish adding a button, the mouse cursor changes to a hand. This is called the "browse tool", and is required to click on buttons to make them do something. The browse tool can be selected from the Tools menu whenever you want to use existing buttons to move through your stack.

g. Now use the **Move** menu to move to your **second card**, the Spanish scene, and repeat steps "b" through "f" to add a Home Card Icon button to that card as well.

   (Do you have the feeling these instructions are becoming more brief? You're right! We're forcing you to remember what you learned a little earlier in the hopes that you'll soon be self-sufficient! If you do forget how to do a certain action, just go back a few pages until you find the detailed explanation of how to do what you want. In addition, you can always turn to the Reference section of this manual to read how to use any particular command.)

h. Finally, **save your stack** (My.Spanish), with the changes you just made back to your data disk (HS.Data). You can use **Save Stack** in the **File** menu to do this.

   Now you should be able to use your own Spanish stack from the Home Card whenever you want!

Where to Go From Here?

You've now successfully gone through the basic steps to creating a stack. HyperStudio offers many more options in adding information to cards, controlling what happens on each card, and much more. Each available function is described in the Reference section that follows.

Because this information is presented more by function, rather than in a tutorial, you will find that the best way to use the information is to first browse through the text to get an overview of

what functions are available. Then, when creating your own stacks, you can refer back to just those sections that are relevant to what you want to do.

HyperStudio is designed so that the manual is not absolutely required to perform the most-common activities. However, there are advanced features that you will find this manual helpful in understanding. In addition, there are other utilities provided on the HyperStudio disk, such as Sound Shop, Sight 'n Sound, and Sound Browser, that are described after the Reference section.

When in doubt, jump right in and EXPERIMENT! As long as you're using backup disks of the HyperStudio software, you can't hurt anything by trying things. If you think a certain combination of actions might be useful for what you want to do, just try it. HyperStudio has been designed to be as intuitive as possible. If all else fails, however, feel free to call our Technical Support department, weekdays (M-F), from 9:30 am. to 5:30 pm. (PST).

HyperStudio Reference Section

This section describes each of the menu items in the HyperStudio authoring environment.

File Menu

This menu relates to the various file-, and thus, disk-related activities related to a stack. Many commands in not only the File menu, but other functions of HyperStudio, will require your identifying a file on a disk to load, or a name and location for the saving of a file. Virtually all of these operations will be done with something called the *Standard File Interface*.

The Standard File Interface will appear whenever a file is loaded or saved, and it works by presenting a dialog box with a list of various files on a disk, and buttons with which to examine other disks and open folders. Finally, it determines a specific file to access by either your clicking with the mouse on the filename you want to load, or your directly entering the name to use for saving a file.

When the file interface is first presented, it always starts by showing the relevant files in the directory in which the HyperStudio application was located. There are four buttons to the right of the filename window. The Disk button shows you the main directory of any other disks that are in other drives in your computer. If you want to put a different diskette in a drive that was just displayed, simply replace the diskette, and click on Disk. You can also press the TAB key as an equivalent keyboard command for the Disk button.

If a file is highlighted, either by clicking on its name with the mouse, or by using the up and down arrows, you can click on Open to load the file, or you can just press the Return key. If a folder is selected (highlighted), then choosing Open will open that folder, and show the files within that folder. As a convenience feature, if you press the letter keys on your keyboard, the file selector will automatically go to the first file in the current list that begins with that letter. From there, you can use the arrow keys to select a particular file.

If you are viewing the files in a folder, and wish to "back up" one level to the previous directory, click on the Close button. You can also press the Escape key.

Finally, if you should be presented with the file interface, and decide you want to cancel the operation, simply click on the Cancel button. There is no keyboard equivalent for the Cancel button.

When examining disks, note that not all files will always be displayed. If you are loading a sound file, for example, only sound files and folders (subdirectories) will be shown in the filename window. On the other hand, if you were loading a picture, only the graphics file-names would be visible in the window. This is so that you do not have to look through unrelated files while searching out the one you want.

When a file is saved, *all* the files in the current directory are shown in dimmed text. This is so that you can see which filenames are already used when entering a new name.

New Stack: This option erases whatever stack is currently in memory, and begins a new one. If you have not saved whatever is in memory since you last made a change, a dialog box will appear asking you to confirm your request to start a new stack.

Open Stack: This is used to open a stack that already exists on the disk. This can be a stack you created yourself, or it can be a stack created by another person. When this menu item is chosen, you can indicate the stack you want to open using the Standard File Interface dialog box that will be presented. Once loaded, a stack can either be directly used, or you can edit the stack, adding or deleting more cards and/or objects as you wish.

Save Stack and Save Stack As...: These are used to save a copy of the current stack on a disk. The very first time you save your stack, you'll have to give it a name. This is done using the Save Stack As... command. Until a name is given the stack, the Save Stack command will be disabled.

When Save Stack As... is chosen, the Standard File Interface is presented, but there are some additional functions present, as compared to a Load command. The most important item is the box at the bottom of the window where you should enter the name you want used when the file is saved on your disk. A default name of "New.Stack" is presented, but you should enter your own filename. The second new item in this dialog box is the button New Folder, just below the Disk button. This lets you create your own file folders, while you're saving the stack itself.

To create a new folder, enter the name of the folder you want to create in the edit-box at the bottom of the window. Then click on New Folder. A new folder of that name will be created. You can then open this folder up, and save your stack in it if you wish.

Once the computer knows the name of the stack in memory – either because you have used Save Stack As..., or because you loaded an existing stack from a disk - the Save Stack menu item can be used. When Save Stack is chosen, HyperStudio *immediately* saves a copy of the current stack in memory to the disk using the current name.

Load Background: In HyperStudio, each card can be thought of as a background graphic over which various objects are placed. Even a blank card has a background – a white one. On each background can be placed graphics, text, or buttons. The background itself is generally a common framework on which the objects on the various cards are presented.

For example, a stack which made up an address book might have a background for each card that looked like a file card. A stack could also have a background that suggested the pages of a book. Backgrounds can contain graphics that add to the visual appeal of the cards, or the background can be a solid color. Although some stacks you create or see will probably have one background for the entire stack, this is by no means a requirement. A stack can have as many different backgrounds as you like.

The Load Background command loads a 640-mode, Super Hi-Res picture, and uses that graphic as the background for the current card. A background can be edited using the paint tools (see the Tools menu). Whenever you create a new card (see New Card in the Edit menu), HyperStudio will automatically copy just the background of your current card onto the new card. This is because, in many cases, you will want to repeat the same background on many different cards. If you do want a different background when creating a new card, you can just load a new background, or use the Erase Background (Edit menu) command.

HyperStudio does not actually duplicate the background when creating a new card. Instead, it just uses the background from the one card for the others. That is, the same graphic is used when displaying all the cards with that background. This has the advantage of using only a fixed amount of memory (that used by the first background) for as many cards as you wish. Whenever you load a new background, or draw on the current background with the paint tools, HyperStudio turns this into a new background, and more memory is used to make room for the new background. Solid color backgrounds use much less memory than complicated graphics.

When you are creating your stacks, try not to repeatedly load backgrounds. You will use far less memory for your stack if you first load a single background, and then create all the cards that use that background with the New Card command. Then create the cards that use a different background. If you do have to switch between backgrounds as you create new cards, try to copy and paste existing cards, rather than loading new backgrounds.

Save Screen: Although you can use 8/16 Paint, Paintworks Gold, DeluxePaint II, Graphics Studio, or virtually any 640-mode, Super Hi-Res drawing program to create backgrounds, you can also use the built-in paint tools of HyperStudio. The Save Screen command saves whatever is currently on the screen as a Super Hi-Res picture. Once saved, the image can then be used as a background or graphic in other cards or stacks. Because the files are saved in a standard format, you can also go back and forth between your favorite paint program and HyperStudio as often as you wish using the Load Background and Save Screen commands. Screens can be saved with graphics, buttons, text, etc. either visible or not, as you wish. (See Hide Items in the Options menu).

Add Clip-art: The HyperStudio.Art disk contains a number of useful graphic images that you may find useful in creating your own stacks. In addition, you may have your own collection of icons, button images, and small graphics that you would like to use on cards in your stacks. The Add Clip-Art function is provided as a way for you to copy a portion of a graphics screen, and paste it onto the background of a card you are working on.

When you choose Add Clip-art, you will see the usual disk file interface. Use this to display the file names of 640-mode graphic images that you have on disk. After selecting a file, a new window will open displaying the graphic page.

Across the top of the Add Clip-art window are four icons that indicate what you can do while in this window. The icon on the left is a selection tool that selects a square chunk of graphics

from the page. The lasso tool lets you draw a line around the graphic you want, and then copies just the graphic, leaving the white background behind.

If you make a mistake while selecting a graphic, and run into one of the other graphics, or accidentally hit part of what you're trying to capture, don't worry. Just release the mouse button, and try again. When you have successfully selected your image, use the mouse to click on the "OK" icon at the top of the clip-art window.

The clip-art window will disappear, and you'll see the image floating in the middle of the current card. Put the mouse pointer over the middle of the image, and hold down the mouse button while you move the mouse to position the graphic where you want it. When you get the graphic where you want it, just let go of the mouse button, and then click anywhere outside of the image. The graphic will then be "pasted" onto the background.

Choose Printer: Use this to choose what type of printer HyperStudio will print to. The most common setup is for an ImageWriter printer, using the Printer Port, with Direct Connect highlighted. If you're not using AppleTalk, the User Name field isn't required.

Page Setup: This is used to specify other details about how you want HyperStudio to print things. When you choose Page Setup, you can set which type of paper your printer is using; whether things are printed vertically or horizontally on the page; print sizing; and whether to reduce the printed image. The default settings are for standard US Letter size paper, Normal vertical sizing and vertical printout. The printer effects check boxes are normally clear, with no 50% reduction and normal gaps between pages.

Print: This is used when you want HyperStudio to print either the current card, all the cards in the stack, or just the cards in the "back" list. When you choose Print, the first thing you'll be asked is what card layout you want on each page, and what range of cards you want to print. You have the choice of printing one card per page, or printing the cards full size (two cards per page), or half-size (four cards per page). After choosing the layout, the standard print dialog box appears, where you then choose how many copies you want. Ignore the options for which cards you want to print, as this has already been selected in the first dialog box.

The printing process can be cancelled at any time, by pressing Apple-period during the printout.

Quit HyperStudio: Choosing this closes the current stack, and returns you to the Finder, Program Launcher, DeskTop, ProSel, or whatever program launcher you used to start HyperStudio.

Edit Menu

This menu is used to cut, copy, and paste the objects on a particular card, parts of the background, or even entire cards.

Undo: This is used whenever you change your mind about certain editing actions. For example, if you cut a button from a card, and then change your mind, you can choose Undo, and the button will be put back as it was before the cut. If you paste a graphic onto the wrong card, choosing Undo takes the graphic back off. Undo only reverses the *very last* action, and not all actions can be undone.

Cut: An object (graphic, text or button) is cut by selecting the object with the edit tool (the pointer - see the Tools menu), and then choosing Cut from the Edit menu. Once selected, you can also press Apple-X on the keyboard to do a Cut. The Cut function removes the object from the card, and places it on the *clipboard*. The clipboard is a term used to describe a temporary memory buffer where things are held while you decide what to do with them. The clipboard is used with the Cut, Copy, and Paste commands to move objects from one card to another.

Once Cut, the object remains on the clipboard until you either quit HyperStudio, or until Cut or Copy is chosen again from the menu.

In addition to objects, you can also cut portions of the background for pasting to another location. Use the lasso and selector tools (Tools menu) to select the area to be cut, copied, or cleared (erased).

Copy: Copy is identical to Cut, except that the original object is left in place, and a copy of the object is placed on the clipboard. Pressing Apple-C is equivalent to choosing Copy from the menu.

Backgrounds can be copied from one card to another, and this is the preferred way of using the same background on two different cards in those cases where the second card is not created directly from the first.

Portions of the background can also be copied using the lasso and selector tools in the Tools menu.

Paste: Choosing Paste from the Edit menu places a copy of the object on the clipboard onto the current card. Once pasted, you can use the mouse to position the object, or portion of the background, in the desired position. Clicking the mouse anywhere outside the pasted object "drops" the item in the current position. Apple-V is the keyboard equivalent of the Paste command. When a card is pasted, it is always placed at the end of the current stack.

Clear: This is used to delete an object without copying it to the clipboard. To delete an object, simply click on it once with the edit tool (pointer - Tools menu). When the object is selected, choose Clear from the Edit menu, or press the Clear (or Delete) key.

New Card: This is used each time you want to begin a new card in your stack. Each time New Card is selected, the background of the current card is used for the new card. Any objects on the current card are not copied.

Delete Card: This is used to remove a card from the stack. Note that this must be done with some care, particularly in those cases where buttons on other cards in the stack are linked to the card you are about to delete. Because this would leave those connections on other cards with no destination, HyperStudio warns you if the card you are about to delete is pointed to by any other cards. At that point, you'll have the choice of also deleting the buttons on other cards that point to the card about to be deleted, or leaving them in place. If you leave them, and you delete the card anyway, HyperStudio will mark those buttons as *unresolved*, that is, they are buttons that no longer have a destination.

Any visible button that is unresolved is indicated by being shown in red on a given card. This is to make recognizing unresolved buttons easier. You can then go through your stack, and easily recognize cards with unresolved buttons, editing the buttons as necessary for the proper operation of the stack.

Cut Card: This cuts the entire card to the clipboard, with the expectation that you will paste the card into another stack, or perhaps at the end of the current stack. The card will remain on the clipboard until you choose cut or copy again from the menu.

Like Clear, if you cut a card that is pointed to by other cards, and do not paste it back into the stack, any unresolved buttons will thereafter be displayed in red.

Copy Card: This is identical to the Cut Card function, except that the selected card is not deleted from the stack. The two immediate consequences of this are that, first, there is no need to worry about unresolved buttons on other cards, since the original card remains. Second, the copied card, if pasted, is not pointed to by any existing buttons, since it will be given a new card number.

Erase Background: This erases the current background to one of the 16 colors on the HyperStudio palette. See Set Background Colors, in the Options menu.

Move Menu

This menu makes it easy to move around in a HyperStudio stack. The commands are as follows:

Back: Selecting this takes you back, one card at a time, through the last 16 cards viewed. This makes it easy to return to a card you viewed recently. This is different than the Previous Card choice below. Back goes back through the cards in the order you viewed them; Previous goes to the card that is physically in front of the current card.

Home: The Home Card is a significant point in the HyperStudio system. It is a "home base" from which different stacks, and even applications, can be used. When you quit a given stack or application, HyperStudio will always return to the Home Card.

Many stacks also have Home Card icons on various cards. Clicking on the Home Card icon also returns you to the Home Card.

First Card: Choosing this takes you to the first card in the current stack.

Previous Card: This takes you to the previous card in the current stack. If you are already on the first card in the stack, choosing this takes you to the *last* card in the stack. This is called a "wrap-around" effect. Note that both Previous and Next Card functions go to the card specified in terms of its *position* in the stack, not the order the user viewed the cards.

Next Card: This takes you to the next card in the current stack. If you are already on the last card in the stack, choosing this takes you to the *first* card in the stack.

Last Card: Choosing this takes you to the last card in the stack.

Find...: Choosing this opens a window in which you can type a word or phrase. When you press Return, HyperStudio will search through all the text items in that stack for the search word(s). Note that HyperStudio searches from *the current card forward*. If you want to search the stack from the beginning, be sure to remember to move to the first card before beginning your search.

When you do your search, you will have the option of searching just the changeable or fixed text fields on each card. You can also choose to search both. The difference in these types of fields is described in the section on the text item tool.

Once the search has begun, you can search to the next occurence by pressing Shift-Apple-F.

Tools Menu

The tools menu is an icon-based menu with two major groups of tools. The upper group of icons represent major editing tools for screen items such as the text, graphics, and button objects. The remaining tools are all paint tools, used when editing the graphics that make up the current background.

Browse (hand): While editing a stack, you may want to click on a button to verify its action, or to move to another card. Selecting this tool gives a hand icon that is used to activate a button. This is the default tool when HyperStudio is started up, and the Home Stack is loaded.

Button: This is used to highlight invisible buttons for editing, and to move or resize both visible and invisible buttons. When you choose the button tool, all invisible buttons will be shown surrounded by rectangles. You can then use the button tool to click on a particular button to select it for dragging to a new position, or a cut, copy, or delete action. Selected buttons can be resized by dragging the corners of the button.

When a button is selected, you can choose Item Info in the Objects menu to get a description of the button, or to edit the button name and appearance if you wish.

Edit Tool (pointer): This tool is a combination of all the specific edit tools (button, graphic and text) used to select items for editing. Once selected, the item can be moved, edited, cut, copied or deleted. Once a given item is selected, you can also use the Item Info function in the Object menu for information about that object.

In general, the editing rules are as follows:

To Re-Position an Object: First, click on the item to select it. Then, put the cursor over an item, hold down the mouse button and drag the mouse to move the object to the new position. For buttons and text objects, the object can be resized by dragging the corners of the rectangle of the object. Clicking anywhere outside the window places the object in its current position, and deselects the object.

To Edit an Object: When an object has been selected by clicking once on it, it can then be cut, copied, or deleted with the appropriate option in the Edit menu.

If you want to edit particular attributes of the object, such as the name and appearance of a particular button, etc., you can select it with the edit tool, and then choose Item Info in the Objects menu, and make related choices from there.

Picture Tool: Choosing this icon will activate the tool that will let you edit all the graphic objects on the current card. You can use the picture tool to click once on a particular graphic item to select it for resizing, dragging to a new position, or a cut, copy, or delete action.

If you select the Item Info dialog box for the graphic (see the description of Item Info in the Objects menu), you can change the border type using the same dialog boxes and controls as were used when the graphic item was first added to the card.

Sound Tool: This icon shows a speaker, and is used to highlight all those invisible buttons on the current card that have a sound attached to them.

After all the invisible buttons with sounds have been highlighted, clicking once on any of them selects that button for dragging, or cut, copy or delete actions. Choosing the Item Info dialog box for a button (see the description of Item Info in the Objects menu), lets you can view and edit the button name and appearance.

Text Tool: Choose this to display all text items on the current card. Use the Text tool to click on a particular item to select it for resizing, dragging, or a cut, copy, or delete action.

If you want to edit the text in a text item, use the browse tool, and click on the item. When using the Text tool, you can choose Item Info in the Objects menu if you want to make changes to the overall appearance of the text item, or change whether it is a fixed or changeable text block. Note that disk-based (extended) text objects are always read-only.

Paint Tools

The remaining tools in the Tools menu are used for editing the background graphic image. Although the images in graphic *objects* cannot be edited directly, you can load any 640-mode Super Hi-Res screen as a background, edit it with the paint tools, and then save the screen. These saved images can then be used as either a background or a graphic item.

The paint tools are as follows:

Selector Tool: This is used to select a rectangular area on the screen to be cut, copied, or moved by dragging. When the selector tool is active, the cursor changes to a cross-hair. An area is selected by pressing the mouse button, and then dragging the mouse with the button held down. As you move the mouse, a rectangle will indicate the area to be selected. When you release the mouse button, a blinking dotted line shows the selected area. You can then choose Cut or Copy from the Edit menu. Cut and Copy each put the graphic image on the clipboard, after which it can be pasted on the current card, or any other card in the stack. If Cut is used, the selected area is replaced by whatever color is under the upper-left corner of the rectangle.

If you want to move the selected area, simply move the mouse inside the rectangle. The cursor will change to an arrow. Then hold down the mouse button while you drag the mouse. When you release the mouse button, the image will be placed at that location. The area underneath the moved rectangle is replaced by whatever color is under the upper-left corner of the rectangle.

If you change your mind about the area you have selected, clicking the mouse once outside the selected area removes the selection box. You can also click inside the selected area to deselect it, but you must be careful not to move the mouse as you click the button, otherwise the region may be moved as well.

Lasso: This is similar to the Selector tool, but is used to outline an image on a solid-colored background. After selecting the lasso tool, you draw a free-hand line around the object to be selected. When you release the mouse button, the color under the cursor when you started the lasso is used as the background color, and only parts of the image different from that background are selected with an outline.

Once selected, the item can be Cut, Copied, or moved, just as you would with the Selector tool.

Pencil: The pencil is a fine-line drawing tool that draws a free-hand line in whatever the currently selected color is. The current color is chosen from the Colors menu. With this and the other drawing tools, if you change your mind after drawing a line, just choose Undo in the Edit menu. You can only undo the very last drawing action.

Paintbrush: This tool is like the pencil, but it can draw a variety of line widths. The brush can also have different shapes, which can be used to produce different effects.

The brush shape is chosen with the Brush Shapes item in the Options menu. The current brush color is set using the Colors menu.

Eraser: This is a handy way to erase an area of the screen. It is really equivalent to drawing with a rectangular brush using the color currently set by the Set Background Color option in the Options menu.

Line Tool: This is used to draw straight lines in the current color. Lines are drawn by just pressing the mouse button at the point where you want the line to begin, dragging the mouse to draw the line, and then releasing the mouse button where you want the line to end. Notice that while the mouse button is down, you can reposition the end of the line anywhere you want until the mouse button is released.

The width of the lines being drawn can be changed using the Line Size function in the Options menu.

Spraypaint Brush: This tool paints a scattered pattern of dots in the current color. By moving the pattern over an existing image, you can create variations in shades, or just add interest to the overall pattern.

Rectangle: This draws a rectangle in the current color, with a border of the current line width. Press the mouse button to start drawing, and release the button when the rectangle is the desired size.

You can also draw a solid rectangle by choosing the Draw Filled item in the Options menu. When this is active, there is a checkmark next to the menu item, and the rectangle tool will draw solid rectangles in the current color.

Rounded Rectangle: This is identical to the rectangle tool, except that the rectangle drawn has rounded corners. As with the rectangle tool, the shape is drawn using the current color and line width. If Draw Filled is active, a solid shape is drawn.

Fill: The tool icon for this represents a paint can pouring paint. This is used to fill an enclosed region with a solid color. The active part of the fill-cursor is the very tip of the black area on the cursor that represents the paint pouring out. The fill also uses the current color. The main thing to be careful of when using the fill tool is to make sure that there are no "leaks" in the area you are about to fill. However, in the event the fill does cover a larger area than you intended, you can choose Undo to restore the original image.

Oval: This is similar to the rectangle tool, except that it draws an oval shape in the current color and line width. When you first press the mouse button, that point represents the upper left corner of an imaginary rectangle that contains the oval being drawn. The point at which you release the mouse button represents the lower right corner. If you want a solid oval, use the Draw Filled item in the Options menu.

Freehand Shape: This tool draws a closed free-hand shape using the current color and line width. When you release the mouse button, a final line will be drawn from the end point to the starting point, if you have not already closed the curve. If you want a solid shape, use the Draw Filled item in the Options menu.

Text: This is used to add text to the background image. *This is not the same as adding a text item!* A text item is an independent object that can be moved and edited at any time. The *painting* text tool, on the other hand, simply prints the text you type on the screen, at which point it becomes part of the background.

When you choose the text tool, the cursor changes to an I-shaped cursor. To type text, position the cursor where you want to start typing at, and click the mouse once. The positioning cursor will then disappear, and you'll see an insertion-cursor at the point where you are typing.

The color of the text is controlled by the choice set in the Set Text Color function in the Options menu. This will generally look best if the color is simply black or white, but will also depend on the background color as well. While you are typing, you can use the Text Style item in the Options menu to change the type style of the text that is being entered. However, once you click the mouse in a new location, or choose another paint tool, the text will be merged into the background image, and can no longer be changed. **Note:** When typing text on a background that is neither black nor white, larger text sizes (see the Text Styles... choice in the Options menu) will produce better results.

Magnifying Glass: This is a special mode for magnifying the image within a given area on the background, and allows you to edit the screen dots pixel-by-pixel. This is also sometimes called either a "fatbits" or "zoom" mode.

When you first select this item, a rectangle will appear on the screen that represents the area to be magnified. Use the mouse to position the rectangle over the area you want to examine, and then click the mouse button. You will then see a magnified image, with a normal view of the same area in the upper left corner of the screen. The paint tool at that point is the pencil, and you can re-draw any point you wish in the current color.

You can use the Colors menu to change colors. You can also "pick up" a color from the current magnified view by holding down the Apple key, and clicking on the new color. While you are in the magnified mode, if you want to scroll the screen, you can hold down the Option key. The cursor will change to a hand, and dragging the mouse will move the magnified image in the same direction as the mouse movement.

Using any other paint tool, or clicking the mouse in the normal view window will exit the magnified mode, and return you to a normal view.

If you have used the magnified mode once already, then selecting it again will automatically start the selecting rectangle at the old position, although you can still move it to a new position with the mouse if you wish.

Polygon: This functions lets you draw a closed polygon shape, using the current color and line width. When you release the mouse button, it will complete the shape by drawing a final line from the end point to the starting point, if necessary. If you want a solid shape, use the Draw Filled item in the Options menu.

Objects Menu

This menu is used to add and edit objects on a given card. It also provides information about the memory used by the current background, card, stack, and a given object.

Item Info: To use this, first select an object on the current card, using either a specific tool (like the buttons, text, or graphic tool), or the edit tool (the pointer). Then choose Item Info from the Objects menu. Depending on the actual item you have selected, the information reported will be:

Button Info: This reports the name of the button. Even invisible buttons can be given names. Whatever text is entered on the edit-line when the button is created is used for the button name. Names are not only used for visible buttons, but are written out to the disk as part of the HS.Test.Results file for both visible and invisible buttons, if the given stack is a test function stack. The dialog box also provides an easy way of changing the button style.

There is also an entry for "Button ID". The value for Button ID is a number used by HyperStudio to keep track of all the buttons in a given stack. It is provided for reference only, and it is unlikely that you will ever need to use it.

Buttons actions cannot be directly edited (since redefining the actions would take just as long as creating a new one); to change a button action, use the Button tool to select and delete a button. Then create a new button to do what you want.

Text Info: This dialog box tells you whether a text field is scrollable or not, whether a scroll bar will be drawn for the text item, whether the text is read-only (not changeable by the user), and whether a frame will be drawn around the text item. Which features you use will depend on the nature of a given text item. For example, if you were creating single-line entries, such as an address book, etc., you would want each field to be non-scrolling, without scroll bars or a frame.

Graphics Info: This reports whether a given graphic item is embedded or disk-based, how much memory it uses, and lets you change the border size.

Card Info: When this is chosen, a dialog box appears that identifies the position of the current card in the stack, how many buttons, sounds and graphics are on that card, and how much memory is used by that card. The memory-required value is to the nearest 1K, and may read "0" if the card uses less than 1000 bytes of memory.

Background Info: This displays a dialog box that shows how much memory within the stack the current background uses, and how many cards in the stack use that background. Note that backgrounds are always contained within the stack itself. When the background is stored in the stack, it is compressed to minimize the amount of memory required.

Also, when a new stack is created, the background memory use will read 32K until the next card is created, or the stack is saved. Once compressed, Background Info will display the correct value.

Stack Info: This displays a dialog box that provides information about the entire stack. Information shown includes the size of the stack itself in memory, how many backgrounds are used by the stack, how many cards are in the stack, and other useful facts.

Bring Forward: Use this when two objects overlap, and you want the selected item to be on "top". Not all objects can be arbitrarily stacked. For example, text items are always "in front" of graphic items. Items of the same type can be adjusted relative to one another.

Send Behind: Use this when two objects overlap, and you want the selected item to be on "the bottom".

Adding Objects to a Card

Add a Button: Choosing this menu item tells HyperStudio that you want to add a new button to the current card. When chosen, you'll be shown a dialog box that lets you choose from among different button designs. At the bottom of the dialog box is a line with a blinking cursor. This is where you can enter any text that you want displayed within a visible button when it is displayed on the screen. If you don't want any text on the button, just leave this field blank. After you have chosen the button style you want, click on OK.

The first time that you add a button, HyperStudio will remind you to position the button, and then click outside the button when done. Click on "Continue" after reading this dialog box. You can use the mouse to drag the button to whatever location on the card you wish. When you have placed the button where you want it, click anywhere outside of the button to "drop" it at the current position.

If you have selected the "Invisible" button, you'll get a dotted line rectangle indicating the "hot area" for that button. Use the mouse to position the rectangle over whatever portion of the screen you want to act as a button. You might, for example, put a rectangle over a picture of an arrow to use as a button. When positioned, click anywhere outside of the rectangle. You can resize the button area by dragging any of the corners.

Button Actions: When you have positioned either the standard or invisible buttons, the next step is to specify what action you want taken when the button is activated. A dialog box will appear that has two major groups:

Connect To... This allows you to specify where to branch to when the button is activated. The choices are:

• **Another Card:** Choosing this will connect the button to another card in the stack. When you select this, you'll be temporarily returned to the current card, and a window will be displayed that says "Move to the card that is the target of this button. Click OK when the proper card is displayed. You can now use any of the usual HyperStudio Move menu commands, (or even existing buttons on a card), to move to another card in the stack. When you find the card you want the button to connect to, just click the OK button. You cannot connect to a card in another stack. Use Connect to Another Stack for that.

• **Next Card:** This will automatically link the button on the current card to the next card in the stack. Note that this connection is specifically to the next card. That is, if at some point in the future you delete the target of this button, this button will not go to the new "next card", but will be unresolved since its actual target card is gone.

• **Previous Card:** This is similar to Next Card, but instead creates a link to whatever card is currently in front of the current card.

• **Another Stack:** You can also connect a button to an entirely different stack. When you choose this item, you'll be presented with the File Interface, with which you can specify the stack that you want to move to when that button is activated. There is no particular limitation on the destination stack. That is, you can specify stacks in other directories, or even on other disks. If the required disk or directory cannot be found when the button is pressed, the user will be prompted to locate the required files.

Note: HyperStudio always looks first in the current directory for a given stack, graphic, sound, application, or any disk-based item. Thus, you cannot connect to another stack in a different directory if a stack with the same name exists in the same directory as the active stack. Also, if you have a stack or application in one folder, and then move it, the connection will no longer work because the target has moved. One way around this is to put the target stack or application in the same folder as the branching stack. Then the connection will always work, no matter where the total group of stacks and applications is located.

• **Connect to Application:** A button can also start an application. For example, you could have a button start up AppleWorks, or any other application. When that application quits, it will automatically return to HyperStudio. The application to be run is selected with the File Interface. After you have selected the application, a dialog box will appear that asks whether you want to return to the current card, the first card in the current stack, or the Home Card when the application finishes. You can also elect to not return to HyperStudio at all, but rather whatever program selector was used to launch HyperStudio, for example, the Finder.

Transitions: In each of the Connect To... actions, you also have the choice of a visual effect, called a *transition*. A transition is a special screen effect that makes the movement from one card to another more visually interesting. After choosing one of the above items, you also can choose one of 16 transition effects. The fastest transition is the default one, labeled, coincidentally enough, "Fastest". Other effective transitions are the fade-to-white and fade-to-black. In

addition, there are what are called *screen wipes*, which change one screen into another with an interesting effect. The best way to understand what these do is to experiment with them.

Actions... When a button is pressed, there are actions other than (or in addition to) branching to another card, stack or application, that are possible. These choices are also indicated:

• **Play Sound:** You can have a sound play when a button is pressed. If you choose this action, you will be asked whether you want to use an existing sound file on disk, or use the "live record" mode.

Adding a Sound from Disk: If you choose to use an existing sound file, then you'll be shown the usual File Interface, from where you can choose a sound file.

Once you have selected the sound file to use, HyperStudio brings up a screen with a picture of a tape recorder. There are also controls for playing the sound, and setting the playback volume level.

At this point you would click on the Play button to verify that this is the sound you want to add, and that the volume is satisfactory for your application. In the Preferences dialog box (Apple menu), the user can set their own volume level, but this will help set the volume of the current sound sample in relation to the others.

Once the sound is played the way you want it, simply click on the Done button. If you have the Preferences set to Advanced User, you'll then be asked about the data access method. Otherwise, you'll just go back to the normal HyperStudio program operation.

Note: If you have sound files from other systems, you should first load them in the Sound Shop program, and then save them back to disk in the Sound Shop format. This is because most sound files from other companies do not contain any information about the playback rate and volume setting, and more importantly don't have a "signature" that clearly identifies what system they were created on. Without these values, it is unlikely the file can be played directly by HyperStudio with the desired volume and playback rates. The solution is to first load the sound file in Sound Shop, and to then save the file back to the disk. Sound Shop uses an "official" Apple filetype, and includes the information about the playback rate, volume, etc. in the sound file. These values, in turn, are automatically used by HyperStudio when using the sound file in a stack.

• **Play a Video:** A button-press can also trigger the appearance of a video sequence generated by a Pioneer 2200, 4200 or 8000 LaserDisc player attached to the Apple IIGS. This does not control VCR players, or other video sources (see the Live Video demo in the Xcmds folder if you have an Apple II Video Overlay Card (VOC), and want to experiment with video in HyperStudio).

The Pioneer 4200 is attached to the Apple IIGS modem port, using a simple modem cable with the proper connectors on each end. You must make sure your "Slots" setting in the Control Panel has Slot 2 set to "Modem", and the "Modem" setting is set to 4800 baud.

When you select this, you'll first be asked if you want to show video in the screen border. This is only available with the VOC, and is used if you want the video image to completely fill the monitor. After making your selection, a LaserDisc Control box will appear on the screen. If you have the VOC, a rectangle will also appear in the center of the screen. This represents the area where the video image from your video will be displayed on the screen.

If you have the VOC, HyperStudio will then display a rectangle, with handles, that can be re-sized and positioned as you wish. This rectangle determines exactly what portion of your video image will be displayed on the card. Changing the size of the rectangle does not shrink the entire video image into the new rectangle. Rather, this is just a "window" onto the video image produced by the videodisc player.

If you don't have the VOC, you can still use HyperStudio to bring up a given image or se-quence in connection with any particular card. If there isn't a VOC in the computer, HyperStu-dio will display the remote-control box on the screen, but will not put a rectangle on the screen. In this case you would use a second TV or monitor to display the output from the videodisc player.

A video sequence is defined by specifying the beginning and end frame numbers of the video to be shown when the current card is displayed. The radio button starts on the "Begin" setting. Click on the Play or Step buttons to find the beginning of the sequence you want to use. If the disk is Playing, clicking on Step or Pause will stop the disk on that frame, and update the frame number register with the current frame number. You can also press the Clear key on the Apple keyboard, and enter a new frame number. The player will then jump to that frame. To set the ending frame, click on the "End" radio button, and then click on Play to let a few seconds of video roll by. If you want to show only a single frame, just set the End frame # the same as the beginning. Frame numbers can be entered manually, and you can use the TAB key to switch between the Begin and End frame boxes. When you enter a number in a box, the radio button will automatically move to that box.

You can test your video by pressing the Test button. When you get the sequence you want, just click on the Keep button.

That's it! Now, whenever this button is pressed, the video sequence will be shown. A video sequence is only played once when the button is pressed. If you want a video sequence to repeat at regular intervals, or after a set time period, see the discussion on setting the time period for an "Auto-activate" button, which is described later in this manual.

A video sequence can also be attached to a given card, so that the video sequence is shown as soon as the user moves to that card. See the Add a Video section later in this manual.

Other LaserDisc Control Features:

While you are defining the video sequence, there are a number of features in the LaserDisc Control box that you should be aware of:

Play: You can play either forward or backward by clicking on the arrow buttons to either side of the word "Play". If the End frame number is less than the beginning frame number when you finally choose "Keep", then the sequence will be played backward.

Sound: By clicking on the button normally marked "Stereo", you can switch the sound off ("silent"), or select either the left or right audio channels. Sound is not available at playback speeds other than Normal.

Playback Speed: By clicking on the buttons to the left and right of the word "Norm", you can change the speed at which the video is playing. Faster speeds available include 2x and 4x. Slower speeds include half-speed down to 1/16 speed, and two special "slide show" modes of one frame every 1 or 2 seconds. The speed used when the video sequence is seen by the user will be whatever the speed value is when you finally click on "Keep". Thus, you can can use the faster speed settings when finding the frames you want. Just remember to set it back to "Norm" before clicking on "Keep" - that is, unless you deliberately want a different speed in the playback.

Chapter Mode: If you click on the buttons marked "Fm", to the right of the frame number indicators, the button will change to "Ch" (for "Chapter"), and the number display will show what chapter that frame number is found in. If you click on the frame box while in the chapter mode, the LaserDisc will seek to the beginning of that chapter.

Display: If you are in the full-screen mode, and have an active show-through area in the upper-left corner of the screen, then the current frame number will be displayed. Clicking on the Display button toggles the display between on and off.

Step: Clicking on either side of the word "Step" will move one frame forward or backward.

Start/Reject: If the LaserDisc player is not fully started when you bring up the LaserDisc Control, then the button in the upper-left corner of the box will read "Start". Click on this to start the player if the other controls in the box are net yet visible. Once the player starts, this button changes to "Reject", and will eject the disk if pressed.

Creating a Full-Screen Video

In normal use, the video image (with the Apple II Video Overlay Card) will only show through the region defined by the video rectangle used when Adding a Card Video. However, the Video Overlay Card works by defining a color as the "key-color", or "show-through color" on

the screen. Before a video is added to a card, the key color is purple. The purple hue on the screen changes to a pure blue once a video object has been added to a card.

There are two degrees of "full-screen" on the Apple IIGS. The first is the active screen area, excluding the border area. The larger full-screen includes the monitor border area as well. You can design a card to use either method.

If you want to create a video image that fills the entire background of a card, you can do this by painting the entire card background with the proper show-through color. The color to choose for filling the background will either be purple or blue, depending on whether a video has already been added to a given card, but its position in the color table will always be the same: color #6.   That is, in the "Colors" menu, choose the second color from the left in the second row from the top. If you are using the "Set Background Color" menu option (Options menu), use the 6th color choice from the left.

When your video image is displayed, the video will be seen across the entire screen, regardless of the actual video rectangle. In most cases, you'll find it easier to just make the video rectangle as small as you can, and then move the video rectangle to some out-of-the-way spot on the screen (but still over an active video show-through area).

If you want the video image to fill the screen border area as well, then click on "Yes" when first adding a video, when you see the dialog box asking if you want to show the video in the screen border area. The only real difference between these is that HyperStudio changes the GS border color to the "key-color". This will allow the video image to go to the absolute edge of the monitor screen.

The advantage of using the background graphic itself (as opposed to the video rectangle) for the video show-through area is that it is easy to re-paint a rectangle or other area if you want to change the image area. In addition, you can use the Add clip-art, or other paint tools, to overlay labels, arrows, or icon-buttons onto your video image. You should also try drawing some rectangles, with "draw filled" checked in the Options menu, in various colors. You'll notice that colors range from completely transparent (blue) to completely opaque (black, white, grey, and shades of red), and others are in-between. This can create very neat effects that show a dimmed image of a larger video image, with a certain part "highlighted" by being 100% transparent, and thus brightest.

The real key here is to just experiment. You can't hurt anything, and you're likely to discover many useful techniques in the process. Also remember to experiment with using the paint tools to create small windows with video showing through. We've found that although the video rectangle is the easiet to explain and use for beginning users, in the long run, using the paint tools will give the most flexible results.

• **Trigger Xcmds:** This is an advanced feature of HyperStudio that is available to those people who want to extend the functions of HyperStudio beyond the built-in features.

When you choose this option, a dialog box appears that prompts you for the text which will be passed to an Xcmd. What you enter, if anything, depends entirely on the Xcmd being called.

Here's an overview of the Xcmd system:

When any given stack is opened in HyperStudio, the same directory that the stack was in is checked for a file named HS.Xcmd. If found, that file is also loaded into memory. Then, whenever the user clicks on a button that has been given an Xcmd function, HyperStudio passes control to the file (HS.Xcmd) that was loaded, and passes it the text that was entered for that button as well.

Examples of Xcmds are included on the HS.Demo and HS.Art disks. For example, although HyperStudio has a menu choice for finding text in a stack, suppose you wanted to create a button which, when pressed, would jump to a card that had a pre-defined phrase of text on it. The demo "Find.Demo" in the Xcmds folder on the HS.Demo disk (click on Find Demo in the Home Card) shows how this might work. You could put this function in your own stacks by moving the file HS.Xcmd from the Find folder on the HS.Demo disk to whatever folder had your own stack in it. To define the Find Xcmd button in your own stack, you would then just create a new button, and choose Trigger Xcmd as the Action. You would then enter the text to be searched for whenever that button was pressed.

Another example on the HS.Art disk is an Xcmd for displaying a single full-screen 320-mode picture in a stack. See the demo Test.320.Stack in the Test.320 folder on the HS.Art disk. In this Xcmd, you simply enter a number when creating the button that tells HyperStudio how many 10ths of a second to pause between each picture in a slide show. Entering a value of 10 would pause 1 second. To show a single 320-mode graphic, you simply put the HS.Xcmd file from the Test.320 folder in the same folder as your stack, and then put a single 320 mode picture in the directory with it. See the Test.320.Stack for more information.

The HS.Demo disk has assembly language source files for those interested in pursuing this area further. Xcmds can also be written in other languages like Pascal, so long as the language can create stand-along OMF load modules (such as NDAs) on the Apple IIGS.

• **Animate:** This is actually somewhat similar to Adding a Graphic (see later). The difference here is that you can attach the appearance of a graphic, and its animation, to a button-press. Choosing the Animate action will take you through a sequence which is the same as though you were adding a graphic.

Some (but not all) graphic programs offer animation functions. Paintworks Gold and BeaglePaint support an animation format where many different frames can be combined into one file to make up an animated image. The animation is created with a series of Super Hi-Res

pictures, with filenames that are numbered. An animation sequence for a bouncing ball might consist of the files BALL01, BALL02, BALL03, etc.

When you choose Animate from the actions menu, you go through a process similar to adding a graphic object. The choice of disk files will include not only the usual graphics, but also animation files (type $C2) from PaintWorks Gold. If you choose a filename that ends with a number, the disk is checked for additional files that continue the sequence. For example, if you used the file BIRD1 as a graphic item, HyperStudio would automatically look for the files BIRD2, BIRD3, etc., until it ran out of files.

After choosing a file, a window will open that shows the first frame of the animation. Only the part of the graphic visible in the window you create is displayed during the animation sequence, and if anything in your animation moves outside this area, then it will not be visible. Clicking outside the rectangle drops the graphic in place, and you'll be returned to the button action dialog box. If the graphic you have specified is part of a numbered series of frames, HyperStudio will generate the animation before returning to the Actions dialog box.

In the Actions dialog box, you should enter a Rate and Repeat Count. The Rate is counted in 60ths of a second, and controls how fast the animation runs. Thus, a value of 30 would be two frames per second. The Repeat value controls how many times the sequence repeats itself.

When an animation plays, it may clear an area slightly larger than the actual rectangle you defined. This has to do with limitations in the method used by PaintWorks Gold.

Test Functions

On any card, buttons can be either "No test function" (the default), "Correct Answer", or "Alternate Answer". Normally, when you are creating buttons to go to other cards, etc., the setting is "No test function". Buttons created this way are neutral, and have no effect on the test status of a stack or card.

If you elect to make any button in a stack either "Correct Answer" or "Alternate Answer", that stack is now considered a "Test stack". When a stack is quit, either by quitting HyperStudio, launching another application, or branching to another stack, HyperStudio writes to a text file on the disk, in the same directory as the stack, named HS.Test.Results. The information written includes the stack name, the time and date, a list of which buttons were chosen on each card in the stack, and a final "score" for that stack. Information is written to the HS.Test.Results file on a cumulative basis, so this one file contains the results of all stacks in that directory that are used until the file HS.Test.Results is deleted. The HS.Test.Results file is not written to if there are no test function buttons in a given stack.

The results for a given stack are calculated as follows:

When the stack is terminated, and the HS.Test.Results file is written, HyperStudio scans the entire stack to see what buttons were pressed as the stack was being used. For each card, it writes out the card ID#, and which button on a card was the last one clicked on. If no button on that card was clicked on, or if the button clicked on was a "No test function" button, then no entry is written for that card.

If the last button clicked on a given card was defined as either "Correct Answer" or "Alternate Answer", then HyperStudio will record the button name as the chosen button for that card. The final score will be the number of "Correct Answer" buttons chosen (maximum one per card) compared to the number of total cards with test function buttons on them.

There can be as many Correct Answer, Alternate Answer, or No Test Function buttons on a given card as you want; only the last button clicked on is used in recording the results.

This actually is a fairly simple and straight-forward system, but you may want to experiment with different kinds of stacks and button combinations to see what works best for you. Different possible setups include:

• A simple multiple-choice test stack, where each card is one question. Each possible answer button moves you to the next card. Correct Answer buttons are defined as appropriate; Alternate answer buttons are used for the others.

• A variation on this is to include forward and backward arrow buttons on each card, defined as No Test Function. Clicking these will not affect the "last button clicked" status on any given card. That is, you could click on a choice (perhaps that responded with a voice confirmation), and then click on the forward button. HyperStudio would still record the button chosen, and would ignore the forward button.

• A timed test, where each screen also includes an auto-activate button that moves to the next card after 10, 20 or 30 seconds (or whatever). The user would have to choose one of the possible answer buttons in the allotted time period. The final HS.Test.Results file would record which button on each card had been chosen.

To use the test results, you should load the HS.Test.Results file into a word processor. It is also possible to write simple Applesoft programs that will read the file, and organize the data, but this is a custom application that depends on your own time and interests. You could also specify the file HS.Test.Results as the source of a text item in another stack, using the extended data access method.

The test functions can be used not only for the classic sort of tests, but also for user profiles as well. Imagine a stack that begins with a picture of three bowls of ice cream. Each of the bowls is set up as an invisible button, each named "chocolate", "vanilla", and "strawberry". At

the end of the stack, the HS.Test.Results file will create a file that tells you which button they selected. In this case the "Correct" or "Alternate" answer attribute for a button doesn't matter (although it must be one or the other). What you're getting is the information about which item they chose on a screen. If 100 people were to use this card in a stack, then the HS.Test.Results file would contain a survey of 100 people, and a study of the percentage of what flavor ice cream was preferred.

Auto-Activate Buttons

Normally, a button has to be clicked on by the user to be activated. Suppose, however, that you wanted a sound to play immediately when a card was displayed. How could you do this?

The answer is with auto-activate buttons. An auto-activated button "presses itself" after a set number of seconds after a card is displayed. The button can also be set to continuously cycle in the time period set. To set up an auto-activate button, just check the auto-activate box, and enter a time (in seconds) after which the button should activate. If you want the button to repeat its action, check the repeat box also.

Another use for Auto-activate buttons is to prompt the user if they don't click on something on the screen in a certain amount of time. This could be a help card, or it could also be used to create timed tests.

Auto-activate buttons are not active (at least not self-timed) until you turn on the Auto-activate function in the Preferences dialog box, *and* you are in the browse mode. This is so that you don't have to worry about auto-activate buttons going off while you're trying to edit other parts of a card. Auto-activate buttons are automatically turned off when you select a paint or editing tool, and are not turned back on until you select the browse tool and move to another card, or turn on Auto-activate in the Preferences menu.

Adding Other Objects, Continued...

Add a Graphic: This menu item is used to add a graphic object to the current card. When you choose this, you will be presented with the File Interface for choosing the graphics file you want to use. Once the graphic has been selected, and if this is the first graphic you have added since starting up HyperStudio, you'll get a dialog box explaining that the next step is to size the graphic to the size you want, and to position it on the card.

Remember when adding a graphic to a card that the graphic retains its own identity as an object on the card. This is in contrast to just adding a portion of a graphic screen as clip art. This feature is best used when you have many cards with an identical background. If you are just adding some graphics to a card, it is better to use the Add Clip-Art function in the File menu.

After you have chosen a file on the disk, a rectangle is displayed that shows a portion of the graphic screen you selected. You now have to decide how much of the image you want displayed on the card, and where you want the graphic located. By putting the mouse anywhere *inside* the rectangle, holding the mouse button down, and then dragging the mouse, you can move different parts of your graphic image into view. If you want to re-size the rectangle, use the mouse to grab any of the handles on the sides or corners. Dragging any part of the frame that is not a handle will move the entire rectangle to a new position. Remember that the window "frame" is only shown so that you can size the window, and scroll the image area. Once positioned on the card, the window frame is not shown unless you edit the graphic again.

When the graphic has been positioned and sized, click anywhere outside of the box to indicate you are done positioning the graphic. You'll then be shown a choice of borders that you can use for the graphic. If your graphic is a picture that is very different from the background, you'll probably want to use a border. On the other hand, if you want the graphic to look like it is a part of the card, and presuming that the background in the graphic is the same color as the background on the card, then you can use "No Border".

Unless you have the Preferences option set to Advanced User, you're now done, and you can go on to your next operation in HyperStudio. If you have set the Advanced User option, you'll then be asked to set the data access method. See the section on the Advanced User option for a detailed discussion of the choices.

Add a Text Item: If this is the first text item you have added since starting up HyperStudio, you'll get a dialog box explaining that the next step is to size the text box to the size you want, and to position it on the card. Successive text file selections proceed the same; they just aren't preceded with this "help" box. After clicking on "continue", a rectangle is displayed that shows where the text rectangle will be placed on the screen. You can resize and reposition this rectangle, just as you would an invisible button. Drag the center of the rectangle to reposition it; drag the corners to resize.

When the text item has been positioned and sized, click anywhere outside of the rectangle to indicate you are done positioning the rectangle. You'll then be shown a dialog box that gives you the options of using scroll bars, a rectangle around the box, and whether the text item will be changeable by the user or not. You can select any of these attributes as needed.

You also need to decide if you want to use text from a file already on disk, or if you want to enter text directly.

• **Using a Disk Text File:** If you choose to use a file from disk, you'll be presented with the File Interface for choosing the ASCII text file or AppleWorks 2.1 word processor file you want to use. The text file will then be loaded, and the text will appear in the rectangle.

Remember when adding a text item to a card that, like the graphic item, it retains its own identity as an object on the card.

After you have chosen a file on the disk, if you want to resize, reposition, or change the attributes of the text box, you can use the text tool in the Tools menu, select the text item, and then choose Item Info from the Objects menu.

Unless you have the Preferences option set to Advanced User, you're now done, and you can go on to your next operation in HyperStudio. If you are using the Advanced User Options, you'll be able to decide whether to imbed the text in the stack, or to use the extended (disk-based) data type. See the section on the Advanced User option for a detailed discussion of the choices.

• **Entering Text Directly:** After choosing "Add a Text Item" from the Objects menu, if you then choose to enter the text, you'll go immediately to the text box on the screen, where you'll be able to enter text directly. Text is entered in the Browse Mode, so you can go on to another activity at any time. There is no particular action required to end entering text.

As with text items created from a disk file, you can always use Item Info in the Objects menu to resize, reposition, or change the attributes of your text item. Text in the text objects is always in the Shaston 8 typestyle. If you want to put text on a card in other sizes and styles, such as for titles, etc., you can use the text paint tool (Tools menu).

Add a Video: In this menu item, the procedure is identical to that for adding a video sequence to a button. The only difference is that the video will be added to the card itself, and will be played when the user first moves to that card. See the description of playing a video on a button-press for additional details.

Colors Menu

This menu is used to set the current color for the paint tools. HyperStudio uses 16 standard "dithered" colors in the 640 Super Hi-Res mode of the Apple IIGS, plus 16 additional pattern-type colors, for a total of 32 usable colors. You can load pictures created with other paint programs that have custom palettes, but you must use some care in using these graphics on a card. The main problem is that the custom palette may interfere with the appearance of the menu bar, or other buttons or graphics on the screen. Full-screen backgrounds with no menu bar, and invisible buttons, generally work best for custom-palette graphics.

You can also use the Add Clip-Art function to set the current card to a custom palette. Just choose Add Clip-Art in the File menu, and load a graphic that has a palette you would like to use. Now, clip a small part of the graphic, and paste it onto your current card background. This will change the palettte on that. If you want, you can then cut the bit of graphic back out of your card if you don't want to use the image itself. The HS.Art disk includes several files, including Colors.Greys and Colors.Earth that can be used in this way to set the palette for any given card using the Add Clip-Art technique.

Options Menu

This is used to control the operation of other functions in HyperStudio, in particular the paint tools.

Line Size: This sets the width of the line to be used by the straight line, rectangle, rounded rectangle, oval, and polygon tools. When you choose this item, you'll get a dialog box that shows a number of different line sizes. Click on the one you want to select a given size.

Brush Shape: This chooses the brush shape to be used by the paint brush tool. When you choose this item, you'll get a dialog box that shows the different brush shapes available. Click on the one you want to select.

Draw Filled: Choosing this item places or removes a checkmark that indicates whether the shapes drawn with the rectangle, rounded rectangle, oval, irregular region and polygon tools will be filled with the current color or not. A checkmark indicates that these shapes will be drawn as a solid shape.

Text Style: When either using the painting text tool, or editing a text object, this menu item selects the current font, size, and style of the text being used. The fonts available will depend on what fonts you have in the Fonts folder on your startup disk. This does not have any effect on the text in a text object. Text objects are always in Shaston 8.

Set Text Color: This is used to set the color used when you type text with the text tool in the Tools menu. This does not have any effect on the text in a text object.

Set Background Color: This is used to set the background color used when you erase a background, or use the eraser tool in the Tools menu.

Hide Items: Ordinarily, any particular card would have not only the background visible, but also any graphics, text items, buttons, etc. This option lets you hide items, in case you want to use the paint tools on the background without objects in the way.

Hide Menu: This is used to hide the menu bar on a given card. If the menu bar is hidden when you move off a card by using a button, then the menu bar will also be hidden when the user views that card. This allows you to create stacks without a menu bar. Press Apple-M to restore the menu bar.

Apple Menu

The Apple menu has an "About..." box that tells you the version number of HyperStudio. However, the most important function in this menu is the Preferences choice.

Preferences

The preferences settings are saved in each individual stack, and may vary between stacks. The stack must be saved back to the disk after changing preferences if you want the changes to be in effect the next time the stack is used. Preferences lets you control many aspects of a stack's operation:

Password: This is to keep users from changing the preferences in a stack you have created. The main thing protected by the password is access to the "Lock Stack" setting (see below). If the password field is blank, then all the options are available when Preferences is chosen. However, if you enter a password and exit the Preferences dialog, and then save the stack, this password will be required the next time the Preferences dialog is opened. You'll also notice that pressing Return is not required when entering the password. When the last letter of the correct password is typed, the dialog box options will instantly become active.

Advanced User: This is used to tell HyperStudio that you would like more control over how the data for objects on each card will be stored and accessed. Normally, HyperStudio embeds the data for each object that you add right into the stack that you are creating, without asking you how you want the data accessed. This is less confusing to a new user, and creates fast and easily transportable stacks. However, if you have set the preference to Advanced User, you'll then be given some options about how you want the data for objects to be accessed by Hyper-Studio.

From then on (or until you change the Advanced User Option to "off"), whenever you add a graphic, text object, or sound, at the end of the process you'll see a dialog box asking you to "Select the Data Access Method for this Item:"

The two choices are "Embedded (In the stack)", or "Disk Based". Here's what these choices refer to:

• **Embedded Data:** When you add a graphic, sound, or text item to a card, the default is to actually store the data for that item within the stack itself. This is both convenient and gives faster movement between cards in your stack. The other advantage of this method is that your stack is very transportable. That is, since everything that makes up that stack is within the file itself, moving the stack from disk to disk is as simple as copying a single file. This type of object is also called an *embedded data* object.

However, suppose you wanted to create a stack that used literally hundreds of graphics, text, and sound items. Even with megabytes of memory, you would soon want to have more data in

your stack than could actually fit in the computer's memory all at once. It is also possible that at some point in the future, you may want to access data, such as that on a compact disk or laser videodisk, that *cannot* be physically imbedded in your stack.

• **Disk Based Data:** In all of these cases, HyperStudio provides an alternative way of accessing text, graphic, and sound items. The second choice, Disk Based access, gives you the option of leaving the graphic (or other) file in its current location, and having HyperStudio go back to that location whenever it needs the graphic. This is called an *extended data* object. Although this gives a slower transition time between cards, it significantly increases the overall size of the stack that you can create, and the data it can access.

The second advantage of the extended data type is that other users of the system can update the data displayed on a card *independently* of HyperStudio. For example, you might have a drawing on a card as a graphic item that showed the fire exits to new employees. If for some reason the fire exits were changed, by updating a single document - the graphic picture - *all* stacks that referenced that illustration would be automatically updated as well. This is a very powerful concept, and works well in situations where the computers are operating on a network.

As an aside, this also makes the instant distribution of all kinds of information possible. This could include memos to staff, names in an organizational chart, instructions to students, or often-changing data like price quotes, etc.

The default in HyperStudio, when shipped, is to always use the embedded data system. This means the user has less to worry about, and stacks are easy to move and operate. On the other hand, as an advanced user, you may want to take advantage of the alternate data access method.

Also, when Advanced User is set, you will not get the small instructional dialog boxes the first time a button, text or graphic item is added.

Auto-activate buttons on: In the manual, auto-activate buttons are described as those buttons that activate themselves after a set amount of time. While editing a stack, however, you may not want the auto-activate buttons going off while you're trying to work on a card. By turning off the check-mark in this option, auto-activate buttons will not be triggered unless you manually click on them. When you are ready to save your stack for the final user of your information, set the check-mark in this box, and save your stack to the disk. Auto-activate buttons are automatically turned off when you select a paint or editing tool, and are not turned back on until you select the browse tool and move to another card, or turn on Auto-activate in the Preferences menu.

Lock Stack: If you are designing stacks for use by others, and in particular, situations where you don't want the user to be able to use the editing tools, you can select "Lock Stack" in the Preferences menu (remember to save the stack after making the change). Unlocking the stack restores the complete menu bar. Since the Lock Stack option is available via the Preferences function, it is advisable to always set a password if this option is going to be used.

Show card number in menu bar: When this is enabled, you will see the number of the current card displayed in the right side of the menu bar. This is useful when creating and editing stacks, although you'll probably want to turn this off when the saving the stack for the final user.

Erase background on new card: When this is checked, HyperStudio erases the background when "New Card" is chosen in the Edit menu. However, if you are using a background, like a notebook page, that will be used on many different cards in a stack, then you will want to make sure this option is not checked (turned off). Now, when you choose New Card, the current background will automatically be used by the new card. Since there may be no visible sign a new card has been created, you will probably want to have "Show card number in menu bar" turned on.

Remember that when a background is duplicated for a new card, the background is actually shared between two or more cards. This can have significant memory savings, *but only if you don't alter the background on duplicated cards with the paint tools.* You can alter the primary card with the original background (with duplicated results!), but if you paint or otherwise edit other cards, the background will become an original background on the edited card.

Use TouchWindow: This option lets you use HyperStudio with the TouchWindow from Edmark Corp. This is a very useful add-on with HyperStudio, and lets you use your stacks with very young children, and anyone who is new to computers. Touching the screen becomes equivalent to clicking with the mouse with the TouchWindow, and makes for a very pleasant computer experience.

When you check this box, and then click on Ok in the dialog box, it is assumed that you have a TouchWindow currently attached to your computer. At that point, a dialog box appears explaining that the TouchWindow will need to be calibrated by touching each corner of the active screen area (this does not include the monitor border area). Once activated, the TouchWindow will stay active until you exit HyperStudio.

This function is *not* stack-specific, and when HyperStudio is run again, the TouchWindow will have to be re-activated and calibrated. This does not have to be repeated for different stacks. If the TouchWindow calibration is not correct the first time you do it, you can re-calibrate by turning off the TouchWindow in the Preferences menu. Exit Preferences, and then choose it again and turn the TouchWindow back on. You'll then be able to re-calibrate the screen. When calibrating, try to not drag your finger as you touch each corner. Remember, you're trying to tell the TouchWindow where a specific point (the corner of the screen) is. Turning off the TouchWindow once it has been started up may interefere with keyboard commands. Keyboard commands will be properly recognized once you leave HyperStudio, or re-activate the TouchWindow.

Volume Control: This slider lets you control the overall volume level of the stack in memory.

If you get a stack that plays sounds using the built-in speaker, for example, the sounds will be too loud if you are using an external speaker. Likewise, if you have a stack that was set up using an external speaker, it may be too quiet using the built-in speaker on the GS.

The volume in HyperStudio is controlled by a combination of factors. The Control Panel volume is factored into the overall sound volume in all HyperStudio stacks - this is the *system* volume. If you want to change the overall playback volume in a stack, use the slide control in the Preferences section - this is the *stack* volume. If you want the new volume to be permanent, remember to save the stack back to disk. The volume of a particular sound is selected in the tape deck screen when a sound is first added.

More About Data Access Methods

Local Data: There is also a third access method that is a variation of the extended data type. However, this method is dependent on how you store your files on disk, rather than a specific choice in HyperStudio.

When HyperStudio tries to locate the file for disk-based data, it first looks in the same directory as the stack, regardless of what the absolute location of the data was when it was linked to the stack. Data located in the same folder as a stack is called *local data*.

The main advantage to putting all the disk-based data in the same folder as your stack is transportability. Suppose you had created stacks on your own hard disk that referenced text, graphic and sound files in various locations on your hard disk. If you then wanted to move the stack onto a 3.5" disk, the only way to run the stack would be to have the hard disk attached to the same computer that the stack was running on.

With a standard extended data item, the entire data remains in a disk location which must be available when the stack is used. When it comes time to move the stack from one disk to another, it is unlikely that you will be able to easily move all of the data files referenced by a given stack, especially if the data is located on many different disks.

By keeping all the data files referenced by a given stack in the same folder, moving the stack is as simple as moving the entire folder from one disk to another using any file copying utility such as the Finder, DeskTop, Copy II+, ProSel's Cat Doctor, etc.

In general, when designing a stack, you can use the following guidelines:

- When the entire stack *can* fit in memory all at once, use the imbedded data type. Stacks done in this manner are also much easier to distribute to others.

- If the stack will be running in a *stable* environment, where the referenced data does not

change in its location, and you want to have common files that are accessed by a variety of different stacks, then the extended data type is recommended.

- If you are using disk-based data because of memory considerations, and you anticipate moving your stack to another disk, then move the referenced files to the same folder as the stack.

File Location Dialog Boxes

When HyperStudio cannot locate the volume that a data file is located on, it will first display a dialog box asking you to insert the needed disk. If you cancel this dialog box, then you'll get a dialog box asking you to manually locate the file on any disk or folder. If you cancel this dialog box, then HyperStudio will skip that data item in building the card, or executing a button action, and will continue as well as possible.

Last-used directories

When adding clip-art, sound files, loading stacks, etc., HyperStudio remembers the last-used directory for various kinds of data. This makes it easy to go back to the last directory you loaded something from. However, you should also remember that if you put artwork, sounds, etc. in other directories, the first time you go to add clip-art, you will have to use the Standard File interface to open the necessary folder. If you have a large number of HyperStudio-related files, you may find that organizing subdirectories is both useful and necessary.

Alternate Home Cards

The Home.Stack on the HyperStudio disk has been set up with the beginning user in mind. The Home Card in this stack shows the stacks available on the different disks in the HyperStudio package, and also invites you to a special screen (the Just Starting... icon) if you are new to HyperStudio. From this second screen, you can see what different areas of interest have been addressed by various stacks.

However, once you've used HyperStudio for a while, you may wish a more direct Home Card, without the Just.Starting... icon. On the HS.Demo disk, you'll find an alternate Home Stack that may be more efficient for daily use of HyperStudio. Also, remember that the Home Card is just a graphic image with invisible buttons. You can use the paint tools to create your own unique Home Card, such as a picture of a desk with items on it, the bridge of a starship, or any other interface that makes it easier for you or the person using HyperStudio.

The Sound Shop™

The Sound Shop utility is designed to let you digitize, edit, and save sound files for use with the HyperStudio system. Although HyperStudio lets you record a sound while you are creating a stack, the Sound Shop is provided to give you more control over all the aspects of the recorded sound. It can also be used for converting sound files from other sources, such as public domain sound sample disks, and sounds recorded with the MDIdeas, FutureSound, or Applied Engineering products.

To run the Sound Shop, click on the Sound Shop icon in the HyperStudio Home Card. Sound Shop can also be launched, like any GSOS system file, from the Finder, Program Launcher, or other program selector.

Using Sound Shop is very easy, and the best place to start is with recording a sound using the microphone, and then seeing what you can do with it!

The first thing to notice on the Sound Shop is the overall screen layout. The blank window in the top half of the screen is where the sound wave for whatever sound you record or load from disk will be displayed. The window is blank now because there is not a sound in memory yet.

Below the wave display window are three boxes that show important number values about how much memory you have available for recorded sounds, how much time that represents at the current record and playback rates, and other useful values.

The scroll-bar controls at the bottom of the screen are used to control the recording and play-back of sounds in terms of volume, record/playback rates, an "echo" special effect, a repeat count, and the start-recording threshold value.

To the right of the status boxes are three yellow buttons. "Record" starts the recording process. "Play" starts the playback, and "Stop" is used to stop the playback. Above these buttons is an "input level" indicator, and is used to check the current "level" of the sound input device, such as the microphone, tape input, etc. The Play and Stop buttons are disabled because there is no sound to be played yet.

A Brief Test of the System

Before starting, you should have already installed the HyperStudio sound recording card (digitizer) and microphone according to the installation instructions at the beginning of this manual. If you have not already done so, go back and install these devices now.

Your microphone should be plugged into the back of the computer. If the microphone is functioning properly, you'll see a green vertical bar just above the Record button. This is the

level indicator, and is used to make sure that a sound input device is both connected, and, if necessary, set to a sufficient volume for a good recording. The green bar should move up and down as you speak into the microphone. If the microphone is not attached, the bar will be red. The bar also turns red whenever the input signal is too strong for a good recording, such as when you shout into the microphone, or if the volume were turned up too high on a tape player attached to the digitizer card. The bar should not be red under normal conditions if the microphone is attached, and there is no excessive sound input.

You are now ready to record something. Before you record, check the Record Rate and Playback Rate controls at the bottom of the screen. For now, both these values should be 10435. The rate value tells you how much memory is required for each second of sound recorded. In this case, you will use 10.4K of RAM memory per second. This is a good rate for recording a voice. We'll look at this in more detail later, but for now, the important thing to do is to make sure the values are the same for both record and playback.

The other settings should be at their default values:

Echo Delay:	off
Record Threshold	off
Play Volume	6
Repeat Count	off

To record your voice, click on the Record button with the mouse. When you see the screen border turn red, count into the microphone: "One, two, three, four" (and pause just a little between each number!). The level indicator will not be active during a recording. It is only used to check the level prior to recording. Press the Return (or any other) key to stop the recording. (Stop is only used for stopping the Playback function).

Note: When recording your voice using the microphone, you will have to speak "firmly" for a good recording, but an overly loud, or shouting voice is not required. Holding the microphone close to your mouth will help. The right level is sometimes called a "radio voice", that is, the way a radio announcer would speak into his microphone for best clarity and volume. This works for them, and it will work for you!

The default value of 6 for the playback volume has been set up for best results when using an amplified speaker like the optional HyperStudio powered speaker. If you are using the internal speaker, adjust the volume control to a value of 10.

After a brief pause, the wave display window will be redrawn to look something like this:

```
 File  Edit  Tools  Sound  Settings          
                Current file name is: ONE.2.3.4

┌─────────────────────────────────────────────────────┐
│                                                   ┌─┐│
│        ╱╲╱╲      ╱╲╱╲      ╱╲╱╲      ╱╲╱╲         │ ││
│                                                   └─┘│
└─────────────────────────────────────────────────────┘

 MEMORY STATUS        BUFFER STATUS       EDITOR STATUS   Record
Total memory: 1297664   Sample size: 41728    Size:    0     
Maximum time:   124 sec.  Record time:  93 sec.  Start: 39201   Play
  Available: 1255936    Play time:    4 sec.    End:    0     
 Clipboard:   empty    Clip time:   empty    Level:   0    Stop

Record Rate       10435    Playback Rate   10435   Echo Delay      off

Record Threshold    off    Play Volume       6    Repeat Count    off
```

The data you have just collected is sometimes called a *sound sample*, and is a digital recording of your voice. At the current rate setting (10435), the computer is checking the microphone input about 10,000 times each second, and recording a number value for each moment. When the recording is completed, the data will be graphed on the screen. The resulting graph represents the sound sample. Each grouping in the sound wave is one of the words you spoke. The computer plays back your sound sample by re-scanning the data, and sending the recorded signal back out to the speaker.

To hear your recording, click on the Play button, and listen to the sample. Play it several times. Try pressing the Stop button in the middle of the playback. Now let's explore each of the other functions in the Sound Shop, and see what kinds of things Sound Shop will let you do with your recording.

Playback Rate: Use the mouse to change the Playback Rate (the slidebar control near the bottom of the screen). Try values of about 20,000 and 5,000. If the Playback Rate is faster (a value larger) than the Record Rate, the pitch will be higher, and the sound sped up; if the Playback Rate is slower, the pitch will be lower, and the sound slowed down. When you save the sound sample to disk, the playback rate setting will be saved with the file.

Playing Part of a Sample: Set the Playback Rate back to 10435. Now move the mouse pointer until it is in the sound wave window, and positioned at the beginning of the third sound wave group. Press the mouse button and hold it down, and drag the mouse until the entire wave group is highlighted. Then release the mouse button.

```
  ╔══════════════════════════════════════════════════════╗
  ║ ⌘ File Edit Tools Sound  Settings    SOUND SHOP™ - by Dave Kilroe ║
  ║         Current file name is: ONE.2.3.4             ║
  ╠══════════════════════════════════════════════════════╣
```
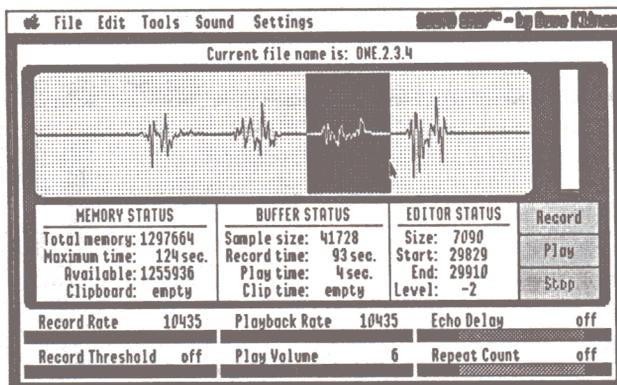
This is how you *select* part of the waveform in Sound Shop. Now press the Play button. Notice that only the word "three" is played. Whenever you select a portion of a sound, Sound Shop plays only the part selected.

Volume: This controls the *playback* volume of your sound sample. It does not affect the recording volume. Like the Playback Rate, the Volume setting will be saved when your sample is saved to the disk. This is so that you don't have to adjust this control within a StudioWare application if you don't want to. Try changing the volume now to see how it affects the sound. Because of the way in which sound is done on your computer, very high or low volume settings will not sound as good as the moderate settings.

Repeat Count: This controls how many times the sound will be repeated when it plays. This might be used, for example, with sound effects like a gunshot or footstep. When the sound is repeated a few times, you can get interesting effects without taking up the large amount of memory that a larger sample would require. Try changing the Repeat Count to 3, and press Play. You should hear the word "three" said three times.

Echo Delay: This controls a delay within the computer between the repeated playing of the sample. Each repeated action, however, is started while the previous playback is still playing. The result of any given value depends on a combination of the sample length, the Playback rate, and the Echo Delay value. Even slight variations in the Echo Delay value can produce different effects. In general, the echo effect will vary between a "close" echo, reminiscent of singing in the shower, and a "larger" echo, like that of a stadium.

The best approach is to start with an Echo Delay value of, for example, "40", and then play the sound sample. Then adjust the Echo Delay to 39 or 41, and try again. Experiment until you get just the effect you want.

Remember to set the Echo Delay back to "off" before trying the functions described next. It doesn't hurt anything to combine it with other functions, but there will be less confusion if you leave it "off" for now.

Record Threshold: Ordinarily, recording starts soon after you press the Record button. However, suppose you want to start the recording process only when the sound actually starts. The Record Threshold lets you specify a number value that represents how loud the sound should be to trigger the start of the recording process.

To see how it works, first do a recording with the Record Threshold set to "off". This means recording starts as soon as you press the Record button. Before recording, click the mouse in the wave display window once to deselect "three", if necessary. Then, press the Record button, wait for a few seconds, and then say "one, two, three". Then press the Return key to stop the recording. Your recording should look something like this:
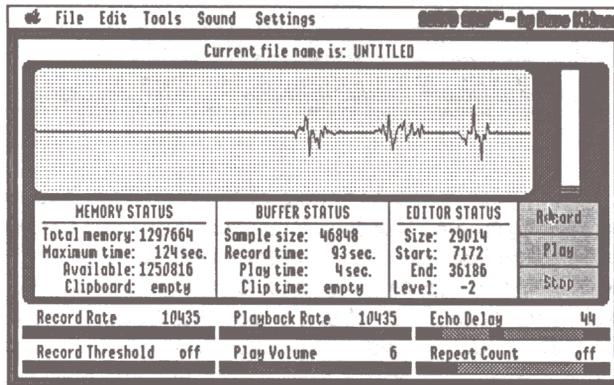
The relatively flat area at the beginning of the waveform is the time you were pausing before starting to count. This wait wastes memory. If the sound you want to record is not predictable, you could use up all the available memory just recording the waiting period.

Now set the Record Threshold to 10, and press Record again. This time the screen border will turn to green. Wait a few seconds once more, and then count "one, two, three" and press Return to stop the recording. As soon as you started speaking, the screen border should have changed to red, indicating that the recording process had begun.

This time the recording will look like this:
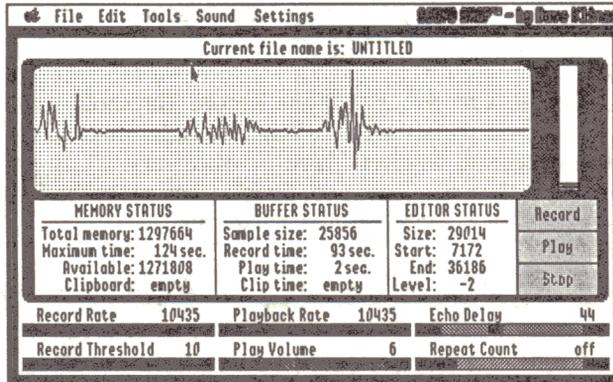
This time there is no wasted space at the beginning of the recording. The number value you choose depends on the sound you are recording. The center line of the waveform window has a value of zero. The very top and bottom of the window represent values of +127 and -127, respectively. If the sound you are recording has large peaks (i.e., is relatively loud), you can use a high threshold value, for example 50-100. On the other hand, if you're trying to capture a quieter sound, a smaller value like 5-10 would be better.

Now let's look at some of the menu functions in Sound Shop.

File Menu

This menu is used to save sounds you've recorded with Sound Shop onto a diskette, and to load the sounds back into the Sound Shop or HyperStudio. Use the mouse to pull down the File menu and examine the entries. For many of the menu commands, there is a keyboard equivalent. That is, you can press a key instead of using the mouse and menu. For example, pressing ⌂N gives the same result as choosing New from the File menu.

New: [⌂N] This erases whatever sound is currently in memory.

Open: [⌂O] This loads a sound file from disk. When first chosen, Sound Shop shows the files in the same directory as where the Sound Shop software was located when it was run. On the HyperStudio disk, this will be the pathname /Hyperstudio. There is another disk in the HyperStudio package, called HS.Sounds, that has a sampling of digitized sounds. Try loading a sound file from this disk.

To load a sound file, select the file you wish to load, or Cancel to go back to the main screen. Clicking on Disk changes the disk being examined. Clicking on Close closes the folder (if any) that you are currently in, and returns you to a previous "level" in the disk directory.

Note: If you have recorded a sound, or loaded a sound file and then made a change to it, using the Open function will first bring up a dialog box that reminds you the current file has not been saved. If you click on "Yes" (to save the file), you'll be shown the current disk directory, where you can enter the name to save the file under. After saving the file, you'll be immediately presented with the disk directory again so you can open the file you want. If you choose "No" (not to save the file), then the sound file you load will completely replace whatever sound file is currently on the screen.

Save: [⌃S] This function is used to quickly save a file under the name that it currently has. You cannot use this function until you have done a Save As (thus giving a new recording a name), or unless you have loaded an existing sound file from disk (in which case it already has a name). Once the filename is known, this menu item will read something like "Save File-name".

Save As: This is used to save a file under a new name, and is required to save a new recording where a new name is required. As with the Open command, you'll be shown the current disk directory, and asked for the name that will be used when saving the file.

Revert: This is used to re-load a sound file on the disk, without having to go through the more lengthy Open sequence. For example, if you have loaded a sound file from disk, made some changes, and then decide to start again with the original file, just choose Revert (which will actually read something like Revert to "Filename"). This loads the original file, completely replacing whatever sound file is currently on the screen.

Quit: [⌃Q] Choose this when you want to quit Sound Shop, and return to your program selector. If you have not saved the sound sample currently on the screen (or made changes since the last change), you'll be given an opportunity to save the file before you quit.

Edit Menu

This menu contains the cut, copy and paste functions, and other useful commands related to editing your sound sample.

Undo: [⌃Z] This is used when you want to change your mind about some editing action you have taken. Not all actions can be undone, but many can. If you cut a portion out of a sample, choosing Undo puts it back. If you paste some data into your sound sample, and change your mind, Undo removes what was just pasted, and leaves the clipboard with the data still on it. If you are new to the idea of the clipboard, and copying and pasting data, the next sections will explain this in greater detail.

Cut, Copy and Paste: [⌘X, ⌘C, & ⌘V] These three functions are used together to either remove part of a sample and move it to a new position in a sample, or to copy a portion of the sound from one position in the sample to another. There are also special effects that can be done by combining these editing functions with some of the Tools functions described a little later.

Selecting **Cut** from the Edit menu removes part of your sound sample, and puts it on the computer's *clipboard*. The term "clipboard" is used to suggest how the editing process works. Using the mouse, you first select a part of the sample on the screen. For example, record the words "one, two, three, four" as you did earlier. Now use the mouse to highlight the third wave group on the screen, which corresponds to the word "three". You can check this by pressing on the Play button after selecting the desired part of the waveform. You should hear just the word "three".

Now use the mouse to pull down the Edit menu, and choose Cut. After a brief pause, the screen will be redrawn, now with just three wave groups. Click on the Play button. You should hear your words "one, two, four". "Three" has been cut from the sample. To hear what is on the clipboard, choose **Play Clipboard**, which is near the bottom of the Edit menu. You should hear just the word "three".

Now, for fun, position the mouse between the first and second wave groups, and click once. A marker bar should appear. This is used to indicate where you want data from the clipboard to be placed. We can now insert the word "three" in the sample by using the Paste function.

Choose **Paste** now from the Edit menu. Again, there will be a brief pause while the sound on the clipboard is pasted into the sound sample at the marker bar. When the waveform is re-drawn, you'll again see four sound groups. Press the Play button to hear the edited sample. Now it should count "one, three, two, four".

The **Copy** function puts a copy of the selected sound portion on the clipboard, but does not remove it from the original sample. This is most useful when you want to use the **Layer** function in Tools menu. See the Layer command for a description of its use. You can also use the Copy command to get part of the sound from one file, then load a second file, and paste the sound portion into the second file.

Important!! If you are copying and pasting between two separate files, and the playback rates in each file are different, you will get accordingly strange results.

There is really no way to get around this problem, other than adopting the habit of trying to minimize the number of different recording rates you use when you create your sound samples. Although the Sound Shop provides a very wide variety of record and playback rates, this is mostly in the interest of compatibility with sound files created with other hardware products. From a practical standpoint, the 10435 recording rate will perform just fine for most voice recordings, and for music, or sounds with a lot of high frequencies, a rate of 16398, or

perhaps 22824, will work well. If you limit yourself to using just these rates, you'll have much more flexibility in combining parts of one sample with another.

Clear: The Clear function is a lot like a Cut, except that the clipboard memory is not used. For example, suppose you had the word "three" on the clipboard, but wanted to completely delete the word "two" from the middle of the sample without losing the word "three". By selecting the sound for "two" and choosing Clear, the selected portion would be removed from the waveform, and the sound "three" would still be on the clipboard. Try it now to see how Clear works. Clear the word "two" from your sample, and then choose Play Clipboard to verify that the word "three" is still there.

Play Clipboard: This plays whatever is on the clipboard from the last Cut or Copy operation. This is useful to hear exactly what you have captured on the clipboard before pasting it somewhere else in the current sample, or even another sound file.

Clear Clipboard: This erases whatever is currently on the clipboard. The main use for this would be in those cases where you wanted to absolutely maximize the amount of memory available for a subsequent operation, such as a long recording. This is most likely to only be of use when the *Maximum Memory* option is in effect (see the Settings menu description later).

Tools

The Tools menu provides a number of additional editing functions that can produce interesting effects, and help you create the best sample possible. In general, if no specific part of the waveform is selected, then the action will be performed on the entire sample. On the other hand, if you select just part of your sound sample, then only the selected part will be affected. Let's see what each of these functions is used for.

Erase: [⌂E] This clears the selected part of the waveform back to zero (the center line). This is used most often to erase just part of a sample. To see how this works, we'll record something with a deliberate flaw, and then use the Erase command to remove it. First record the words "one, two, three, four" again. However, this time, between the words "two" and "three", tap the microphone once with your fingertips.

When you play the recorded sound, you should hear our rather contrived "pop" between the words "two" and "three". You can see this in the waveform as a sharp spike in the middle of the recording. Use the mouse to select just the spike. Verify you have our deliberate error in the recording by using the Play button. Now choose the Erase function from the menu. The selected part of the waveform will be erased back to the centerline, with the result that the "pop" has been removed. This can be used when recording sounds from noisy sources, or in those cases where you want to remove just a portion of a series of sounds, but don't want to change the length of the sample by using the Cut or Clear functions.

Fade Up & Down: [⌘U & ⌘D] Use this to taper the volume of a sound sample at the beginning and end. Fade up starts the volume at zero, and ramps up to full volume over the range you have selected. This would be used to edit a sample that had been "sliced", for example, from the middle of a longer sound. By doing a Fade Up at the beginning, your sample will sound more natural. Fade Down is just the opposite, and is used at the end of a sample to fade out the sound. These effects can be used anywhere in a sample, not just at the beginning and end.

Filter: [⌘F] This is a subtle "smoothing" function that can take some of the background "hiss" out of a noisy sample. To use it, you select the portion of the sound sample you want to clean up, and then choose Filter. If nothing is selected, then the entire sample is filtered. You may have to use the function several times to produce a very noticeable effect. On the other hand, repeating the operation very many times will start to make the part of the sound you're interested in sound "dull" or muffled. This function is unlikely to be needed on any recording you do with the HyperStudio hardware, but is provided to help you with sound files you get from other sources.

Layer: [⌘L] This is a very useful editing tool. It takes whatever is on the clipboard, and *adds* it to the existing sound at the selected point. With it, you can produce your own "echo" effect, and also mix different sounds. With the Layer tool, you can take what is on the clipboard, and mix it with the sound currently on the screen, starting at the current edit marker.

For example, you might have one recorded sound of falling rain, and another of thunder, and want to combine them into one sound sample. You would first load your file of thunder, and copy a section you like using the Copy function. Remember, you can use the mouse to select a range, and then use Play to make sure it's what you want.

Once the thunder sound was on the clipboard, you would open your Rain sample file. What you want to do is to add the thunder "in the background", so to speak. Put a marker bar about halfway in the Rain sample (by positioning, then clicking the mouse), and then choose Layer from the Tools menu. The sound on the clipboard will then be combined with the rain sample, starting at your marker point. Layer literally adds the two waveforms together, producing the mixed sound that you want.

You can also use Layer to manually produce an echo effect. First, make a fresh recording now of the familiar "one, two, three, four" test pattern. You can record it right over whatever might already be in memory (if anything). Recording always completely erases whatever was in memory.

Now, select the word "three" from the waveform, and also, look at the Editor Status box just to the left of the Record button, and note where your selection starts. Choose Copy to copy the word "three" to the clipboard. Now click once with the mouse slightly to the right of the beginning of where you selected the word "three" a moment ago. For example, if your selection started at 21000, try putting the marker bar at 22000 before you choose Layer. The resulting effect should be a kind of "hollow" sounding echo. Now put the marker bar halfway

through the word "three", and choose Layer again. This time the resulting sound should be a more "classic" echo.

Layering will also work better with higher record/playback rates. At lower rates, you may have problems with the combined sound actually being quieter than the original files. Higher sample rates avoid this problem, though obviously at the cost of a greater use of memory. Our advice is to try to get the effect you want at a lower rate first, and then increase the rate only if necessary.

Important!! If you are layering a sound that was copied from a different file, you will get strange results if the playback rates in each file are different. See the discussion in Copy & Paste for more information on this.

Redraw: [⌘W - "Waveform"] This is used to redraw either a selected portion of the waveform, or to restore the original view after viewing just a portion. To see how this works, select just the word "one" on the screen, and then select Redraw.

Now press the Play button. Notice that just the word "one" plays, and that the screen is now blue. With the Redraw command, you have "zoomed in" on just the part of the waveform that plays the word "one". Now select just the first half of the waveform for one. (Highlighting will now be a light-colored region). Choose Redraw again, and then Play.

You should now have just the "wa" sound in "one". With Redraw, you can select, and reselect smaller portions of the waveform as many times as you wish until the window shows each individual "bump" in the wave that creates your sound. Of course, very small samples will reach the point where an audible sound may not even be heard, since you are dealing with a sample that may be as small as a few hundredths of a second. The smallest sample that Redraw will show is 256 data points from one side of the waveform window to the other.

To restore the original waveform display, just choose Redraw without selecting a region. Choose Redraw now to restore the display.

Reverse: [⌘B - "Backwards"] This function reverses the selected portion of the waveform, or the entire sample if nothing is selected. It is mostly of novelty value, although if your favorite local radio station is having a contest to recognize popular songs played backwards, it may represent some real income potential to you!

Stutter: [⌘T - "Tripping off the tongue" Oh, all right, then you think of a better way to remember it!] This is commonly called the "Max Headroom Effect", since becoming popularized by that once-famous television personality (yes, fame is fleeting!). It has the effect of doing copy and then multiple paste of the selected sample. Try it on the beginning the word "two". You want to select just the "t" sound of the word "two". Remember, you can choose Play while a portion is selected to see if you have just the part you want.

Once you've selected the part you want, choose Stutter from the Tools menu. Now click on the Play button to hear the effect.

Sound Menu

This menu gives you the equivalent of the Play and Record buttons, and also offers an alternative Record mode which can be useful in some situations.

Stop and Play: [⌘H - "Halt" & ⌘P] These are equivalent to the screen buttons. The important thing to notice here is that there are keyboard equivalents of the Play and Stop buttons, namely Apple-P and Apple-H. If you're doing a lot of repeated operations, it can more convenient to use the keyboard, rather than the mouse, to operate the record and playback functions.

It is also important to notice, although it has been mentioned earlier, that the Play button *only plays the selected part* of the waveform. This is very useful when you are about to do a copy or a paste, because you can make sure you have selected just the portion you want. In addition, there will be times when you want to concentrate on just a portion of a recording, and this makes it possible, without having to listen to the whole thing each time.

Record Modes: [⌘R & ⌘M - "Mode"] Like Play, Stop, and other Sound Shop commands, the Record function also has a keyboard equivalent, Apple-R. However, the actual way in which the recording is done can be one of two different methods. In the usual, or *default* mode (Record Mode 1), the recording starts as soon as you press the Record button. The recording stops when you either a) press the Return (or any other) key, or b) when the recording has used up all available memory.

For short sounds, this works pretty well. If you are recording a sound off a sound effects tape, for example, there is most likely going to be a space at the beginning where you start the player going, and probably a bit of a space at the end where you let the tape play for a while before pressing the Stop button in Sound Shop. However, both "dead areas" in your recording are easily edited out by using the Cut or Clear editing functions.

But what about those cases where there are a lot of continuous sounds, (perhaps part of a cat fight outside your window) and you want to get just the right part of the sample. When you start the record process, it will stop on its own in a relatively short time, and you could miss your perfect yowl just as you were restarting the recording for the fourth time.

Record Mode 2 is the solution to just this problem. Record Mode 2 is a *continuous* recording operation that never stops until you press the Return (or any other) key. When you do stop the recording, the *last* sounds you heard will be at the end of your sample, and you'll have however many seconds before that as are indicated in the Buffer Status window. At that point, you will probably want to Cut or Clear most of the sound at the beginning of the sample to get just the part you want as the file to save.

To tell Sound Shop you want to use Record Mode 2, just select Record Mode in the Sound Menu. You'll be presented with a dialog box that lets you choose between the two recording

modes. The current recording mode is indicated by which Record Mode is highlighted in the Sound Menu, and will remain in effect until you either change the mode, or you quit the Sound Shop.

Selected Record: Although not a specific menu item, this function can come in very handy. If you select just a portion of your sample, and then choose Record, Sound Shop will replace *just the selected part* with the new recorded sample. You can use this to "patch" a sound sample if you wish. Note that this simply replaces the selected portion, and does not lengthen or shorten the selected area. This means that if you patch-record a shorter sample than the selected area, any area not recorded over will retain whatever sound was there. On the other hand, if you leave the record mode on for a period longer than the selected area, the record mode will automatically stop and you will not record anything after that point.

Although the selected record function can be handy in some situations, the alternative method is to use the copy and paste editing functions with sounds recorded in their own files, and to merge the sounds at your leisure.

Important: Note that Recording a new sound will always clear the clipboard.

Settings Menu

This menu allows you to set and reset various Sound Shop parameters. The options are as follows:

Current File: Use this to restore the sample size and Playback Rates to their original values.

Startup Defaults: Choosing this sets the sample length to approximately 2/3 of the total free memory in the system, and restores the Record & Playback Rates to the startup values.

Maximum Memory: To allow working room for the Clipboard, the Sound Shop normally only allows you to use about 2/3 of the available memory to record a sound. If, for some reason, you require the maximum amount of memory to record a sound, or edit a large file, choosing this function will set the available memory to the maximum size.

Disable/Enable Cautions: Usually the Sound Shop tries to remind you about the consequences of such actions as a layer or clear operation where the action cannot be undone. However, if you would rather take things in your own hands, and not have to bother with the occasional reminder messages, choosing Disable Cautions will temporarily disable this function. You *will* still be prompted when loading a new file, with a reminder if you have not saved an altered file, or you've made a new recording.

Choosing Enable Cautions (alternate menu item in this position) will restore the normal operation of the reminder messages.

Status Displays

As you have no doubt already noticed, the Sound Shop screen display includes the display of some important numbers concerning your recorded sound. These are as follows:

Memory Status: This indicates the total amount of system memory available for the recording of a sound. In the example screen, a total of 1297664 bytes. At a given record rate, this corresponds to a specific amount of recording time (124 seconds in this example). Changing the slider bar in the Record Rate control will change the maximum record time displayed for the current amount of available memory.
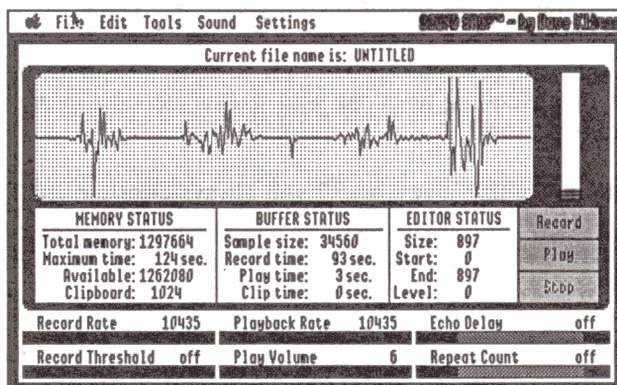
This box also displays the amount of memory currently used by the clipboard when a sound file is in memory. Remember that your sound sample and the clipboard share a common amount of available memory, and that increasing the size of one decreases the amount of available memory for the other.

Buffer Status: At startup, this indicates the amount of memory available for loading a file, or recording a sound. It also translates this into a length in seconds for a recording or loaded sound file. If you have already loaded a file, or made a recording, this will show the amount of memory used for that sample. The Record time, in that case will still indicate the maximum time available, but the Play time value will show you the actual time represented by your recording.

The Play time shown also depends on the playback rate specified. The playback rate is controlled by the Playback Rate slider control below the Buffer Status window.

If you have anything on the clipboard, the play time of the clipboard data is also indicated in this box.

Editor Status: This window indicates the magnitude of the sound wave at the point currently selected. This is useful for cutting, copying and pasting sound segments from one point in the file to another. Try the select process now by positioning the mouse in the sound wave display window. Now hold down the mouse button while you drag the mouse to one side or the other. Note that the area selected is highlighted, and that the Editor Status box shows the magnitude of the sound wave at the current selection point.

Record Threshold: When you start the recording process, you may want the system to wait until there is an actual sound to start recording. Since there is always some degree of background noise in the system, the threshold setting allows you to specify what initial value of an incoming sound should trigger the start of the recording process. When a non-zero Threshold value is used, the screen border will turn green while Sound Shop waits for a sufficiently loud sound to start recording. When the recording process starts, the screen border will turn red.

Play Volume: This lets you set the playback volume of a sound sample. Values that are too large may "overdrive" your speaker system, so try to use a value that gives the best sound. The exact value may depend on the speaker and/or amplifier system you are using.

Echo Delay: This control is used for creating special "echo" effects with your sound sample. See the description earlier for details.

Repeat Count: This value determines how many repeated plays of the selected sound sample will be played. You can use the repeat count to create an apparently longer sound effect, without using the large amount of memory that would otherwise be required.

Sight 'n Sound

Sight 'n Sound is a fun utility provided so that you can change the startup process of your Apple IIGS to put a picture on the screen while the computer is starting up, and/or have a sound you have recorded play as well.

In addition, for those programs that use the standard Apple "beep", such as an Applesoft BASIC program, or others, you can replace the "beep" sound with your own sound, such as "oops!", the sound of breaking glass, a pleasant "try again", or whatever you like.

Sight 'n Sound is easy to use. Just click on the Sight 'n Sound icon in the HyperStudio Home Card, or launch it from the Finder, ProSel, the DeskTop, or any other program launcher.

When you use Sight 'n Sound, the title screen will appear. Let's take a look at each of the options:

Startup picture: When you click on this, you will be presented with the standard file selection interface. Use the disk and open buttons as necessary to find the picture you want to use as a startup picture. To try it now, you can use any of the graphics on the HyperStudio.Art disk.

Once you have selected your picture, another dialog box will appear with a miniature image of the picture, and ask you if this is really the picture you want to use. If it's not, clicking on "No, pick another" will take you back to the file selection interface. Assuming you've found the picture you want, clicking on "Yes, install" takes you to the next step.

Now all you need to do is to tell Sight 'n Sound on which disk you want put the picture. You can use your HyperStudio disk (a backup copy of the disk, that is), as a test disk if you wish. Ordinarily, you'll want to insert a normal GS/OS disk in the drive. You can use Next Device to bring up the name of each disk drive you have connected, or the Re-Check Device to re-examine a disk drive after you've put in a new disk.

When the name of the desired target disk is shown on the screen, click on the Install button to complete the installation. If a startup picture already exists on that disk, you'll have the opportunity to cancel the operation, or continue anyway.

Note: There are actually two Sight 'n Sound programs on the HS.Sounds disk. SNS.320 adds 320-mode Super Hi-Res graphics to a disk; SNS.640 does the same for 640 mode grahics. The graphics from the HS.Art disk are all 640 mode graphics. Screens from PaintWorks Plus are 320 mode.

Startup Sound: This is similar to the startup picture function, except that it will put a Sound Shop-recorded sound on your disk that will be played when the computer starts up.

Selecting a sound is done just like any other file, except that after you have selected it, you'll have the opportunity to play it to make sure you've got the sound you want. If it is, clicking on "Yes, install" takes you to the same disk selection dialog box that was used when installing a startup picture.

Note: If your sound sample takes longer to play than the time it takes your disk to start up, the end of the sample will be stopped prematurely as your actual startup application is loaded. The time available for a startup sound varies according to the type of disk drive you have, and what software is on your disk, so some customizing of the startup sound may be desired for the best effect.

System Beep: This is for replacing the usual "beep" in Applesoft BASIC and other programs with a recorded sound of your choice. The process is identical to adding a Startup Sound, but your custom sound will only be heard when the Apple IIGS system beep is used.

Removing Startup Files: Any or all of the files just added can be removed by simply using the Remove buttons on the right of the Sight 'n Sound function box. In each case, all that is displayed is a dialog box for selecting a disk. For each device, Sight 'n Sound will tell you whether there is currently a startup file on that disk or not.

File Usage: Sight 'n Sound adds the following files in the System Setup folder of the target disk. The System.Setup folder is located in the System folder present on any GSOS startup disk.

For a Startup picture:

SNS.SP	This is the program that actually loads the startup picture.
SNS.SP.PIC	The picture to be loaded.

For a Startup sound:

SNS.SS	This is the program that actually loads the startup sound.
SNS.SP.SND	The sound to be loaded.

For a system beep:

SNS.SB	This is the program that actually loads the system beep.
SNS.SB.SND	The sound to be loaded.

The files SNS.SP, SNS.SS, and SND.SB must be on the disk in the same directory as the Sight 'n Sound utility for an installation to work properly. If the files are not found, then a message will be displayed when the installation is attempted. The Sight 'n Sound utility *does not* have to be on your own disk for the startup functions to work.

If you have a program that lets you change the order of files in a directory, such as Merlin 16+, or ProSel, you can also get a longer display time of the picture, and a longer play time by the sound, if you move the files SNS.SP and SNS.SS to the top of the System.Setup folder. SNS.SP cannot be moved to a position before CDEV.Init in the System.Setup folder.

Sound Browser

The Sound Browser is a utility for quickly looking (listening?) through a number of sound files on a disk. It is very simple to use, and just presents the usual file selection interface to choose the files you're interested in. Only Sound Shop-compatible files are displayed. After a sound is loaded, it is immediately played. After playing, you can then choose another sound to listen to.

Since some sound samples can be rather long, there is also a slider control that lets you adjust the amount of each sound file to be read in and played. This makes it easier to "browse" through a large number of samples when you're looking for something in particular.

When you're done browsing, just click on Cancel to return to the HyperStudio Home Card, Finder, or any other program selector.

Appendix A: Stack Ideas

One of the traps in looking at example stacks done with HyperStudio is the temptation to immediately classify, and thereby limit, your impression of possible applications in terms of what you have already seen. HyperStudio can be used to create a fantastically wide variety of software. Here are just a few more ideas on possible stacks that anyone could create:

• **Child's ABC Book.** Imagine a stack created of screens with the letters of the alphabet, and objects like an Apple, Bear, Clown, etc. When the child clicks on a screen image, they hear the phrase "A is for Apple", etc. A variation is to have the stack immediately play a phrase, and then have the child click on the image needed to match the verbal prompt. The stack would then respond with a happy face, or try again voice before going on to the next card.

• **Interactive Adventure Story.** In this setup, a card could have, for example, a castle with two doors. Depending on which door (invisible button) the user clicks on, the story would branch to alternative story plots. You could create a wide variety of plot variations within a "story-stack".

• **Repair Guide.** This stack starts with an picture of a camera, bicycle, copier, faucet, motor-cycle, carburetor, or anything else that you have ever seen a repair guide on. From there, clicking on different parts of the picture leads you through disassembling, repairing, and re-assembling the device.

• **Office Building/Personnel Guide.** This stack would offer a directory to different offices and personnel in a business. Click on different departments to get a map of how to get to a given office. See an organizational chart of personnel. By clicking on a position in the chart, you get a picture of the person, an introduction in their own voice, information on their duties, services provided, etc.

• **Interactive Tests.** For school or business, you can use HyperStudio's ability to use its buttons as "answers" in a test to create interactive quizzes, tests, etc. When a testing stack is completed, HyperStudio writes a text file out to disk that has a list of the "answers" (buttons) chosen on each card, the stack name, student name and date. Other programs can then access this information as needed.

• **Introduction to Classical Music.** This stack plays passages of classical music, and asks the user to identify the composer and/or name.

• **Family Tree.** Geneology is an area that is very difficult to implement on a classic-style database. By contrast, HyperStudio lets you create a card for each family member, putting a picture of the person, details of their life, even a voice sample, on each card. The cards are then linked according to relationships as needed. Cards can also branch to general information

such as the origin of the family name, information on the country of origin, interesting stories or incidents, etc.

• **United States or World Database:** Information on all 50 US States or World. Additional Quiz format that has you identify a state by clicking on the correct spot on a map in response to questions, facts & trivia.

• **Animals of Africa:** Learn about the wildlife of Africa. Click on a country in a map of the continent, and then go on a safari, exploring the animal life of the region. Hear lions roar, the rumble of a thunderstorm on the savannah, even the rushing waters of Victoria Falls!

• **Knowing the Masters - Art:** Learn to identify classical works of art by matching a picture with the title of the work and the artist.

• **Dynamic Flow Chart Demo:** Here's a novel idea: Make each card in a stack a step in a classic program flowchart. As the user clicks on Yes/No choices, they move through the "program" (the stack).

These are just a few of the possible applications of HyperStudio. There are many, many more. In fact, a good source of ideas is to just walk into any bookstore, and look at the variety of subjects and presentations on the shelves. A large number of the things you currently see in printed form can be done in hypermedia in a totally new and refreshing way.

HyperStudio Catalog

Roger Wagner Publishing, Inc. is putting together a catalog of public domain and commercially sold HyperStudio stacks. We also hope to include other items that would be of use to HyperStudio owners, such as video digitizers, scanners, sound effects tapes, records, CDs, software utilities, and other products. This catalog will be sent free to all registered HyperStudio owners.

Mailing in your registration card is the only way we have of knowing you are a HyperStudio user to send you the catalog, and notices of future updates and improvements to the software. If you haven't already done so, *please* mail the registration card today.

If you have created stacks that you think would be of interest to others, we would also like to hear from you. Write or call Roger Wagner Publishing, Inc. at the address and phone number listed at the front of this manual.

Appendix B: More On Animation

The description in the manual of how animation works is accurate, but it's easy to overlook how simple it is to create an effective animation in a stack you are creating. The following mini-tutorial is provided to help you experiment with creating animations in your own stacks.

Blinking Objects (Names, arrows, etc.):

The first example will be of how to create a blinking item on the screen when a button is pressed. This could be a name, an arrow pointing to a location, or any other alternating graphic.

To try this out, choose New Stack from the File menu, and then use the Add Clip-art function (also in the File menu) to bring up the file Output, located on the HS.Art disk. In the upper-left corner of the screen for the Output file is a picture of a printer. Use the square selector tool to draw a rectangle around the printer image, and click on "Ok" at the top of the screen. The image of the printer will appear on the screen. Use the mouse to position the image in the upper-left part of the screen, and click outside the image to drop it in place.

We'll suppose that this is the first card of a stack about computer terms. Suppose you wanted the user to click on the printer, and then hear the spoken word "printer", and also see the word flash momentarily on the screen.

To do this, we'll attach a sound and an animation to an invisible button over the printer image. The animation will consist of two frames, one each with and without the word "printer". We'll then repeat this animation sequence three times.

Before the animation can be connected to a button, however, the sequence must first be created. An animation sequence consists of a series of graphics screens, with some difference between each successive frame. Viewing the frames rapidly creates the animation effect. For a blinking object, the sequence is very simple: One frame with the object, a second frame without.

To create the first frame, select the "T" icon in the Tools menu (the paint text tool). Click the mouse on the screen somewhat below the printer image, and type the word "Printer". This will be our first frame of the animation. Go to the File menu, choose Save Screen, and save the screen under the name Printer.1.

Now, use the eraser tool to erase the word "Printer". The screen with the word gone will be the second frame of our animation. Go back to the File menu, choose Save Screen, and save the screen under the name Printer.2. Now it's time to create the button that will trigger the animation.

Go to the Objects menu, and choose Add a Button. Choose the invisible button style, and click "Ok". It is not necessary to enter a name for an invisible button. After an optional instructional dialog box appears (if this is the first button you've added after starting up HyperStudio), the rectangle for an invisible button will appear on the screen. Use the mouse to drag the rectangle over the image of the printer, and to resize it to something that completely covers the printer. It is all right if the rectangle is larger than the printer image.

When the invisible button rectangle is positioned, click outside the rectangle to drop it in position. Now click on Play a Sound, and choose Record Now. When the tape recorder appears, click on the Record button, and say "This is a printer", then press a key to stop the recording. Click on the Play button to verify you've got a good recording. You can also adjust the volume here to a comfortable level. When the sound is set up correctly, click on "Done".

Note: If you hit a key to stop the recording, and do it loudly, the "click" of the keyboard will be included at the end of your recording. If you hear a click at the end of a recorded sound, try recording again, and *press* a key to stop the recording.

When the Button Actions menu reappears, click on Activate Animation. When the list of files appears, choose Printer.1 to specify this animation sequence. A window will appear, probably with the image of the printer in it. Use the mouse to drag the hand cursor to move the printer image, and bring the word "Printer" into view. Move the word "Printer" into the upper-left corner of the animation rectangle. Now resize the rectangle to a smaller size, to neatly frame the word "Printer", but try not to make the rectangle too small. You just want to create an image you can work with.

Now use the mouse to drag the frame of the animation rectangle, and place it under the image of the printer. Click outside the animation rectangle to drop it in position. A message will appear telling you HyperStudio is generating the animation, and then the Button Actions dialog will appear again. Set a Rate of 45, and a Repeat Count of 3, then click on Done.

Now let's try it out! Click on the image of the printer. You should hear the phrase "This is a printer", and see the word "Printer" blink three times.

It's that easy! Blinking objects are the easiest to create, because you only need two frames. If you want the object to be left on the screen when the animation is done, make sure the last frame of your animation has the object visible. In that case, you would make the first frame the "empty" picture (no word "Printer"), and the second frame would have the word visible. Then, when you create the animation, click on Printer.2. This will bring up the second frame in the animation window, so you can still place the word "Printer". However, this time, the word "Printer" will be visible when the animation ends, and thus left on the screen for the user.

This technique could be used for a blinking arrow, or warning-light effect.

Important Points:

1) Whatever filename you click on when selecting an animation is the one that will be loaded. Don't click on a frame where the object is not visible, because you won't be able to place it where you want it (since it won't be there!).

2) HyperStudio always uses the entire available sequence from Filename.1 to Filename.999, regardless of which file you click on.

3) The last frame of an animation is always left on the screen. If you want the object to stay on the screen, make sure it's visible in the last frame. If you want the object to disappear, make sure it's erased from your last frame.

4) Animation files do not have to be continuously numbered, or even begin with any particular number. You could have the files Printer.20, Printer.25, and Printer.99, for example.

Moving Objects:

In this next example, let's create a simple sequence of a plane flying across the screen, and introduce the idea of a stack-based "work file" for an animation.

Choose New Stack from the File menu. Go to the File menu again, and choose Add Clip-Art. From the HS.Art disk, open the file Output. Near the right edge of the screen, you'll see an image of a jet airplane. Move the slider bar at the bottom of the window until the airplane is totally visible, and then use the mouse to draw a rectangle around the airplane. Click on Ok when you've selected the correct area. Now position the airplane at the left side of the screen, and click outside to drop it. If you've accidentally got any extra graphic bits on the screen, you can use the eraser tool to erase them.

The idea in creating this animation will be to create a series of cards in a stack that has the airplane moving to the left a certain amount in each successive card. This stack will only be used to create and edit the animation, and not for any other purpose. As such, it becomes an animation "work file".

Go to the Apple menu, select Preferences, and make sure that Erase background on new card is *not* checked, and that Show card number in menu bar *is* checked. We will let HyperStudio automatically duplicate the background for each new card in the animation. Click on OK in the Preferences dialog box.

Pull down the Tools menu, and choose the selector tool (the square dotted line icon). This is in preparation for selecting graphics in a moment. Press Apple-N (for New Card). The number at the top of the screen will change to "2". You are now on the second card in this stack. Use the mouse to draw a rectangle around the airplane, and drag the image about 1" to the left. Press

Apple-N again to create the third card. Again, select the airplane image, and drag another 1" to the left. Repeat this process two more times until you have six cards, each with the airplane in a different position.

You now have a stack of six cards with the frames for an animation. You can hold down the Apple-> key to move through the cards in the stack and get an idea of how your animation will look. Now, let's save the frames as graphic screens for use by HyperStudio's animation feature.

Go to the Move menu, and select First Card. Now go to the File menu, and choose Save Screen. Make sure you have a disk with at least 80K free on it. The default name in the Save Screen dialog box should be New.Pic.01. Normally, you would replace this with a name of your own, but for the moment, this will work perfectly for saving a series of numbered graphic screens. Press Return to accept this file name. When the save is complete and the screen returns to card #1, press Apple-> (Next Card), and then choose Save Screen again. This time, the default name will be New.Pic.02. Press Return to accept. Again, go to the next card and save that screen, and repeat until all six cards have been saved to disk. (If the Save Screen doesn't begin with New.Pic.01, because you've already saved a screen earlier, don't worry. You just want to save a numbered series of screens - the actual starting number doesn't matter.)

Now is a good time to save the stack itself. Choose Save Stack from the File menu, and save the stack under the name Plane.Work. By keeping the file, you can go back later and make changes to the animation sequence, without having to recreate the graphics.

Now, let's try out the animation. Choose New Stack from the File menu. Then, choose Add a Button from the Objects menu, create a visible button called Test, and position it near the bottom of the screen. Check "Activate animation...", and when the file selection dialog appears, select New.Pic.01. A white rectangle will appear in the middle of the screen. Use the mouse to drag the rectangle to the left side of the screen, then grab the handle on the left edge of the rectangle, and resize the rectangle to be as roughly as wide as the screen. You probably can't see the airplane, because it is out of view in the window. Move the mouse to inside the rectangle, hold down the mouse button, and drag the mouse up until the plane is in view. The size of the rectangle represents the animation area, and needs to have the full left-to-right area available for the complete motion of the plane. Click outside the rectangle, and a dialog box will appear telling you HyperStudio is creating the animation.

When the button Actions dialog box reappears, enter a Rate of 10, and a Repeat count of 2, then click on Done. Now, test the animation by clicking on the Test button. The plane should fly two times from right to left across the screen. If you didn't want the plane image to be left on the screen at the end of the animation, you would leave a blank frame at the end of the animation sequence, as card #7 in the Plane.Work file, and saved as New.Pic.07 on disk. Remember, it is not necessary that the picture files you save begin with "1", or that they be continuously numbered. You can always use any name you wish for the animation files, as long as they end in some number, and all share the same name as the beginning of the file-name.

Appendix C: Improving Sound Quality

The following information is provided to help you get the best results possible when recording and playing back sounds using the Sound Shop and HyperStudio software.

All of the sounds you hear on the HS.Demo and HS.Sounds disks were recorded using the HyperStudio digitizer. The voice in Saturday and Spanish were recorded with the HyperStudio microphone. All others were recorded from cassettes, using an inexpensive walkman-style cassette player.

You should be aware that there is some variation in individual Apple IIGS computers, so your computer may be slightly quieter or noisier when recording sounds than others. However, with a little understanding of the things that effect the overall quality of a recorded sound, you should be able to get the best possible performance from your machine.

Avoiding Electrical Interference

The biggest source of problems in recording sounds is the electrical "noise" that is inherent in the computer. This is not noise that you can normally hear, but when the digitizer records a sound by converting it into electrical signals, the electrical activity in the computer and the surrounding environment can be picked up, and mixed into what you are trying to record.

The HyperStudio digitizer minimizes this problem by *not* plugging into one of the slots in the computer. Being physically connected to a slot is the surest way to transmit the electrical noise from the computer into a digitizing card.

If you are having problems with excessive noise in your recordings, consider each of the following, and see if any of these apply to your situation.

Note: "Excessive noise" can be detected by doing a "smothered mike" test. This consists of holding your hand over the microphone, while you record about 5 seconds of silence in Sound Shop. When the sound wave is drawn, examine the display. If the "bumps" in the display are more than +/- 3 units in value (click on a given point and look at the Level value in the right-hand window), or they appear in large quantity at a regular frequency, then you may have noise in the system that can be eliminated. If you are concerned about excessive noise in your system, and are writing us about the problem, sending a disk with sample recordings will help us a great deal. Record one sample with the smothered mike test, and one sample of your voice.

Do keep in mind that even at best, there will always be a small amount of background noise in the quiet passages of a recording. This is normal for the system. Even a tape player, when the volume is turned up, has a background hiss.

Monitor - The Apple IIGS monitor is a strong source of electrical noise. If the the microphone is closer than about 12" while recording, you will get interference from the monitor. Avoid this by just being careful not to lean in towards the monitor while recording, or draping the microphone wire over the top of your monitor.

Fluorescent Desk Lamps - Flourescent desk lamps are also a strong source. Don't record with the microphone or its cable directly beneath (closer than 12") a disk lamp.

Other Sound Cards - The HyperStudio digitizer is quieter than most because it doesn't plug into the internal slots in the computer. However, if you are using the "piggy-back" option to connect another sound card to the HyperStudio digitizer, you probably will get more noise than if no card was connected. This is because the electrical noise can now flow from the slot connector, into the other card, and then into the HyperStudio digitizer. Unfortunately, there isn't any way around this problem other than not connecting the offending sound card to the HyperStudio digitizer.

The other alternative is that, if you do have another sound card, you probably can use it to record sounds in both Sound Shop and HyperStudio, without requiring the HyperStudio digitizer to be present at all. Obviously, the sound input quality will then be limited by the quality of your own digitizer card.

Fans - The Apple IIGS internal fan from Apple Computer should not cause a problem when attached to the HyperStudio digitizer. However, there are some inexpensive third-party models that can cause problems. External fan units, such as the Kensington System Saver GS, or the MDIdeas/Applied Engineering Conserver should not cause any problems, since their fan power supply is separate from the fan power line inside the Apple IIGS.

If you do have a problem with a third-party internal fan, there is no easy solution, other than to replace the fan with another unit. However, if you are feeling a little adventurous, or want an absolutely perfect power source for the HyperStudio digitizer card, you can buy a 9-volt battery clip from Radio Shack, or any other electronics parts supply house, and use a 9 volt battery to power the digitizer card. You can literally push the wires from the battery clip into the 2-wire plug on the digitizer card that would otherwise plug into the fan plug inside the computer. Be sure, however, that you get the polarity right. The red (positive) wire from the battery clip should match the red wire in the digitizer card plug.

Placement of the Ribbon Cable - Although usually a minor factor, you can try running the ribbon cable from the HyperStudio digitizer *over* the top of any peripheral cards in the computer, rather than under them. This will keep the ribbon cable away from the motherboard itself, which is a potential source of electrical noise. However, be aware that it is possible that some particular card will have a component mounted near the top of the card that will be a stronger source of interference than the computer itself. Placement of the ribbon cable is simply one more option for you to experiment with.

Other cables - In general, you should try to keep the microphone from being entangled in other cables at the back of your computer, such as disk drive cables, printer cables, etc. Try to keep the microphone cable running in a relatively direct path from the back of the computer to your work area.

Power Supply - Although rare, the internal power supply can also be a source of some noise. After you've tried the other options, you can try moving the digitizer card away from the power supply, into one of the other cutouts, if you don't have too many other cards in other slots.

Improving the Input Quality

To get the best sound possible in HyperStudio, you can also take certain steps to improve the overall quality of the sound input to the HyperStudio digitizer card.

Microphone Technique - When speaking into the microphone, be sure to hold the microphone right up to your mouth, and speak clearly and firmly. It is not at all necessary to shout, but you shouldn't be timid, either. Sound Shop is the best place to practice with recording sounds, since you can see an actual display of the sounds you are recording. You want the waveform displayed in Sound Shop to approach the top and bottom of the window in places, without actually going out of range. A recording that does not produce a good waveform will sound noisier than one done with sufficient volume. Also, remember that if the microphone is 12" away from you when you speak, this will be too far for HyperStudio or Sound Shop to pick up any kind of a strong sound input at all.

Other Microphones - Although the microphone in the HyperStudio package is quite sufficient for casual use, other microphones may give better results. The simplest improvement is to use a *condenser* microphone. These cost approximately $15 from places like Radio Shack. However, you should also realize the improvement is unlikely to be overwhelming. In very unscientific terms, we rate better microphones as giving about a 10-20% improvement in the overall quality of recordings.

Signal-to-Noise Ratio - This is a term that refers to how strong your recorded sound is compared to the always-present electrical noise in any recording system. If you are recording with a quiet voice or input source and/or playing back at a large (12-15) playback volume level, then background noise will be most noticable, and very difficult to eliminate. If you can get a good strong waveform in Sound Shop when you record (90% deflection in the window at the high spots), then your input will overshadow any background noise. In addition, if you can use an external speaker with a volume control that will let you play back sounds with a playback volume of 6-8, then the background noise will be minimal compared to your recording. Remember, almost every recording will have quiet gaps between words, musical passages, or other sounds in the recording, and it is in these spots that the background noise will be most noticable. If the playback volume is at the high end (12-15), then this background noise is

amplified as well. Again, try to make strong recordings, and ideally, use a medium playback volume level.

Tape Player vs. Microphone - You may get better results for some recordings by recording first into a standard tape player, and then recording in Sound Shop from the tape player. This is because you can control the volume in the output from the tape player, and and the recording situation is a "closed system", i.e., no outside noise.

It it certainly true that for digitizing sound effects, music, etc., you should definitely record direct from the tape player, and not try to hold the microphone next to a speaker while the tape plays.

Battery Tape Players - Although you might think an expensive tape deck would be the best source when recording music, sound effects, etc., we recommend you use a battery-powered tape player. 110v units often transmit electrical noise to the digitizer card. A battery-powered unit is more likely to give you a good clean input sound.

Improving the Output Quality

The sound output quality of the Apple IIGS is almost entirely a function of how good the speaker attached to it is. You should, of course, avoid entangling the cable going to the optional HyperStudio speaker with disk drive cables, or other wires that are a source of interference.

The HyperStudio speaker will give a substantial improvement over the GS built-in speaker. Powered speakers, such as the Yamaha DM-01 model (our favorite), will give the best performance. You *cannot* hook up standard stereo speakers to the computer, since an amplifier of some sort is required. You may also wish to look into other suppliers of amplified speakers, such as Radio Shack.

Sound Shop and HyperStudio do not currently support stereo sound in either recording or playback, although this may change in future versions of the software. However, you can use stereo output cards as the sound output channel in HyperStudio without any particular steps being necessary.

What about other sound file formats?

When the HyperStudio project was started, we looked around for a standard sound file format that would accomodate all the requirements for HyperStudio. The primary requirement was that the user be able to load a sound file stored on disk, and play it immediately without resetting any parameters. This requires that values for volume, playback rate, echo delay, repeat count, etc. all be stored in the sound file on disk.

Unfortunately, no file standard currently exists (other than the HyperStudio/Sound Shop file format) that accomodates all these requirements, and also provides for compressed sound files.

For that reason, Sound Shop and HyperStudio use a specific type of sound file, registered as an official file type with Apple Computer, that contains all the necessary information. HyperStudio can only directly import this type of sound file. If you have sound files from other sources, you can use these sounds by first loading them into Sound Shop, and then resaving them in the HyperStudio/Sound Shop file type.

In Sound Shop, you should be able to load sound files recorded with MDIdeas, FutureSound, Sonic Blaster, Sound Studio and other programs. Sound Shop does not currently load compressed sound files, although this is also expected to be handled in a future version.

If you have access to a modem service such as GENIE, CompuServe, or America Online, you can also download digitized sounds for use in Sound Shop. Macintosh sound files will also work in most cases when loaded into Sound Shop. If you have a Macintosh computer, and the utility AFE (Apple File Exchange), uncompressed 8-bit sounds recorded in MacRecorder, or other digitizers, can also be converted to a ProDOS disk with the AFE utility, and then loaded into Sound Shop.

Once loaded, you may have to set the volume, playback rate, etc. to get the sound just the way you want it. When saved and reloaded into Sound Shop or HyperStudio, the sound will then play perfectly every time.

Sound Shop and HyperStudio do not currently support MIDI music files, or other synthesized note sequences, such as those produced by Music Studio, Music Construction Set, Diversi-Tune, or other programs that do not use digitized sounds. This may also be addressed to some degree in future versions of HyperStudio.

Appendix D: Hard Disk Installation

Installing HyperStudio on a hard disk is very easy. The most direct way is to create a folder on your hard disk named HyperStudio, and copy all the files from the disks HS.Demo, HS.Sounds, and HS.Art to the folder. From the HyperStudio disk, copy only the files Hyper-Studio, HS.TD, and Home.Stack.

Your hard disk must be set up to use GSOS 5.0.2 or later. If you'll be using the Video Overlay Card, you should also have installed Tool033 (Tools folder) and Apple IIVOC.Init (System.Setup folder).

Once in the HyperStudio folder, HyperStudio can be launched by double-clicking on either HyperStudio (from the Finder). Sound Shop can be launched by double-clicking on the Sound Shop icon. If you have an Icon Editor, you can change the application pathname for the stack, sound file, and other icons so that you can also launch HyperStudio or Sound shop by double-clicking on the stack or sound file icons.

When HyperStudio brings up the Home Card, clicking on any of the icons should run all of the demonstration stacks normally. Adding clip-art and sound files should also immediately display the appropriate files as copied from the HS.Art and HS.Sounds disks.

Using Subdirectories: When using HyperStudio on a hard disk, you may want to organize the files into subdirectories, such as creating the folders HS.Art, HS.Sounds, and perhaps even individual folders for groups of stacks. This is fine, but you should realize the basic operating "rules" with multiple directories.

Last-used directories: When adding clip-art, sound files, loading stacks, etc. HyperStudio remembers the last-used directory for various kinds of data. This makes it easy to go back to the last directory you loaded something from. However, you should also remember that if you put artwork, sounds, etc. in other directories, the first time you go to add clip-art, you will have to use the Standard File interface to open the necessary folder. If you have a large number of HyperStudio-related files, you may find that organizing subdirectories is both useful and necessary.
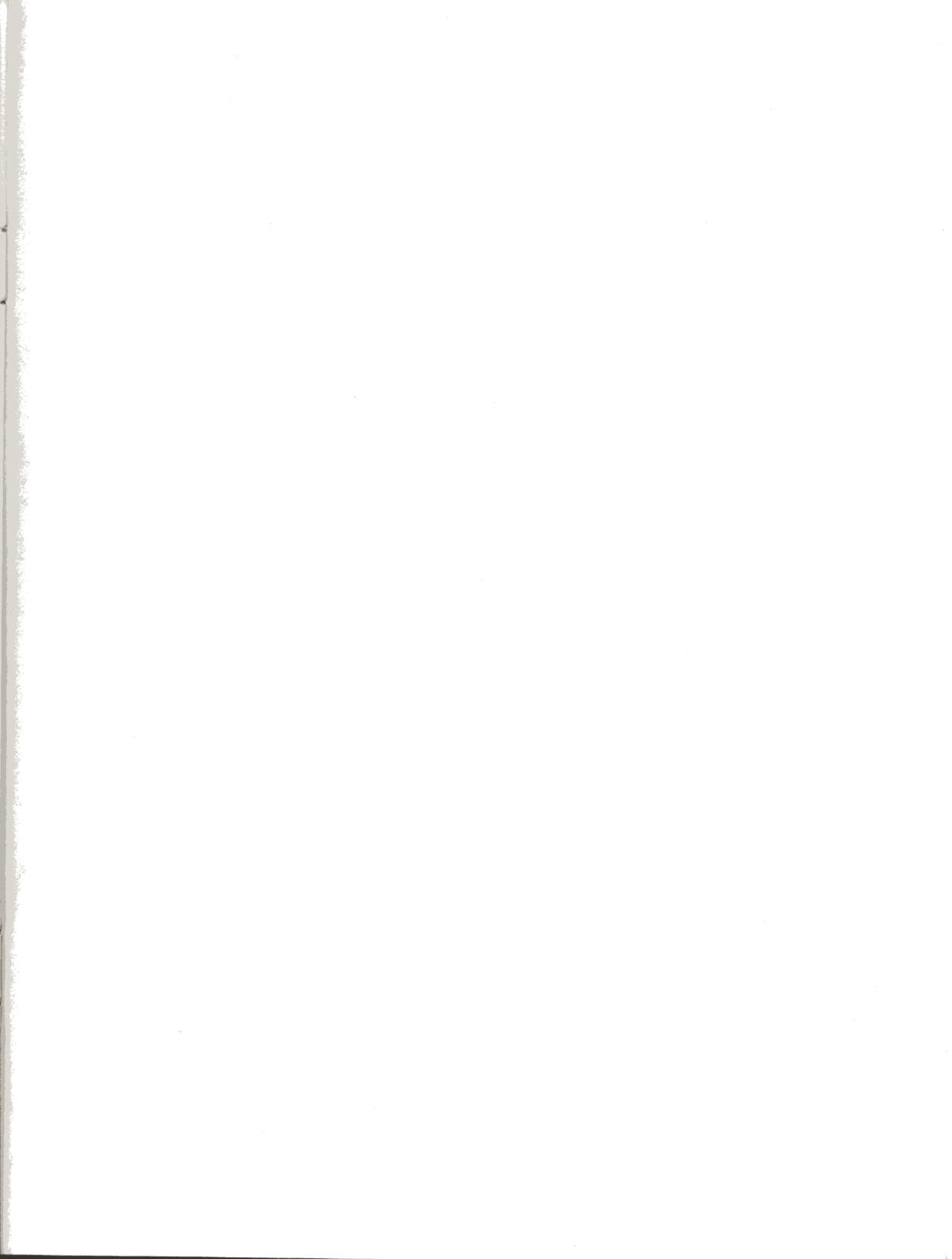
Manual Addendum & Index

The following pages contain information about features added to HyperStudio after the manual was printed, additional tips on using the software, and an index for the HyperStudio manual.

Hard Disk Installation

The Home Stack now includes an icon (via the Applications button) called HyperStudio Installer. This utility will automatically move all the appropriate files from the HyperStudio disks to your hard disk. Within the HyperStudio folder, it will also create the folders HS.Art and HS.Sounds.

When installing HyperStudio on a hard disk, a few changes will have to be made to the Home.Stack for a few of the stack icons to work without prompting for the 3.5" disks. The modification is required for those stacks located in subdirectories.

The stacks Jukebox, Art Library, Xcmd Info, Find Demo, and Video Overlay will be located in the subdirectories Hs.Sounds, HS.Art, Xcmds, Xcmds/Find, and Xcmds/Video, respectively.

When you click on the icons for these stacks, HyperStudio will try to locate these stacks on the original 3.5" disks. If you don't want to have to put the required disk in your drive when trying these demos, delete the invisible buttons in the Home.Stack, and create new buttons that connect to the corresponding stacks in their new location on your hard disk.

There is also a connection to another stack in the Art.Library stack. This invisible button is over the lamp on the second card, and normally connects to the stack Test.320.Stack in the Test.320 folder on the HS.Art disk. Delete the invisible button over the lamp, and create a new one that connects to the Test.320.Stack in its location on your hard disk, which should be a folder named Test.320 in the HS.Art folder.

Here's a list of the stacks in the Home Card that you'll have to create new buttons for:

Stack	New Location
Art Library	HyperStudio/HS.Art/Art.Library
Jukebox	HyperStudio/HS.Sounds/Jukebox
Find Demo	HyperStudio/Xcmds/Find/Find.Demo
Xcmd Demo	HyperStudio/Xcmds/Exerciser/Xcmd.Demo.Stack
Video Overlay	HyperStudio/Xcmds/Video/VOC.Demo

Remember, to delete an existing button, just choose the button tool (the "B" in an oval) from the Tools menu, click on the button to be deleted, and then choose Clear Button from the Edit menu (or just press the Delete key).

Tip: Whenever you get a dialog box asking to locate a particular file for a button you have clicked on, remember to look at the top of the dialog box to see just what file HyperStudio was looking for. This will help you create new buttons to go to the desired file.

Unidisk Drives (White): Important: the following information applies only to the older Unidisk drives, which are white in color. There is no problem with the newer Apple 3.5 drives, which are platinum (grey).

The Unidisk drives have a problem in that they don't "know" when a disk has been removed. This leads to the following problem in HyperStudio, or any other desktop style program on the Apple IIGS:

You are working in HyperStudio, and for some reason, it prompts you to insert a needed 3.5" disk. You already have another disk in the drive, so you remove it, insert the correct disk, and press Return. HyperStudio appears to not recognize the new disk, and asks you to insert it again.

The problem is that, combined with the caching feature of GSOS, the computer still thinks the original disk is in the 3.5" drive. The only solution here is to remove the original disk when prompted, and *then press Return before inserting the new disk.* This forces GSOS to see that the drive is now empty. Then insert the correct disk, and press Return again when it asks you a second time for the needed disk.

A variation on this problem is when adding clip-art, loading or saving stacks, or any other function that uses the Standard File Interface dialog box that is used in HyperStudio to select a file. If the disk you want to access is not in the drive when the dialog box comes up, replacing the disk with the correct one and choosing the "Disk" button in the dialog box (or pressing the TAB key) will not show the contents of the new disk. This is caused by the same problem: GSOS doesn't know a new disk is in the drive. The only solution is to remove the first disk, click on the "Disk" button so GSOS sees the disk is gone, then insert the new disk, and click on "Disk" again so it recognizes the new disk. If you have other disk volumes online, such as a hard disk, you may have to page through them each time to get back to your 3.5" drive.

New Feature Summary for HyperStudio 2.1

This new version of HyperStudio has a number of improvements to the software to make it an even more powerful tool for you, while still keeping the software as easy to use as possible. The following pages describe the specific changes to the software.

New Paint Tools:

• **Stretch/shrink selected graphic areas** (lasso & square selections). After selecting a graphic item with the lasso or square selector tool (the dotted square in the Tools menu), place the tip of the arrow cursor on the lower-right corner of the square (or an approximation of this position if you're using the lasso). If you then hold down the Apple key while you drag the mouse either up and to the left, or down and to the right, you'll see the graphic area re-sized as you move the mouse. Because the original graphic is made up of individual points (pixels), the resized graphic may show some distortion, but you should still find this a useful function.

• **Easy straight lines** ("constrained motion"). If you hold down the shift key before moving the cursor, you'll notice that many paint tools (paint brush, eraser, pencil, line tool, etc.) will automatically draw a perfectly horizontal or vertical line once the mouse starts moving. This can be helpful when trying to erase a straight edge, as well. If you hold down the shift key while using the rectangle or oval tool, you'll get a perfect square or circle.

• **Flip horizontal/vertical** (Edit menu). When a graphic area is selected with the rectangle or lasso, the functions "Flip horizontal" and "Flip vertical" in the Edit menu will be available. These are useful when creating symmetric corners of your screen. For example, on the HS.Art disk is a file named "Dingbats" that includes some graphic elements that correspond to a corner of a screen. To the right of the graphic of the moon is an ornamental corner that corresponds to the upper-right corner of the screen. Use the mouse to draw a rectangle around this graphic, and click on "OK". Drag the graphic to the upper-right corner of the screen and click outside the graphic to drop it in place.

Now, you want to make a copy of the graphic to place in another corner. You could use copy & paste, but an easy way to do this is to use the Option key as you start to drag the graphic to make a copy. Reselect the graphic by dragging a rectangle around the graphic, then hold down the Option key as you drag the rectangle to the lower-right corner. Once you start dragging the graphic, you can release the Option key. Holding down the Option key as you start a drag makes a copy of the selected region.

When the graphic is positioned in the lower-right corner, go to the Edit menu, and choose Flip Vertical. Use the mouse to reposition the graphic to the exact place you want it (if it needs

adjustment). This time, don't click outside the graphic, but rather, hold down the Option key as you drag the graphic to the lower-left corner. Holding down the Option key will automatically paste the graphic in its current position before making the copy. When you've moved the graphic to the lower-left corner, go to the Edit menu and choose Flip Horizontal. If the graphic is where you want it, hold down the Option key again as you start to drag the copy to the upper-left corner. In the upper-left corner, choose Flip Vertical once more from the Edit menu, make sure the graphic is placed where you want it, and click outside the rectangle to drop it in place.

In general, the Flip commands just reverse the image of whatever area is selected. This function can also be used to reverse the direction of arrows, direction of cars, airplanes, etc. Note: fringe graphic bits, when horizontally flipped, may expand slightly giving fuzzy edges in some cases. This effect happens when a graphic has an edge of a different color, for example, grey pixels on the edge of a different color image. Removing edge colors will make graphics easier to flip, but we should mention that there's no reason to arbitrarily remove edge colors from all your graphics. In normal use, edge colors give a better overall appearance to an image.

• **Draw Multiple** (Options menu). Check this item in the Options menu to create interesting patterns. When this option is checked, rectangles, ovals and the line tool will leave a repeating pattern as the mouse is moved.

• **Draw Centered** (Options menu). Check this item to draw a circle or square centered around a specific point. If you combine Multiple and Centered, you can get very interesting geometric patterns.

• **Color Replace** (Options menu). This is a very useful new addition to the HyperStudio paint tools. It is used to change every pixel in a given selected area from one color to another. If no area has been selected, the entire screen will be processed. In the Replace dialog box, you can also choose "Exchange". This will swap the two colors in the selected area. This can be used to create an "inverted" image, and may also be of use when importing graphics from other paint programs with the proper colors in the palette, but in a different order than the usual HyperStudio palette.

• **320 Mode Alert Box**. To help determine when a 320-mode graphic is being imported, HyperStudio examines every graphic file before loading it; if it appears to be a 320-mode graphic, a dialog box now appears, telling you that the graphic may change colors when loaded. Note: Some 640 graphics, when saved in certain paint programs, do not include palette information, and as such will display the 320-mode alert message even though they will be imported with normal colors. The alert message only tells you the graphic *may* be a 320 mode graphic. Some graphic files from the original 1.0 and 1.2 versions of HyperStudio may trigger this alert window. To "fix" them, simply load a graphic as a Background on a blank card, and then immediately re-save the screen back with the Save Screen option in the HyperStudio File menu (use the same name to save with).

• **Colors menu.** The Colors menu can now be used to set the color of text, in not only the paint text tool, but in text items and button labels as well. Simply choosing a color from the Colors menu is now equivalent to using Set Text Color (in the Options menu). The Colors menu can also be used to set the Background color. Simply hold down the Option key while choosing a color, and this will set the current Background color. If a button has been selected with the button tool, then holding down the Option key will change the button color. If a text item has been selected, then the Option key will set the entire Background color for the text item. While entering text in a text item, you can use the Colors menu to set the current text or Background color as you go. Choosing a color while the eraser tool is active sets the Background color without having to hold down the Option key.

• **"Dropping" Invisible buttons, Animation and "Add a Graphic Item" rectangles.** When placing an invisible button, full-screen animation window, or a graphic item, you can press Return instead of clicking outside the rectangle to drop the item. This is provided for those situations where the rectangle takes up the entire screen, and there is no "outside the rectangle" to click in!

Button and Text Item Colors & Styles

• As mentioned in the discussion of the Colors menu, previously, buttons and text items now use the current text and background color settings. These colors can be changed using either the Colors menu (with or without the Option key) while an item is selected, or by using the Set Text Color... or Background Color... functions in the Options menu. Text items now also support multiple text styles. Buttons are still limited to Shaston 8, although different colored text is supported.

New Button Actions

• **Next/Previous card are now *relative* motions.** That is, in HS 2.0, use of Next and Previous established an absolute link to card #n. "Next card" buttons like right-arrows couldn't be copied to other cards (i.e., the copied button would still branch to card #n.). HS 2.1 now uses the action Next and Previous as "current card +/- 1", which means arrow buttons can be copied and pasted as desired with the expected result.

• **Home card action:** This is equivalent to the user pressing Apple-H. The advantage of this is that in earlier versions of HyperStudio, a link to the Home.Stack with the Connect to Another Stack action linked the button with an absolute pathname for the Home.Stack. This limits return to a specific stack with a specific pathname (if another Home.Stack is not available in the same directory as the active stack). HyperStudio now "remembers" the location of the last Home.Stack, no matter what directory it was in. This will be more flexible for hard disk usage, and also allows the concept of multiple Home.Stacks on the same disk, hard disk, or network. For example, you could have three different Home.Stacks, designed for different

kinds of users, that all launched the same application stacks. By using the new Home action (rather than the old absolute link), each stack will automatically return to the Home.Stack that called it.

Improvements to Editing

• Paste Card inserts card after current card (not at end of stack). Note: The "Card #" that is displayed in the menu bar is a *card identifier number*, not a "position indicator". Since the cards are numbered beginning with "1" as your create a stack, this ID number is pretty much the same as the position number. However, as you start to cut and paste cards from different stacks, or within the same stack, you'll find the ID numbers follow the cards. That is, if you cut a card from the end of the stack (say, card #9), and paste it near the front, you may notice that the card #s then count 1,9,2,3, etc. This does not effect the operation of your stack. Cards are not renumbered when cards are cut or pasted, because the button connections are all based on the card ID #.

Miscellaneous Improvements

• **Move to Card #** (Move menu). Use this to move to any card # in the current stack. Just enter the card ID # (which may be different than its *position* in the stack) in the Move To dialog box.

• **Save screen now saves complete image** (buttons, text items, etc.) depending on setting of "Hide Items" in Options menu.

• **Cosmetic changes to Sound Record/Playback screen.** The "tape recorder" screen now has a numbered scale by the volume slider to make it easy to use consistent volume settings for a group of sounds. (File note: the file HS.TD is now obsolete, and is no longer used by the HyperStudio program.)

• **"Stack Info" shows** *usable* **free memory.** The Stack Info dialog box now indicates how much memory is still available to the stack you are building. This number is smaller than the amount of raw free memory in the computer because it is only the largest single block of memory that is useable for a stack. Check this dialog box occasionally as you build your stack to stay aware of how much remaining room for expansion you have.

• **Version compatibility:** All stacks created with previous (versions 1.2 and 2.0) of HyperStudio can be used with 2.1. Depending on the number of buttons and text fields in the stack, however, there may be a delay due to the conversion process. During the conversion, the cursor will change to an alternating "2.0/2.1" marker. Once converted, you can save the stack back to disk, and subsequent loads will be at normal speed since no conversion will be needed. Stacks created or saved from HyperStudio 2.1 are *not* backward-compatible with earlier versions of HyperStudio (however, since the 2.1 update is being sent to all HyperStudio users, this should not be a problem, and there is no reason to maintain earlier-version copies of any of your stacks).

• **Locked stack changes**: When a stack is locked *and* the menu bar is hidden on a card, HyperStudio will ignore the keyboard commands for Move to beginning and end of stack, and next-card, previous-card. This lets you control the user's actions a little better in test stacks, adventure games, etc.

IMPORTANT: It is now possible to create a stack which *cannot be unlocked!* If you hide the menu bar on all cards but the last card, and then lock the stack and save it, AND there is no button that specifically moved to that last card, you will not be able to get back to the last card to ever unlock the stack again (or make changes). This is a "feature" for those wanting to create absolutely locked stacks, but you should use this option with care, and always keep another unlocked copy of the stack as a backup.

• **Usage tip:** A stack can be locked *without* using a password. All that is necessary is to check the box "Locked Stack" in the Preferences dialog box. A password need not be entered to lock a stack. This will make it easier for other users of your stacks to unlock them to make changes in those cases where this is not an issue for them. We've seen a number of stacks in the public domain that are locked with a password where there is really no need to use one. You should use password-locked stacks only in those cases where you absolutely do not want any user to alter your stack. This might be the case for test stacks used by students, but we encourage you to use this feature sparingly.

• **Apple-S now is the keyboard equivalent for SAVE.** It used to be for Save As... This will let you save stacks instantly with a single keypress. If the stack is brand new and has not yet been given a name, pressing Apple-S will bring up the Save As dialog so you can name the file.

• **Show Invisible Buttons.** Holding down the Apple- and Option-keys simultaneously will display the invisible buttons on a screen. This is disabled if a stack is locked.

• **"Local" directory application support.** Stacks moved to new directories can launch applications in the same directory with no button editing. HyperStudio 2.0 linked buttons to applications with an absolute pathname, and, for example, moving Sound Shop to a hard disk lost the connection to that program in the Home.Stack. In HyperStudio 2.1, buttons will find applications at both their original location and the local directory, if present.

• **Modified PRODOS file.** This is a special version of PRODOS (on the /HyperStudio disk) that gives a little more usable memory on a ROM 03 Apple IIGS. It has no effect on a ROM 01 machine. Move this file to your startup volume if you aren't using the /HyperStudio disk.

• **CLV (time-based or "Extended Play") laser disc support.** This version of HyperStudio now supports CLV laser discs. Note: The software interface for CLV discs is a little more sensitive than the frame-based drivers, and may require that you use the START button in the remote-control dialog box that comes up when you choose "Add a Video" (Objects menu) or "Play a Video" (button action). The START button only needs to be used when you first insert a new laser disc. The way to tell that everything is properly started and synchronized is to make sure that the little button to the right of the frame # indicator reads "Tm" (for "Time"), rather than "Ch", "Fr", or a blank button.

The number register for CLV disks is in HR-MIN-SEC format. That is, a number value of 02030 would mean 0 hours, 20 minutes, and 30 seconds. Since there can only be one hour of video on a side of a laser disc, the first digit will always be "0". Entering a number like 00090 will show a corrected value of 000130 (that is, 90 seconds is converted to 1 minute, 30 seconds).

Creating User Disks for Others

Although the HyperStudio program itself cannot be given to others, a way has been provided to create disks with your stacks that are independent of the original HyperStudio program. This is done using an additional file, HS.Sys16, that is located on the HS.Art disk.

HS.Sys16 is a miniature version of HyperStudio that has no editing functions, only the ability to run stacks you've created. Disks for other Apple IIGS users are created by putting this file on a disk, along with your own stacks. The "User Disk" you create this way can either be a startable disk, and thus completely self-contained, or you can create disks with just the HS.Sys16 file and your stacks. In this latter case, the user would have to start up the computer with a System Disk, or other startable disk, and then launch HS.Sys16 from the Finder, or other program launcher.

Remember, since any stack can branch to another stack, even on another diskette, it is not necessary that all the stacks for your project fit on one disk. You could, for example, create a 2-disk set with a startable disk with HS.Sys16 and your Home Stack on the first disk, and then use a button to link to the stacks on the second disk. This is the way the /HyperStudio and /HS.Demo disks are set up in the HyperStudio package.

File-Copy Instructions

The following instructions are for those familiar with copying files between disks. If you are more comfortable with an automated process, skip ahead to the section titled "Installer Instructions". That section describes a utility that will automatically create User Disks for you.

• **Startable User Disks:** To create a disk with System files that will start up to your own Home Stack, do the following:

1. Create a startable System disk with the file PRODOS and the System folder. You should delete, if necessary, the files START and P8 from the System folder, along with any unnecessary Driver files (System/Drivers). You should also delete BASIC.System and BASIC.Launcher, if necessary, from the main directory.

2. Copy the file HS.Sys16 from the HS.Art disk to your new disk.

3. Copy your own Home.Stack to your new disk.

That's it! This will now give you a self-contained disk, that when started up, will go directly to your own Home.Stack. This disk can be distributed to others in accordance with the HS.Sys16 License Agreement.

• **Non-Startable User Disks:** If you do not require a startable disk, you need put only the file HS.Sys16 on your disk, along with whatever stacks you wish.

IMPORTANT!! YOU MAY NOT, UNDER ANY CIRCUMSTANCES, DISTRIBUTE COPIES OF THE HYPERSTUDIO FILE. ONLY THE HS.SYS16 FILE MAY BE LEGALLY COPIED UNDER THE PROVISIONS OF THE HS.SYS16 DISTRIBUTION LICENSE.

In general, if you will be selling the disk with your stacks, this is considered "commercial use" of the HS.Sys16 run-time file, and a modest annual license fee must be paid to Roger Wagner Publishing, Inc. If you are not selling your stacks, then no license fee is required. Non-commercial use would include public domain stacks in user group libraries, stacks shared with friends and family, and stacks created for non-commercial distribution in schools.

Installer Instructions

This section describes how to use the Installer utility, provided on the /HyperStudio disk. This utility will automatically copy all the necessary files to create a User Disk for your own stacks.

You will also need the /System.Disk for GSOS version 5.0.2 or later, as supplied with your Apple IIGS computer, and/or by your local dealer.

1. Start up your computer with the /System.Disk. This will eventually display the Finder.

2. Insert a blank disk. When prompted, format the disk as you would any data disk, and name the disk User.Disk (or any other name you wish).

2a. If you have a disk that is already formatted that you are "recycling", choose Erase Disk from the Disk menu of the Finder after selecting the disk to be erased.

3. Insert the /HyperStudio disk, and launch the Installer program.

4. Click on the Disk button until you see your disk (User.Disk or ???) identified at the top of the window on the right of the screen.

5. Scroll down through the list on the left until you see the entry "Latest Sys. Files (No Finder)". Select this by clicking with the mouse on the entry.

6. Click on the Install button at the top-center of the screen. As the installation process proceeds, you will be prompted, if necessary, to insert the appropriate disks.

7. Again, use the Disk button to select your disk (User.Disk), and choose "User's Startable HS Disk" as the Update Selection.

8. Click on the Install button to begin the process. When finished, choose Quit to return to the Finder.

You now have a disk that, when started up, will display a title screen, and go to a "dummy" Home Stack. You may want to keep a backup copy of this disk to use as a starting point for other User Disks in the future.

Customizing the Disk

• **Home Stack:** The first thing you'll want to do is to replace the Home.Stack on the User.Disk with your own Home.Stack. This can be done by running your own full-version of HyperStudio, loading your Home.Stack, and then saving it to the User Disk. Other stacks may be added as room allows. Depending on how many stacks are in your project, it may be necessary to create a second disk, perhaps called User.Disk2, that contains just the additional stacks that won't fit on the first disk. It is not necessary to put the System files or HS.Sys16 on any other disk other than your first startup disk (User.Disk).

• **Startup Screen:** The HyperStudio disk has a startup screen that is shown every time the disk is started up. You can create the same effect on your own disks by using the Sight 'n Sound utility (there's an icon for this the HyperStudio Home Card under "Applications") to add your own startup picture. On the HS.Art disk is a file named "User.Title.Scrn" that you can use as a starting point for your own startup screen, and customize this graphic for your own disk.

You can also add a startup sound to your User.Disk using the Sight 'n Sound utility. Be aware that a startable disk with System files doesn't have a lot of extra space on it, and it may not be possible to fit the System files, a large Home Stack, and a large sound file on the disk. This may take a little experimenting to balance the use of the available space on a given disk to your satisfaction.

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