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Master's Thesis

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With a major in Graphic Arts Publishing
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An Investigation Into the Design and Effectiveness of Interactive Multimedia Interfaces

by Tara Ann Holod

A thesis proposal submitted in partial fulfillment of
the requirements for the degree of Master of Science
in the School of Printing Management & Sciences
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at the Rochester Institute of Technology

Thesis Advisor: Frank Romano

An Investigation Into the Design and Effectiveness of Interactive Multimedia Interfaces

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I dedicate this thesis to my father.
Thank You

Acknowledgments

I would like to thank A'isha Ajayi and
Frank Romano for letting me survey their classes.

I would like to thank my mother for her unwavering
support through a very difficult time in our lives.

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Abstract

"Human abilities should be amplified, not impeded, by using computers"

— Mark T. Maybury

In an attempt to evaluate the effectiveness of various screen interfaces utilized in interactive multimedia, an interactive thesis project was prepared to conduct tests. Walt Disney animation was chosen for the theme. The project was duplicated so that there were three identical copies - each representing different styles of interface navigation, button feedback, and "Help" systems. The multimedia projects were displayed on neighboring computers simultaneously so that a person could move directly from one to another with ease and no disruptions. Each person was given an evaluation sheet for each multimedia project and completed them one at a time. The sheets were then tallied and analyzed for signs of favoritism toward any style in particular.

> "Multimedia interfaces are computer interfaces that communicate with users using multiple media (e.g., language, graphics, animation, video, non-speech audio), sometimes using multiple modes together such as written text together with spoken language" (Maybury, 1993).

The three styles of interface navigation that the author tested are as follows; a rectangular navigation palette containing all necessary buttons, a navigation bar on the bottom right containing general navigation buttons with the more specific buttons next to their representative areas on the monitor, and last, an interface with all of the buttons scattered across the monitor.

For button feedback, visual feedback (highlighting a button) was tested against verbal feed back (a "click"). One interface had no button feedback at all.

One "Help" system was created as a diagram, one animated, and one that was text only.

Interfaces are critical in determining the success and/or failure of any piece of multimedia on the market today. The main goal of most multimedia projects is to present information of some kind. Many of the CD-ROMs on the market today have vastly different interfaces even for the most basic of commands. This adds to the consumer's confusion as to how to navigate through a project to find the desired information.

This project yielded some surprising results, for instance, one class, when verbally surveyed after testing and evaluating the multimedia projects, gave responses that were equally divided into thirds when asked which interface navigation method they preferred. This was as surprising to the author as it was to them who each clearly thought that their method was the best (and proceeded to try and tell each other so rather loudly).

Another interesting result found was that males preferred the verbal button feedback ("click") and the females preferred the visual button feedback (highlighting the button). In some cases, the males did not notice the visual feedback until it was discussed at the end of class.

The results of this project provided some much needed interface design statistics and comments which will enable designers to better understand consumer preferences and make appropriate changes to any future projects.

CHAPTER 1

Introduction

Many current users of CD-ROMs are middle-aged. These people grew up before the computer age became the reality it is today with a PC on every desk. Unlike their children they are not as comfortable nor as patient with the new technologies being developed and often have trouble keeping themselves open minded. If they encounter problems while utilizing a new technology, they are far more likely to give up rather than waste precious time figuring it out.

The current CD-ROMs on the market have interfaces that are significantly different. There is no rhyme or reason linking one CD-ROM to the next. This can be confusing and unsettling for the current adult generation who grew up on the premise that if you learn how to use one particular item then you could apply what you learned to all similar items.

This thesis project tests the design and effectiveness of various styles of navigation, various forms of button feedback and various "Help" systems. These specific areas were chosen after researching over fifty CD-ROMs and evaluating their interfaces. An interactive project was created with a Walt Disney theme. It was correctly guessed that a non-threatening, entertaining theme such as Walt Disney's animated classics would enhance students' willingness to participate.

A "Help" system is any form of help available to you within a specific application on the computer. A relatively well known example of this is the Balloon Help that is available on the Macintosh. Button feedback is a term used to describe the feedback you get when you click on a button on a monitor. In some cases, the button highlights to show you that it is

responding. In other cases there is some verbal form of feedback such as a clicking noise. These forms of button feedback inform you that the computer knows that you have pressed that button and that it has not in fact crashed, it is merely processing data. A navigation system contains all of the buttons needed to operate an interactive project of any type (both navigation buttons and action-specific buttons). Navigation buttons are those buttons needed for navigating or traveling throughout an interactive project of any form. Action-specific buttons are those buttons that perform some action such as playing a movie or a sound.

The results gathered should indicate whether there is a specific style of interface that is more universally understood as well as whether or not there might be a need for some sort of standardization of CD-ROM navigation systems, "Help" systems and/or button feedback.

CHAPTER 2

Theoretical Basis of Study

According to Mark Maybury, "If appropriate media are utilized for human computer interaction, there is the potential to (1) increase the bandwidth of information flow between human and machine (that is, the raw number of bits of information being communicated), and (2) improve the signal-to-noise ratio of this information, (that is, the amount of useful bits conveyed)". To do this, however, we must have a better knowledge of all of the pieces to this puzzle.

The knowledge we do gain keeps getting hindered by the ". . . proliferation of new interactive devices (datagloves and bodysuits, head mounted displays, three dimensional sound), the lack of standards, and a poor or at least ill-applied knowledge of human cognitive and physical capabilities with respect to multimedia devices" (Maybury, 1993).

There is still so much to be learned in order to understand the principles of multimedia communication and the resulting impact for users everywhere. "Understanding these principles will not only result in better models and interactive devices, but also lead to new tools for context-sensitive multimedia help, automated and semi-automated multimedia interface construction, and intelligent agents for multimedia information retrieval, processing, presentation, and authoring" (Maybury, 1993).

By evaluating the effectiveness of various parts of multimedia interfaces, some information was generated that multimedia designers can utilize to increase the quality of interactive projects on the market.

CHAPTER 3

Review Of Literature

Mark Maybury's book *Intelligent Multimedia Interfaces* takes a look at different types of media and ways to assemble them into an articulate, intelligent interface. This book was at times too technical, dealing with layers, hierarchies and programming but if you read between the lines and generalize it, it becomes very helpful when dealing with this subject.

User Interface Development Design by Gary Perlman of Ohio State University is an interesting look at creating an interface based on a chapters full of outline-style concepts. This was very helpful as it was very straight to the point and concise. It often provided a rough outline or checklist that was used to keep the author on track throughout the process of creating this project.

HyperCard Stack Design Guidlines by Apple Computer, Inc. is an extremely useful book. It explains how to make stacks (projects) that are easy to navigate and covers several relevant elements such as graphics, buttons, text and fields, and music and sound. It also discusses how to build a stack (for those who have never done so) and how to market stacks for people with special considerations (for those for whom English is a second language, etc). There is also a very helpful section that contains a summary of *Apple's Human Interface Guidelines* as they relate to building a stack.

These are the three sources that were the most beneficial in helping to understand the current problems and trends in multimedia stacks and interfaces. *Intelligent Multimedia Interfaces* and *HyperCard Stack Design Guidelines* can be found in or ordered from your local bookstore.

CHAPTER 4

Statement of Problem

The focus of this thesis was to investigate the design and effectiveness of interactive multimedia interfaces by analyzing at least fifty different CD-ROMs being sold in the market place today, choosing specific problem areas from the CD-ROMs and creating my own multimedia project (with variations of these problem areas) to be evaluated. A test group of students navigated through the author's final project and recorded their results. This provided some much needed information for both students and professionals interested in creating multimedia projects in the near future.

The reference materials used never get into the specifics concerning the relationship of the placement of navigation buttons to the gender of the user, for instance. The relationship of a person's occupation (or intended occupation) to their preferences is another area that the author would like to explore. Is there a difference between a creative person's preferences and a scientific person's preferences?

By answering these and other closely related questions, we can begin to understand the principles that direct peoples' actions and create to fit within these principles. If this is possible, it could increase the capacity for learning and understanding in a multimedia environment. Due to the onslaught of new technology that utilizes interface design, the sooner our counterparts and their methods' of evaluating things are understood, the sooner this information can be put to use within this technology which will earn praise and increase sales tremendously.

CHAPTER 5

Methodology

A large selection of CD-ROMs was borrowed from a few people, from the author's private collection and from the Wallace Memorial Library. Out of the CD-ROMs borrowed, thirteen were selected for their interface design (most of the rest were found to be lacking in this area).

Each of the thirteen were inserted into the CD-ROM drive on a Macintosh Centris 660av computer The author spent at least a half an hour exploring each disc. As the individual discs were viewed, the author took snapshots (screendumps) of the screen using an extension called Exposure Pro™. After each disc review, the author would spend a few minutes jotting down first impressions. When all of the discs were viewed, the snapshots were placed into a QuarkXpress 3.3 document and printed with a Canon Laser Copier 500.

The printouts provided a physical copy to work from as the screenshots from each disc were viewed more closely. Every disc was extremely different. Some had great HELP areas while others had no help whatsoever. Some had buttons that gave no feedback and left the author to wonder if it was really working or if the machine had crashed. Others had excellent interfaces that left the author with no questions to ponder.

With this range of interfaces it was difficult to chose specific areas to test because there were so many to choose from. The author chose the following; button feedback, "Help" systems and navigation. These seemed to be the greatest areas of difference between discs. These areas also seemed to be the most problematic (most likely due to the lack of continuity).

At this point it was decided that the author was going to create one project in HyperStudio 2.0 and duplicate it three times producing three identical stacks. Each of these stacks would contain a different version of each these three test areas. As the project was being put together, it was decided which version of which test area would be used in each stack. For stack A, it was decided that visual button feedback (highlighting), a navigation palette containing both navigation and action-specific buttons and a "Help" system containing a diagram would be used. Stack B contained no button feedback, animated "Help", and navigation buttons bar-style on the bottom right with action-specific buttons next to their relevant areas of the monitor. Stack C contained verbal button feedback ("click"), a straightforward text "Help" system and navigation and action-specific buttons both scattered about the monitor.

Walt Disney's animated classics were chosen as the theme in hopes that this would act as an ice-breaker and motivate people to respond at a greater rate both verbally and in writing.

Adobe Photoshop 2.5.1 and Kai's Power Tools were used to create all of the buttons. The still images were scanned 72 dpi (screen resolution) using an Agfa Horizon scanner. The movies and sounds were captured using a VCR attached to a Macintosh Quadra 660av. FusionRecorder by Videofusion was the video capture software used. Adobe Premier was used to capture the audio clips and create movies by editing in the stills containing the name of the sound (made in Photoshop). All of these pieces were stored on Syquest discs and 128 Mb MO discs.

The pieces were put together in HyperStudio, a multimedia authoring tool. This authoring tool was chosen because of the author's interest in testing basic elements of interface design, not because there was an interest in stretching the limits of multimedia. In the author's opinion, for a basic multimedia authoring package that is quick and easy to use HyperStudio is very good.

Once these stacks were completed, A survey was created that included questions about the useability of the areas in question as well as some questions about interface design in general. Areas for opinions on the possible standardization of interfaces were also included. Each question was answered on a scale of one to five.

The following classes were surveyed (with instructor permission); Frank Romano's Electronic Publishing undergraduate course and A'isha Ajayi's Electronic Communications in Printing & Publishing undergraduate class. Co-workers at RIT's Research Corporation were also surveyed as well as the author's friends. A large cross-section of people was gathered, from secretaries to color scientists, male and female. A total of fifty surveys were completed.

The first thing the author noticed was that people had fun surveying this thesis project. The Walt Disney theme worked beautifully. It made even the most nervous person relax, laugh and smile. Most importantly the theme allowed them to communicate easily because of the familiarity with the subject matter. In the classes that were surveyed, it didn't take long for everyone to enjoy themselves, some even stayed late because they wanted to make sure they had seen everything in the stacks. The inter-class banter that was overheard was valuable because the students were expressing themselves freely and there was no pressure. The theme and the type of survey used were judged by the author to be the correct choices.

The results were then entered into Microsoft Excel and charted. The charts are displayed in CHAPTER 6.

The next two pages contain a duplicate of the survey used to analyze these stacks.

Critique Sheet for Interactive Interfaces

Male **Female** **Major** _____

Name of interactive project **A** **B** **C**

Complete (and check) the following:

- ☐ Find the Help button and explore Help.
- ☐ Find the quicktime movie control panel.
- ☐ Play a quicktime movie from each of the animated classics (4).
- ☐ Find the sound control panel.
- ☐ Play a sound from each of the animated classics (4).
- ☐ Find a quit or exit button and when you are ready, use it.

Help (please circle)	Least No				Most Yes
Was Help easy to find?	1	2	3	4	5
Was Help easy to use?	1	2	3	4	5
Was Help useful in navigating through this stack?	1	2	3	4	5
Would you like for future interactive projects to contain this style of Help?	1	2	3	4	5

Please give your opinions and comments on this style of Help:

Navigation (please circle)					
Were the navigation controls easy to find?	1	2	3	4	5
Were the navigation controls easy to find when you needed them?	1	2	3	4	5
Were the navigation controls easy to use?	1	2	3	4	5
Would you like for future interactive projects to contain similar navigation controls?	1	2	3	4	5
Do you feel that people of all ages would be able to navigate through this project easily?	1	2	3	4	5

Please give your opinions and comments on this style of Navigation:

Button Feedback (please circle)

	Least No				Most Yes
Did the buttons provide any visual or verbal feedback?	1	2	3	4	5
Was the Button Feedback useful in navigating through this stack?	1	2	3	4	5
Would you like for future interactive projects to contain this style of Button Feedback?	1	2	3	4	5

Please give your opinions and comments on this particular style of Button Feedback:

General Questions (please circle)

Do you feel that there should be standardization in interactive interfaces? For example, do you feel that a QUIT button should be in the same spot in each interface, much like that of page numbers are in a book...	1	2	3	4	5

Please comment on the subject of standardization of interfaces:

Do you think that research should be done on interactive interfaces?	1	2	3	4	5
Do you feel that interfaces of current educational and entertainment software is adequate?	1	2	3	4	5
Do you feel that if this type of archive were installed at, say, Wegman's Home Video, it would aid in making decisions for purchasing and renting movies?	1	2	3	4	5
Would **you personally** use this type of archive help you choose a movie to purchase or rent?	1	2	3	4	5

If there are any areas that you would like to address, please do so now:

CHAPTER 6

The Results

Navigation

The first section dealt with this the issue of Navigation systems. Stack A had the navigation palette. Stack B had the navigation in a bar style while Stack C had the buttons scattered. Figure 1 below shows that stacks A & B seem to be tied with stack C a distant third. Stack B came out as the one that people would recommend be used in future stacks (Question #4). This was surprising as the author assumed that the navigation palette approach used in Stack A would be the obvious choice.

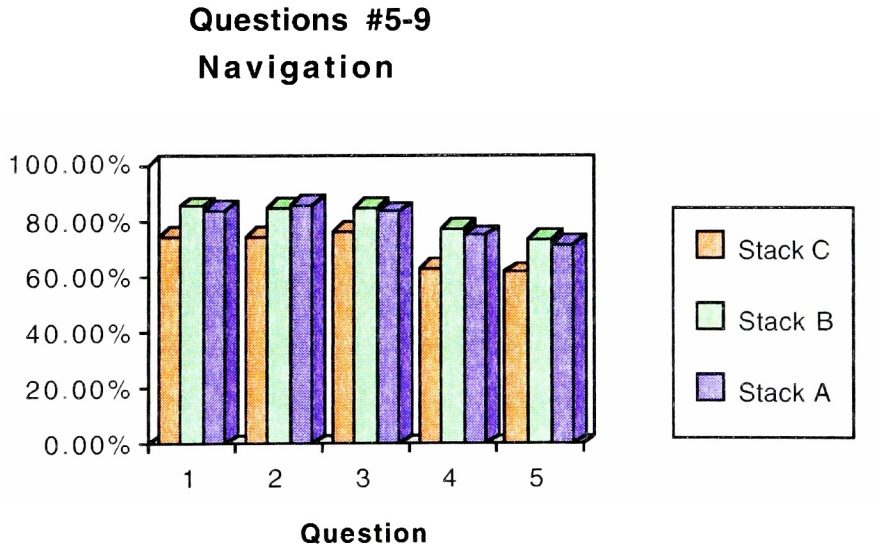


Figure 1

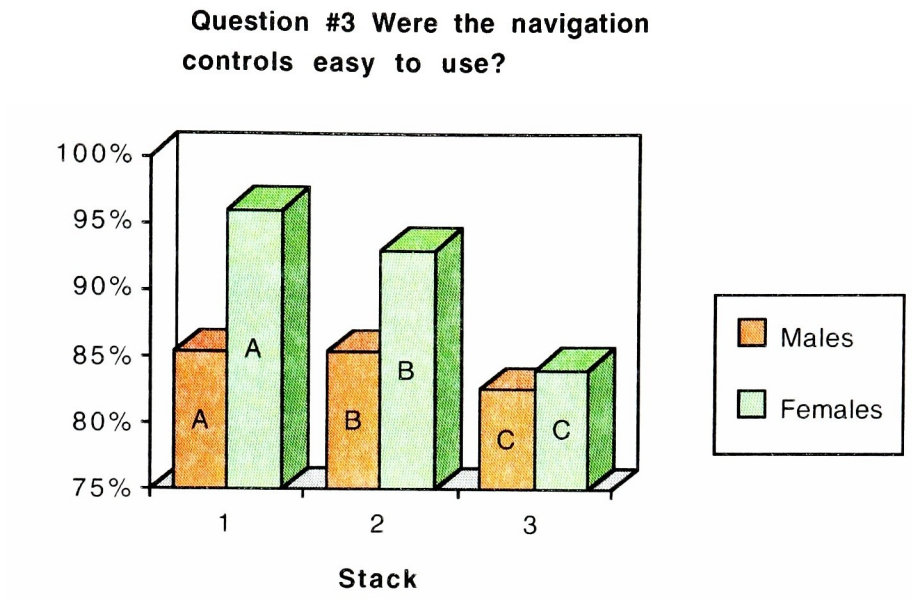


Figure 2

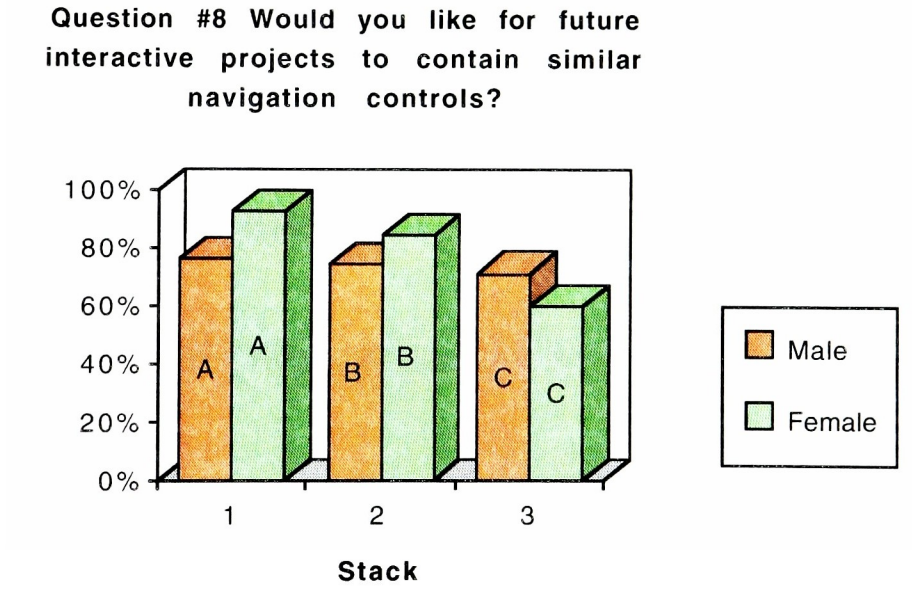


Figure 3

As far as gender preferences go, when asked which set of navigation controls were found to be easiest to use (Figure 2), the females preferred Stacks A & B by far and rated them much higher, whereas the males seemed to find all of them almost (slightly higher on A & B). On

the whole the males seemed to be less choosy when it came to navigation placement. When asked if they would like to see that particular style of navigation in the future, the males were, once again, almost even across the three stacks, whereas the females preferred Stack A, closely followed by Stack B (Figure 3).

Figures 4, 5 and 6 represent Stack A, B & C respectively. They contain the results of the five questions in the navigation section divided into 4 occupational areas (Creatives = Graphic Design, Photographic Illustration; Semi-creatives = Graphic Arts Publishing; Semi-technical = Printing, Imaging & Photographic Technology, Business; Technical = Computer Engineering, Computer Science, Imaging Science, Color Science). The semi-creative (green) people seemed to score above the rest on all three versions. This group (mostly made up of Electronic Publishing students) liked the diagram version best as did the technical people. The creative people seemed to like the split navigation the best. The semi-technical people were almost even across the board similar to the semi-creative people.

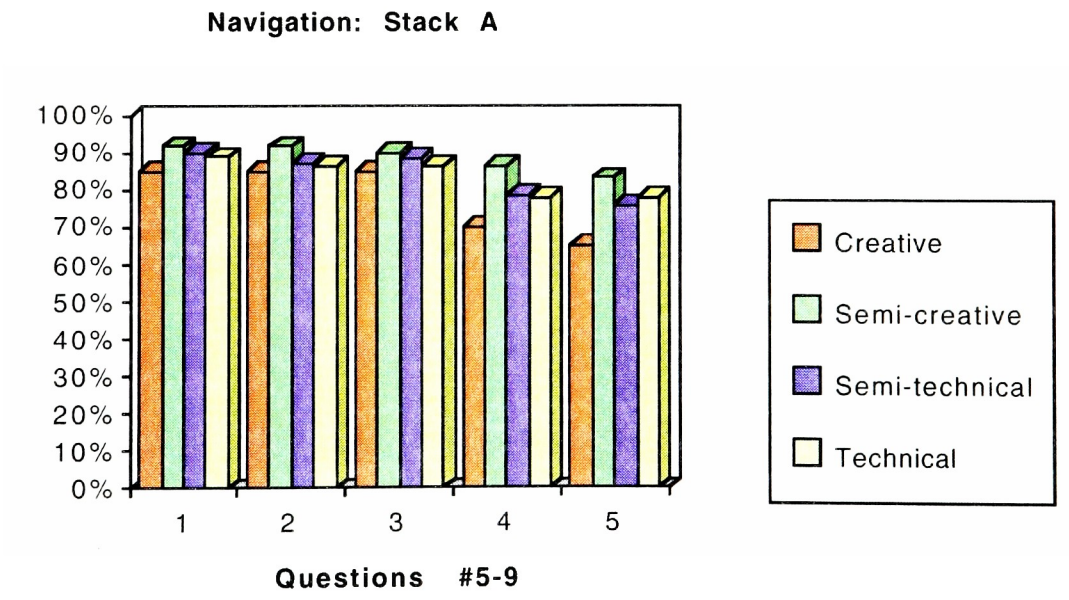


Figure 4

Navigation: Stack B

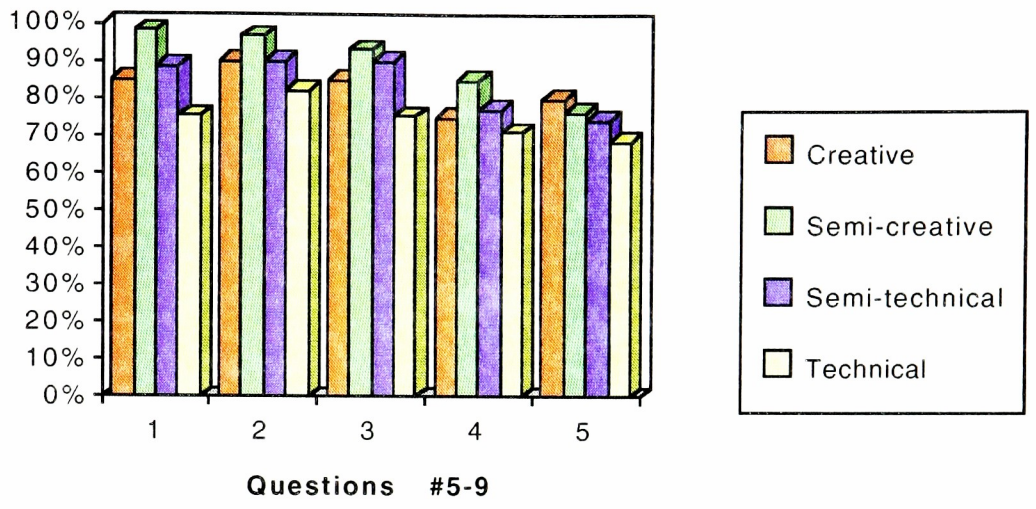


Figure 5

Navigation: Stack C

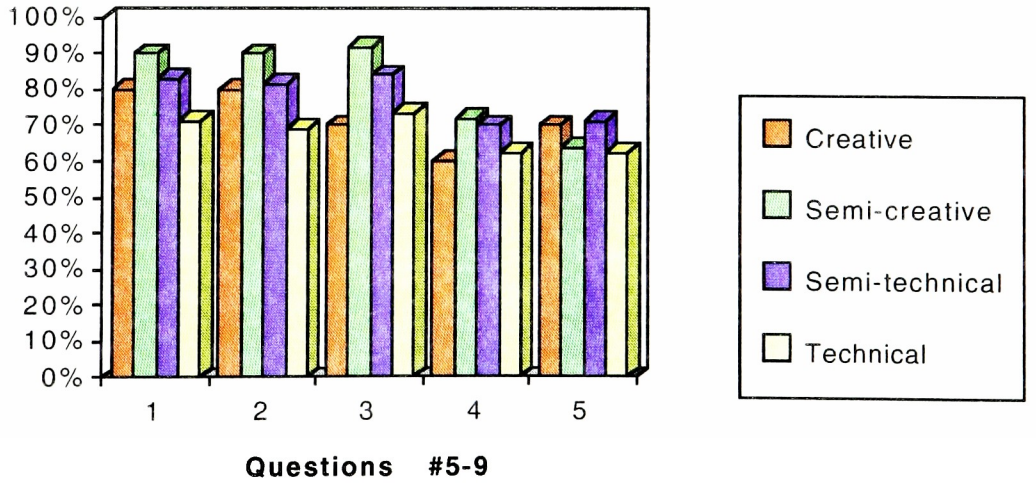


Figure 6

Help

This section discusses the results of the "Help" section. In Figure 7, the diagram style of "Help" in Stack A was the winner. Surprisingly enough, while those testing seemed to dislike the straightforward style used in Stack C, they still seemed to find it easier to use than that of the animated style in Stack B Many commented that they didn't like the lack of control; having to sit and wait for it to end.

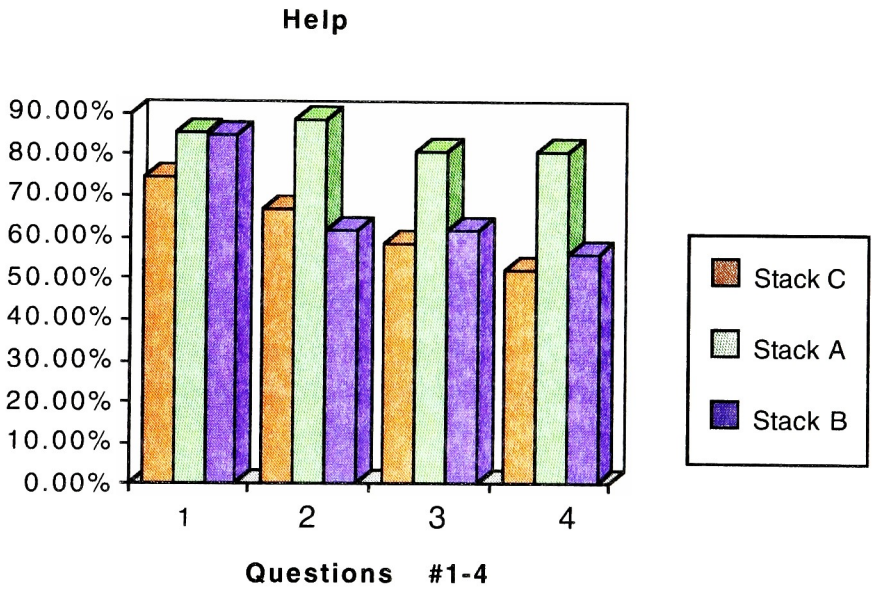


Figure 7

In Figure 8, "Was "Help" useful in navigating through the stack?", females preferred Stacks A & B (diagram & animated) while the males preferred Stacks A & C (diagram & text). The males stated that they had trouble waiting for the animation to finish.

Question #3 Was Help useful for navigating through this stack?

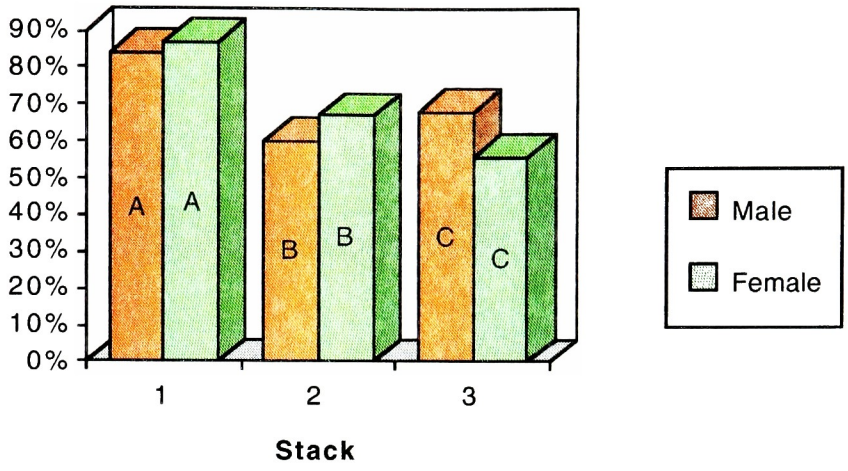


Figure 8

Question #4 Would you like for future interactive projects to contain this style of Help?

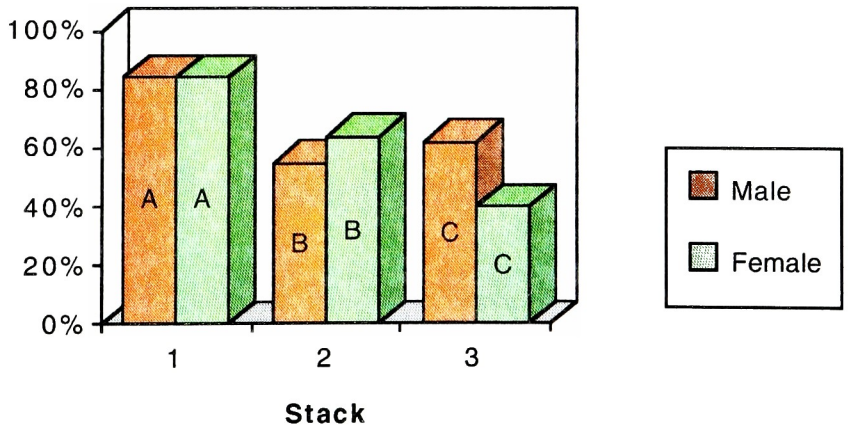


Figure 9

When asked which style of "Help" they would prefer in future stacks (Figure 9), both male and female replied almost unanimously, Stack A (diagram). For second choice, males preferred the text style of Stack C and the females, the animated style of Stack B.

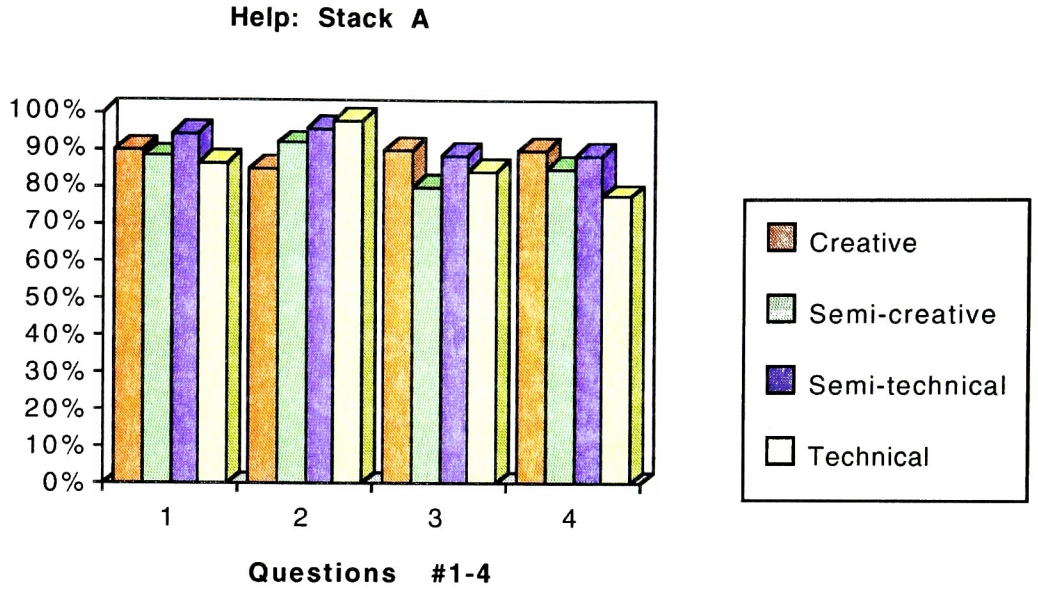


Figure 10

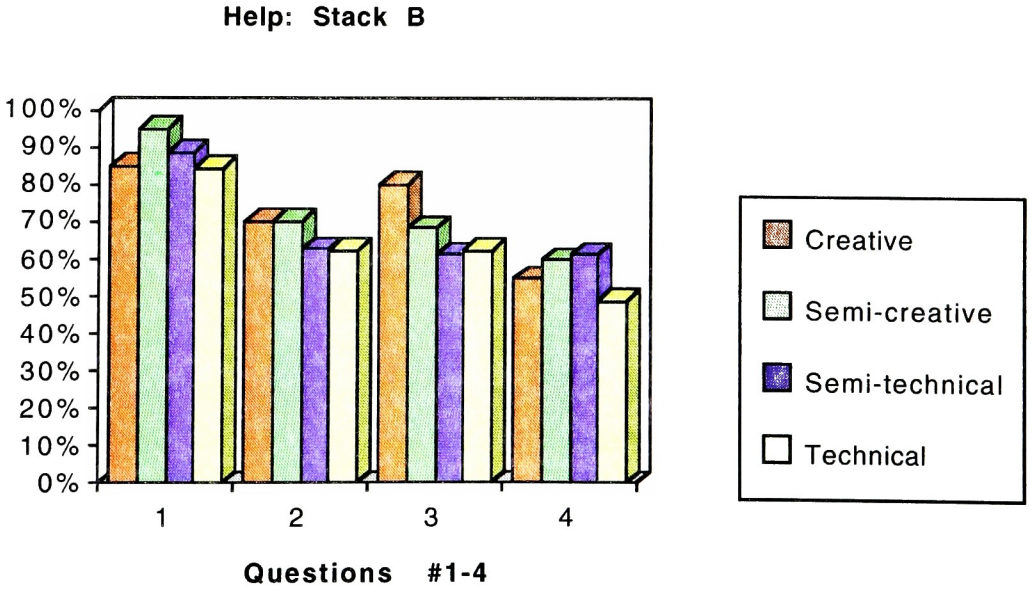


Figure 11

In Figure 10, it was of interest that the technical majors found it easier to use the diagram ""Help"" (Stack A) than did the other majors while they seemed to have the hardest time with the animated version (Figure 11). Those that lean the technical way seemed to prefer the text style "Help" (Figure 12) much more than those from the creative side. The reverse holds true also, the creatives showed a preference for the animated sequence far more than their counterparts.

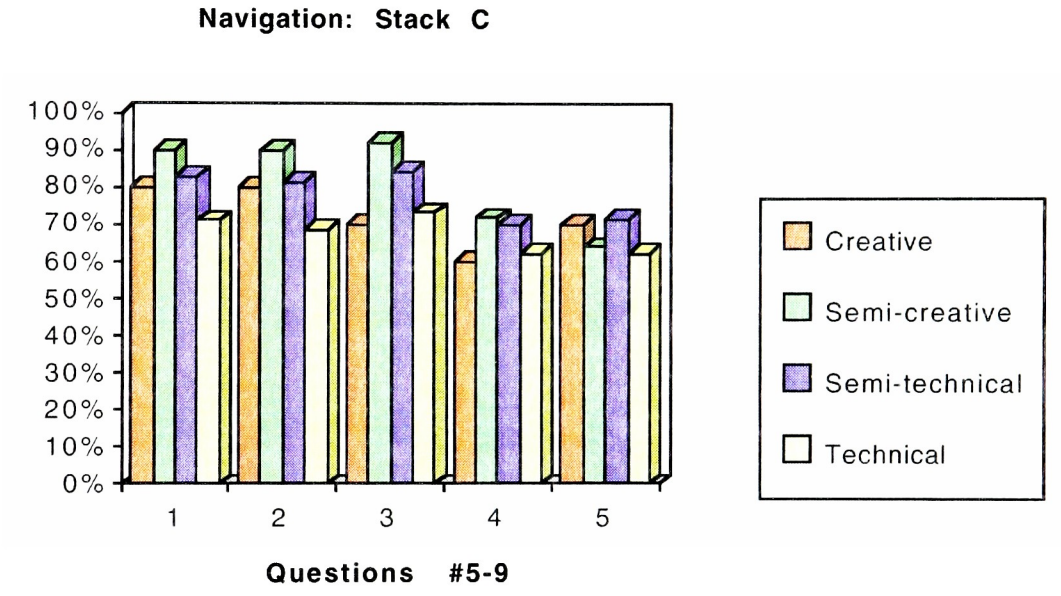


Figure 12

Button Feedback

This section discusses Button Feedback. The males appear to respond to the verbal clicking sound exhibited by Stack C. They noticed it more in Figure 13, found it more useful in navigating through the Stack in Figure 14, and would much prefer that future Stacks use "clicks" (or something equally vibrant) rather than visual feedback.

Question #10 Did the buttons provide any visual or verbal feedback?

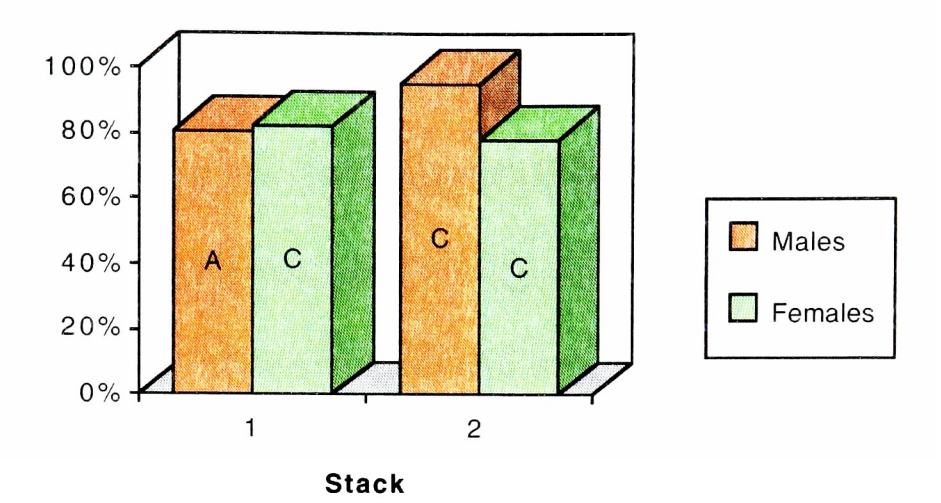


Figure 13

Question #11 Was the button feedback useful for navigating through the project?

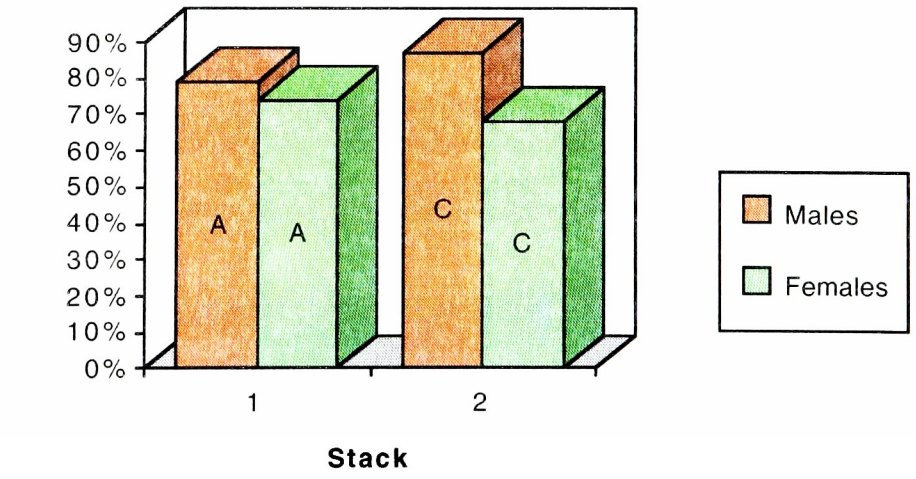


Figure 14

Question #12 Would you like for future projects to contain this style of feedback?

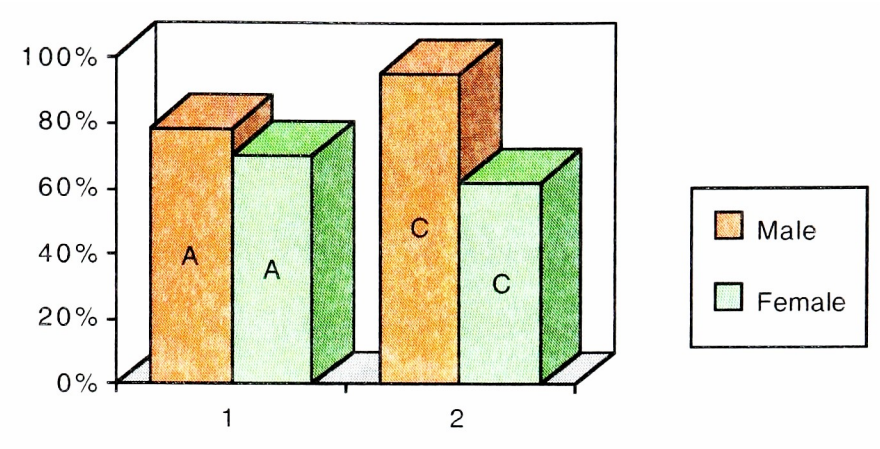


Figure 15

General Questions

The last area of results received was that of the General Questions. These are in pie-chart format as follows:

Question #13 Do you feel that there should be standardization of interactive interfaces?

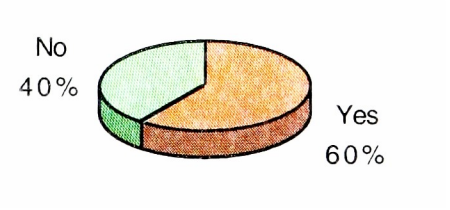


Figure 16

Question #14 Do you think that research should be done on interactive interfaces?

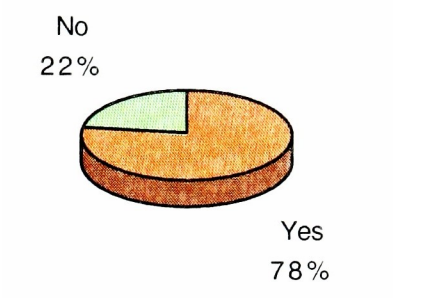


Figure 17

Question #15 Do you feel that interfaces of current educational and entertainment software is adequate?

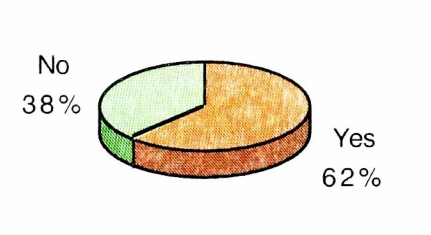


Figure 18

Question #16 Do you feel that this type of archive would influence your decision to rent or buy movies?

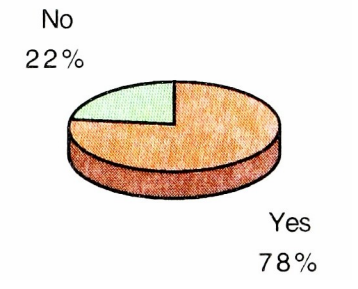


Figure 19

Question #17 Would you PERSONNALLY use this type of archive to make your movie decision?

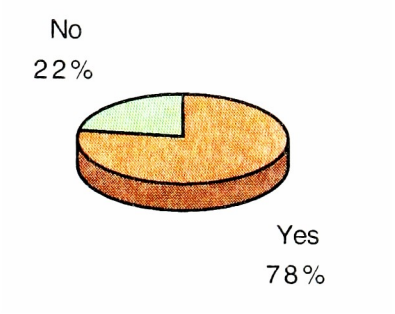


Figure 20

As the pie-charts above clearly show, a majority of the people surveyed feel that some sort of research should be done in the area of interactive interface design to come up with standardization.

If there's one thing that this thesis project has taught the author it is that everybody has their own idea of what is right and what is wrong. Which "Help" system is the best, the most concise, the easiest to understand. Which button feedback – visual or verbal – will catch someone's attention without being overly obvious. Maybe with more time, effort and money spent in this area some generally accepted standardization can be realized.

CHAPTER 7

Summary & Conclusion

The focus of this thesis was to investigate the design and effectiveness of interactive multimedia interfaces by analyzing at least fifty different CD-ROMs being sold in the market place today, choosing specific problem areas from the CD-ROMs and creating a multimedia project (with variations of these problem areas) to be evaluated. A test group of students navigated through the final thesis project and recorded their results. This provided some much needed information for both students and professionals interested in creating multimedia projects in the near future.

The valuable information that has been gathered will go a long way towards trying to understand how vast our differences can be so we can try to concentrate on of some of our similarities rather than those differences.

The author has found that we all have different levels of understanding, annoyance, happiness and sadness which would make it nearly impossible for designers to create effective interfaces for such a variety of people who have such a variety of emotional levels.

Perhaps the answer lies not in creating a rigid standardization, but in offering a selection of interfaces at the beginning of each disc. From this selection you could choose form several different kinds of options such as your preferred method of button feedback. This selection process could be interactive so as to reduce the stress level of new users. There could also be shortcuts around this selection process to satisfy the more advanced users.

Maybe the selection process itself could be standardized. As people become more familiar

with it, they will use the shortcuts more and more often. In the future it may be possible to provide the shortcuts as your first choice and leave an option to use the selection process for those who are new users.

These are a few of the possible conclusions that this project has lead me to ponder. Perhaps in the future we will see a selection process as standard on every CD-ROM or piece of software with an interactive interface, or maybe we won't. Either way, the author feels that this issue deserves further attention.

CHAPTER 8

Areas For Further Study

There are many areas one could pursue pertaining to this thesis if they so desired. For instance:

Stack Depth - how many menus or layers should you have? How many is too many and how many is too few?

Type - What size and style of typeface do people naturally gravitate towards on the screen.

Paragraph Length - How much text should be allowed on a screen?

Leading - What is the proper leading necessary to read from a monitor without causing eyestrain?

Color - How many and what hue, saturation and contrast should they be when on a monitor?

Palettes - What is the ideal shape and size for a palette of any kind on a monitor?

A Selection Process - The possibility of putting a small application at the beginning of every piece of software with an interactive interface so that you can choose from a variety dialogue boxes and customize your interface to make your navigation easier.

There is a world of new topics opening up due to the growing use of monitors and other RGB display devices. You can pick almost any area and put it on a monitor to test it!

BIBLIOGRAPHY

BIBLIOGRAPHY

Apple Computer, Inc. *HyperCard Stack Design Guidelines.* Reading, MA. Addison - Wesley Publishing Company, Inc. 1989.

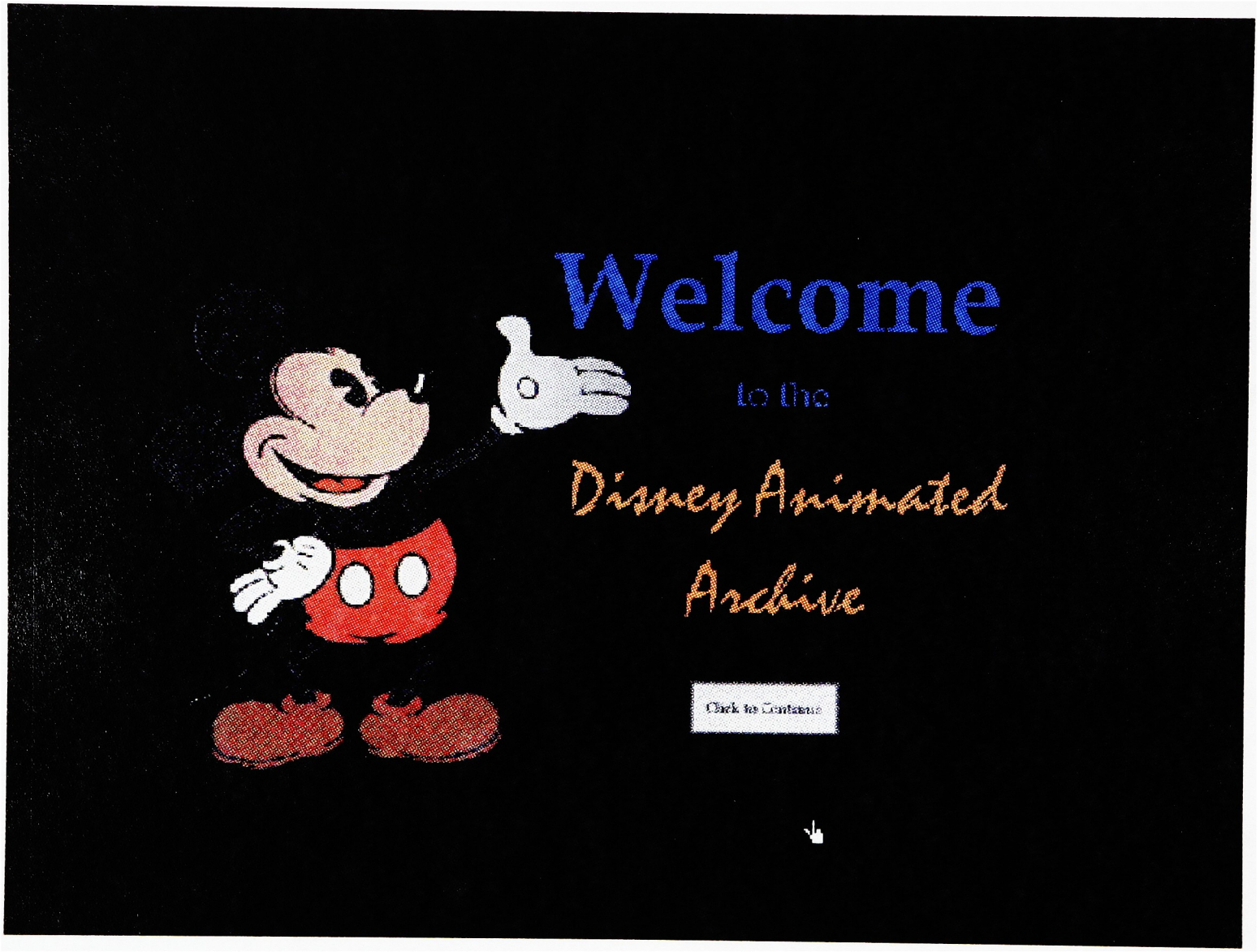
Maybury, Mark T. *Intelligent Multimedia Interfaces.* Cambridge, MA.. American Association for Artificial Intelligence & MIT Press. 1993.

Perlman, Gary. *User Interface Development.* Columbus, OH. Ohio State University. 1991.

APPENDIX A

APPENDIX A

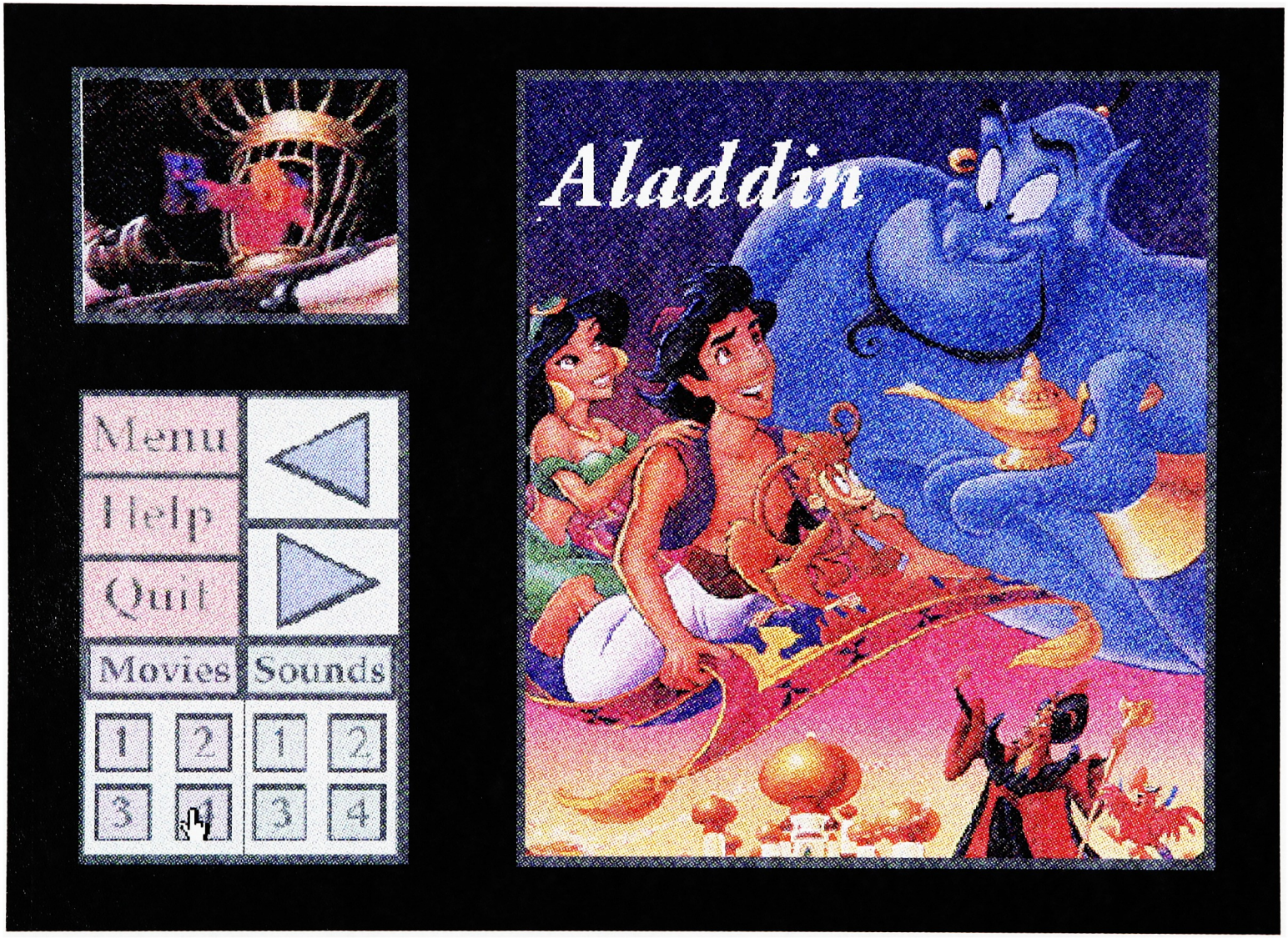
Screen Captures Taken From CD-ROM's Researched For This Thesis



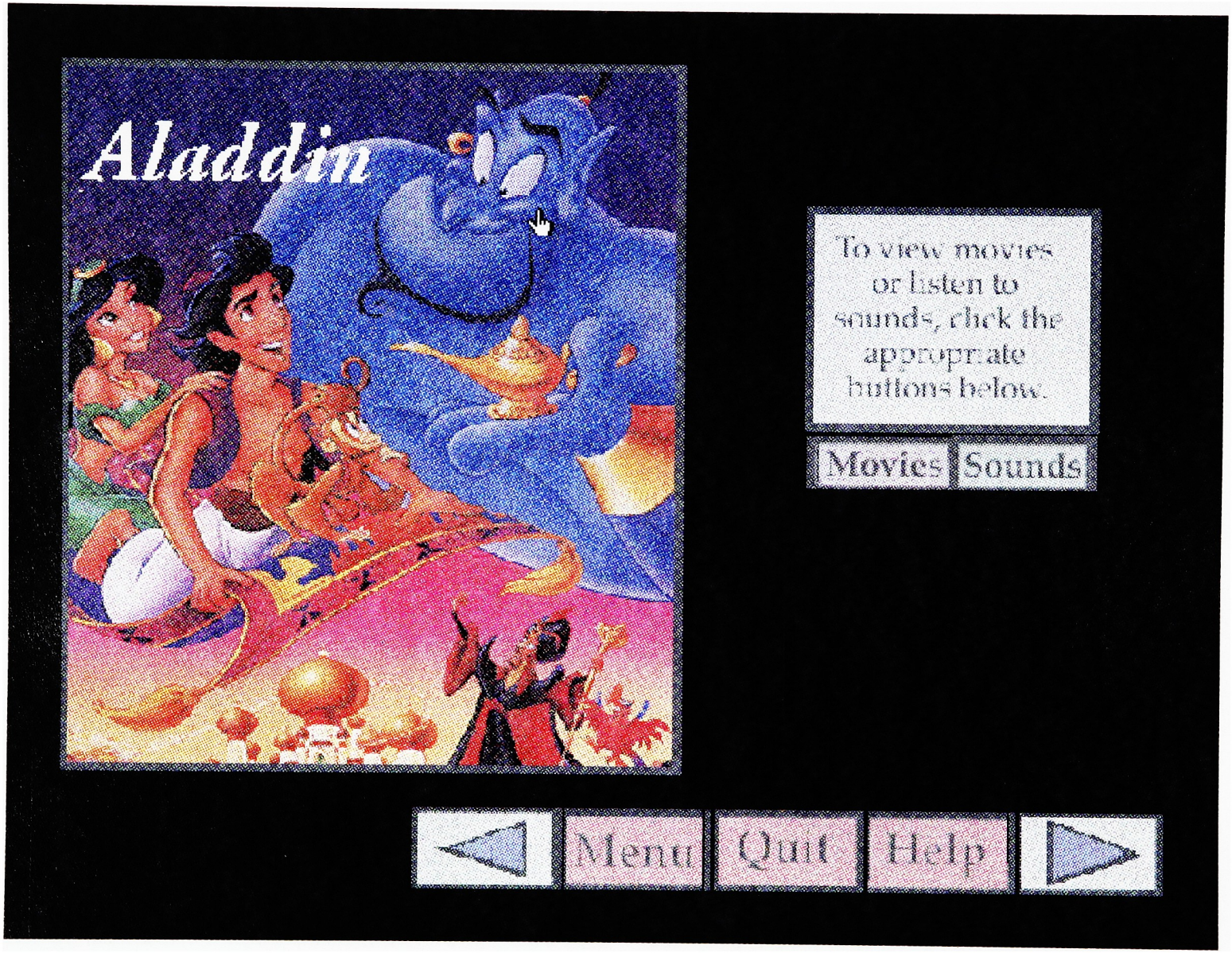
Opening Screen


Aladdin
Cinderella
Fantasia
Peter Pan
Click the animated film of your choice to continue

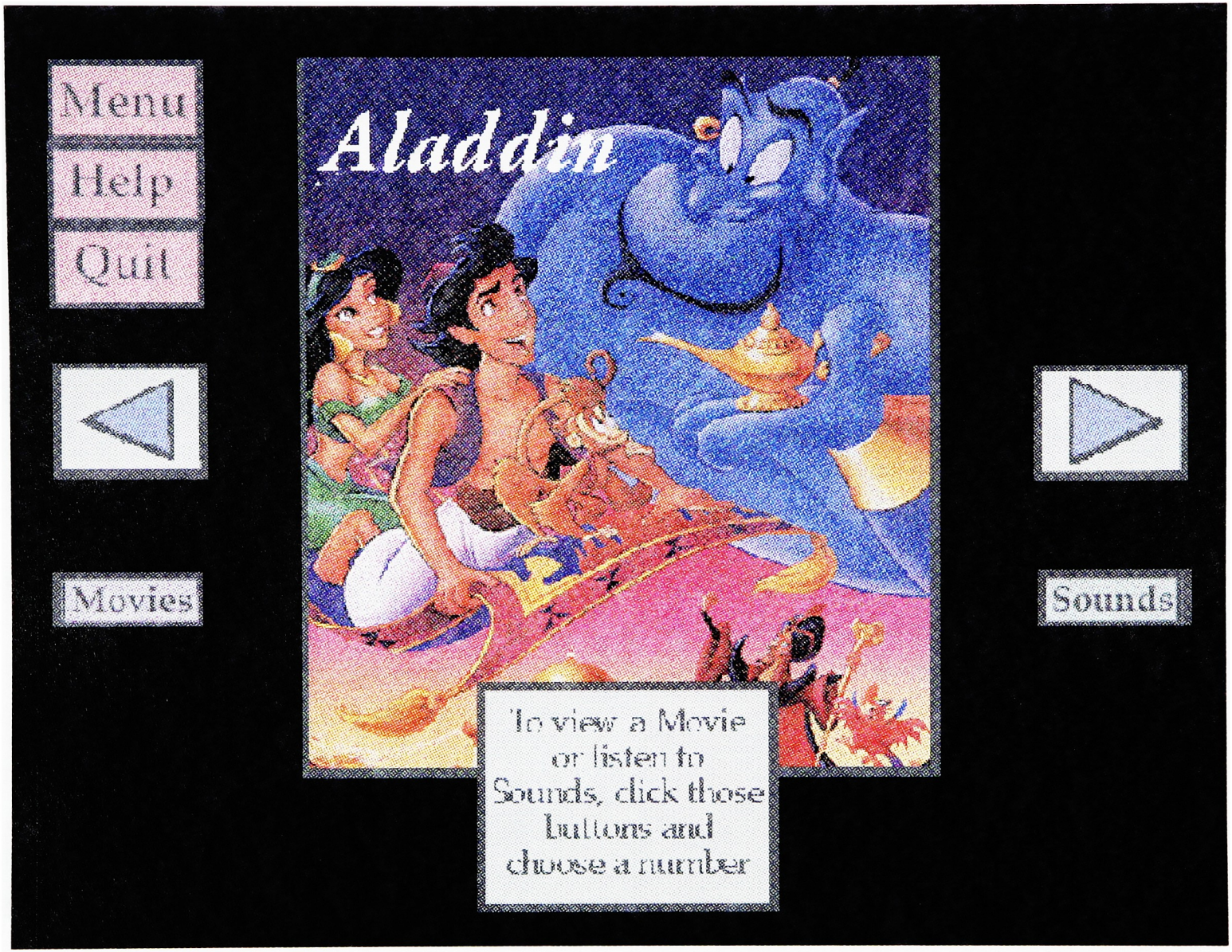
Main Menu

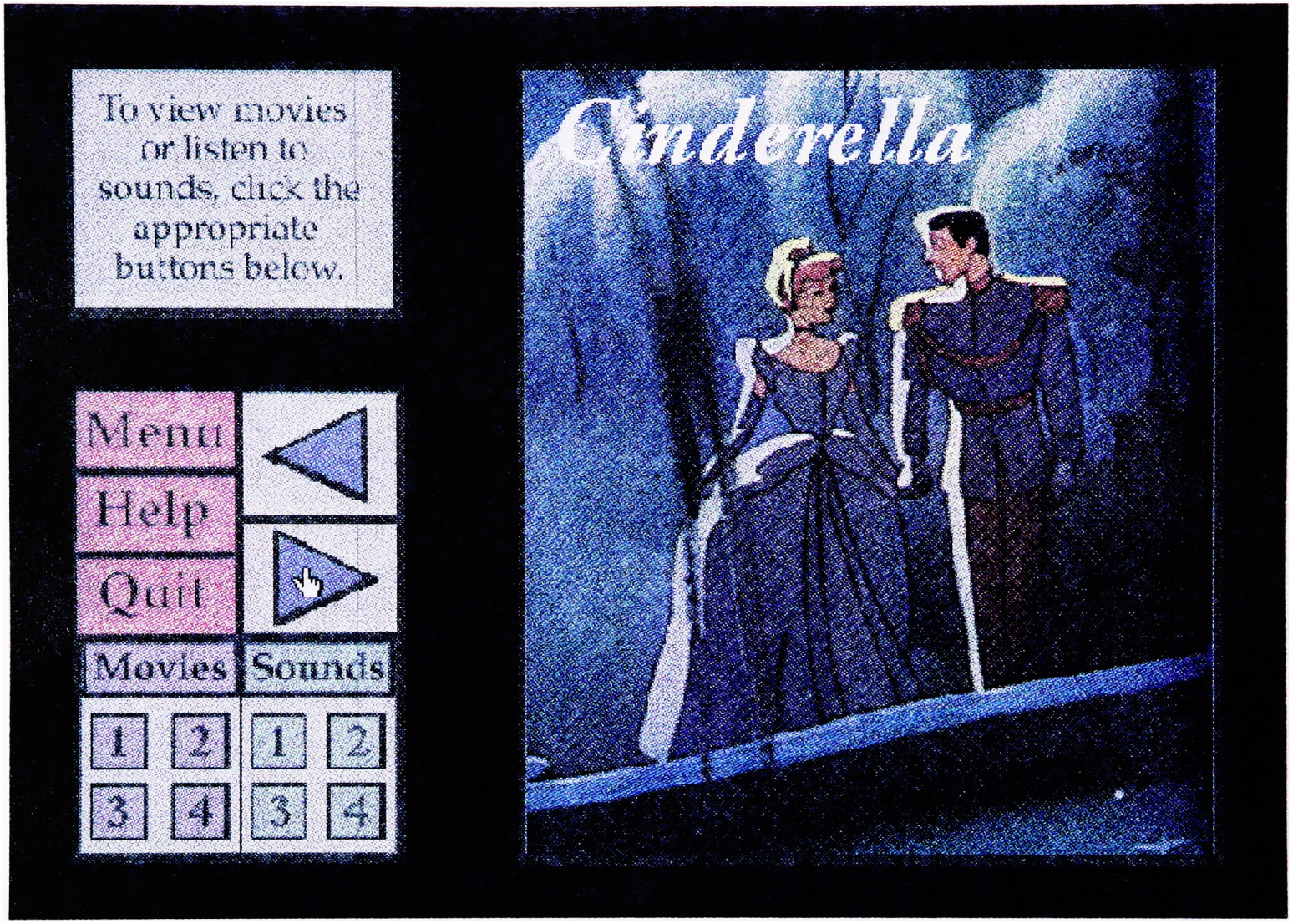


Aladdin Project A (with movie activated)

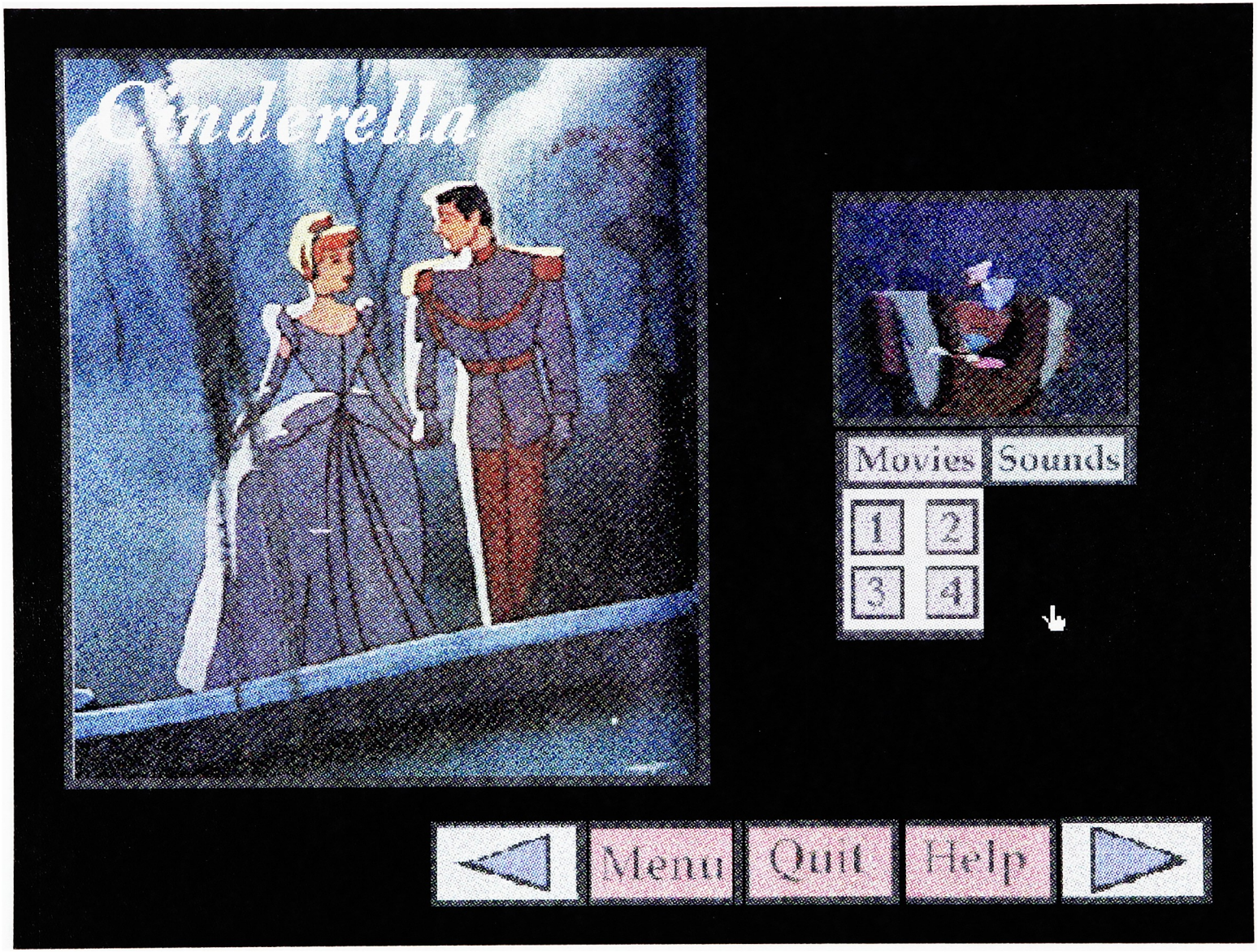


Aladdin Project B

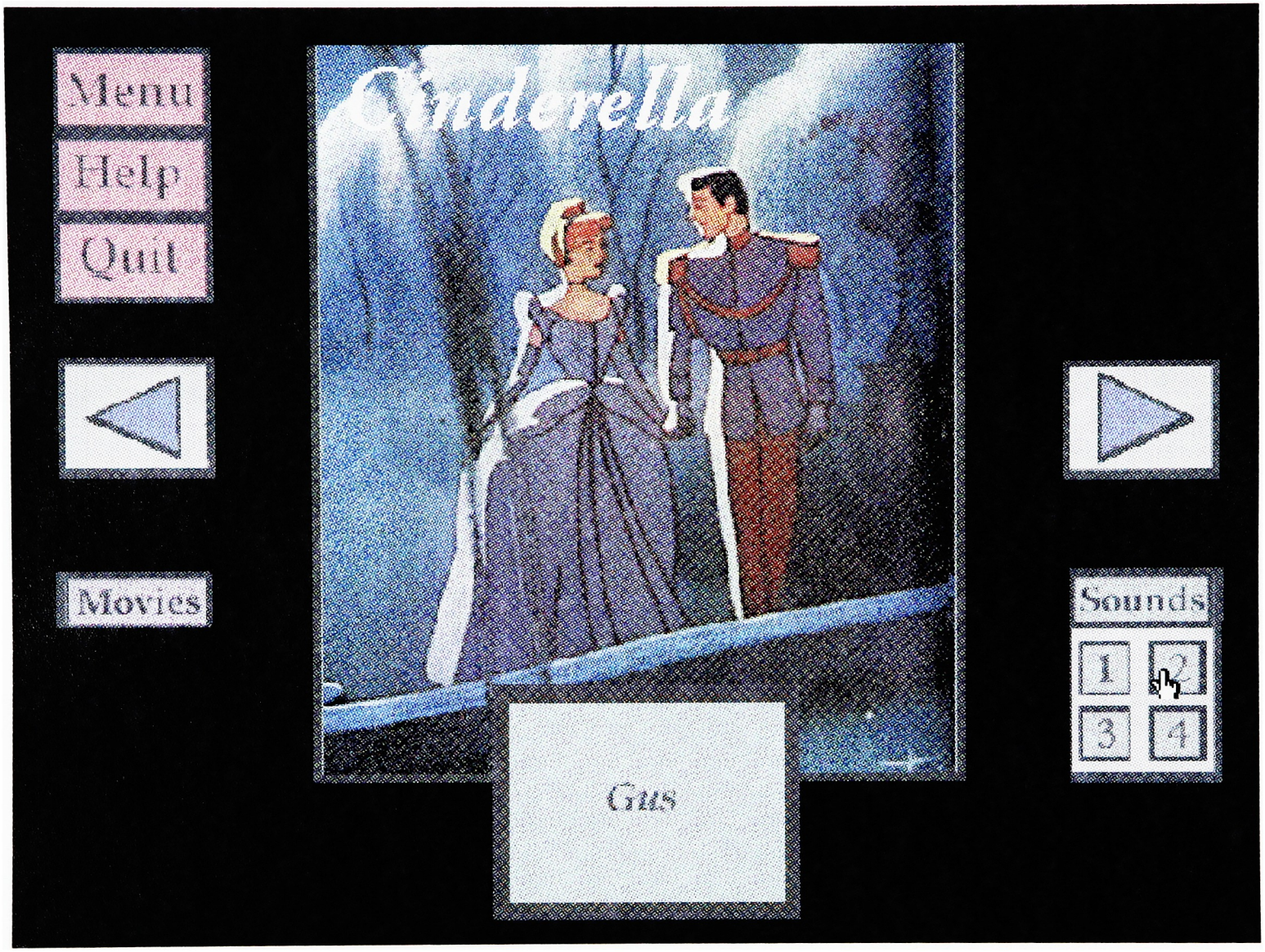

Menu
Help
Quit
Aladdin
Movies
Sounds
To view a Movie
or listen to
Sounds, click those
buttons and
choose a number



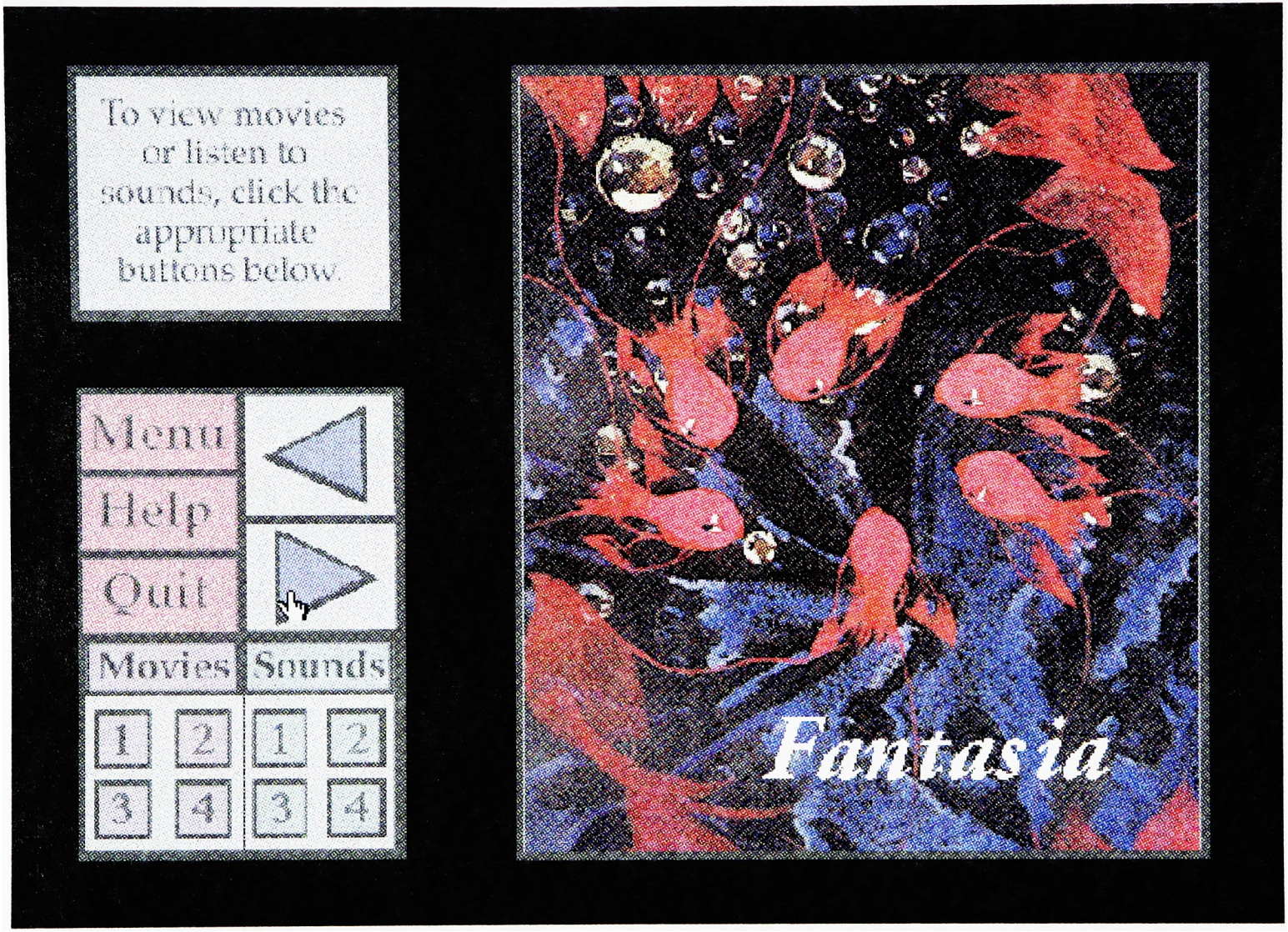
Cinderella Project A



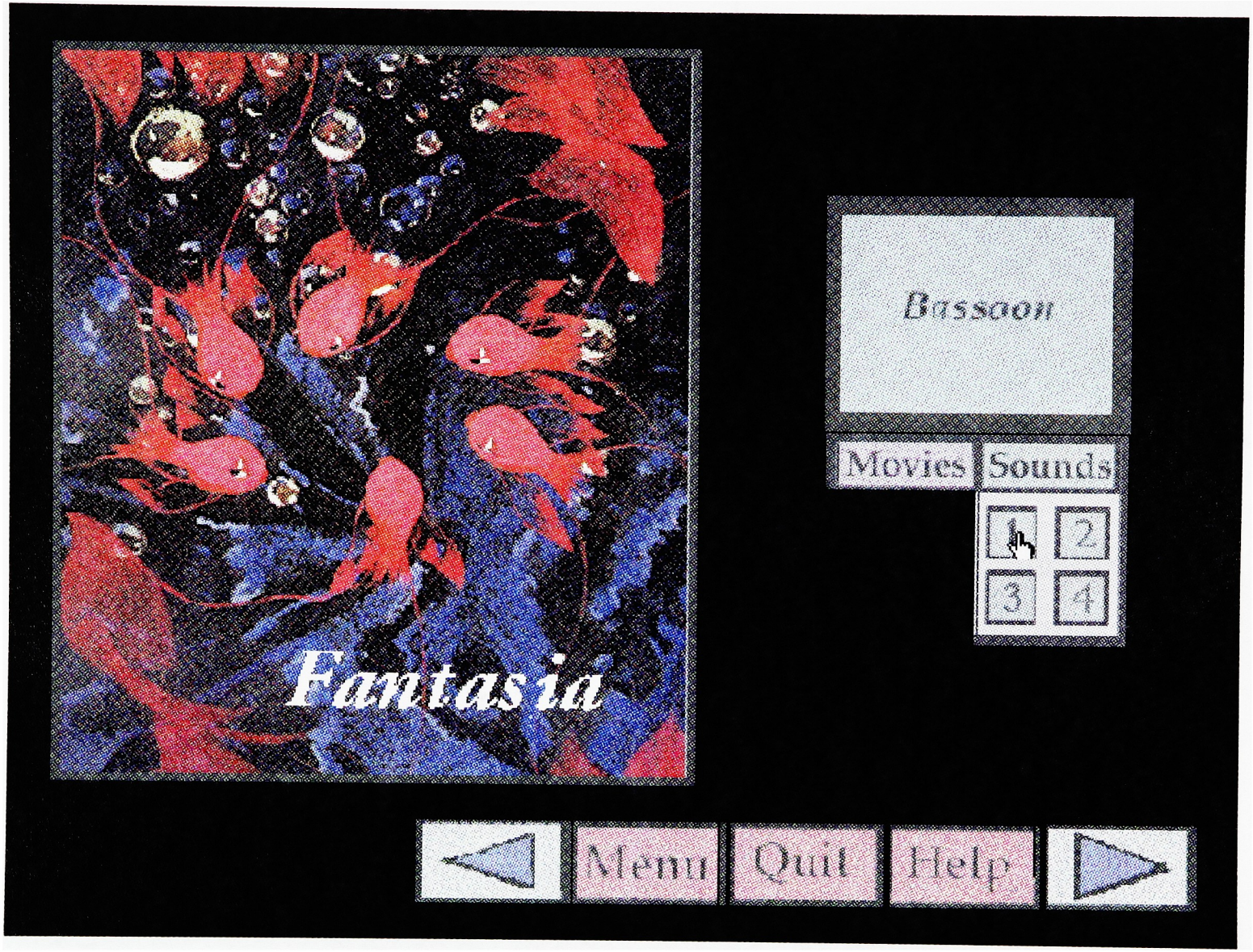
Cinderella Project B (with movie)



Cinderella Project C (with sound activated)

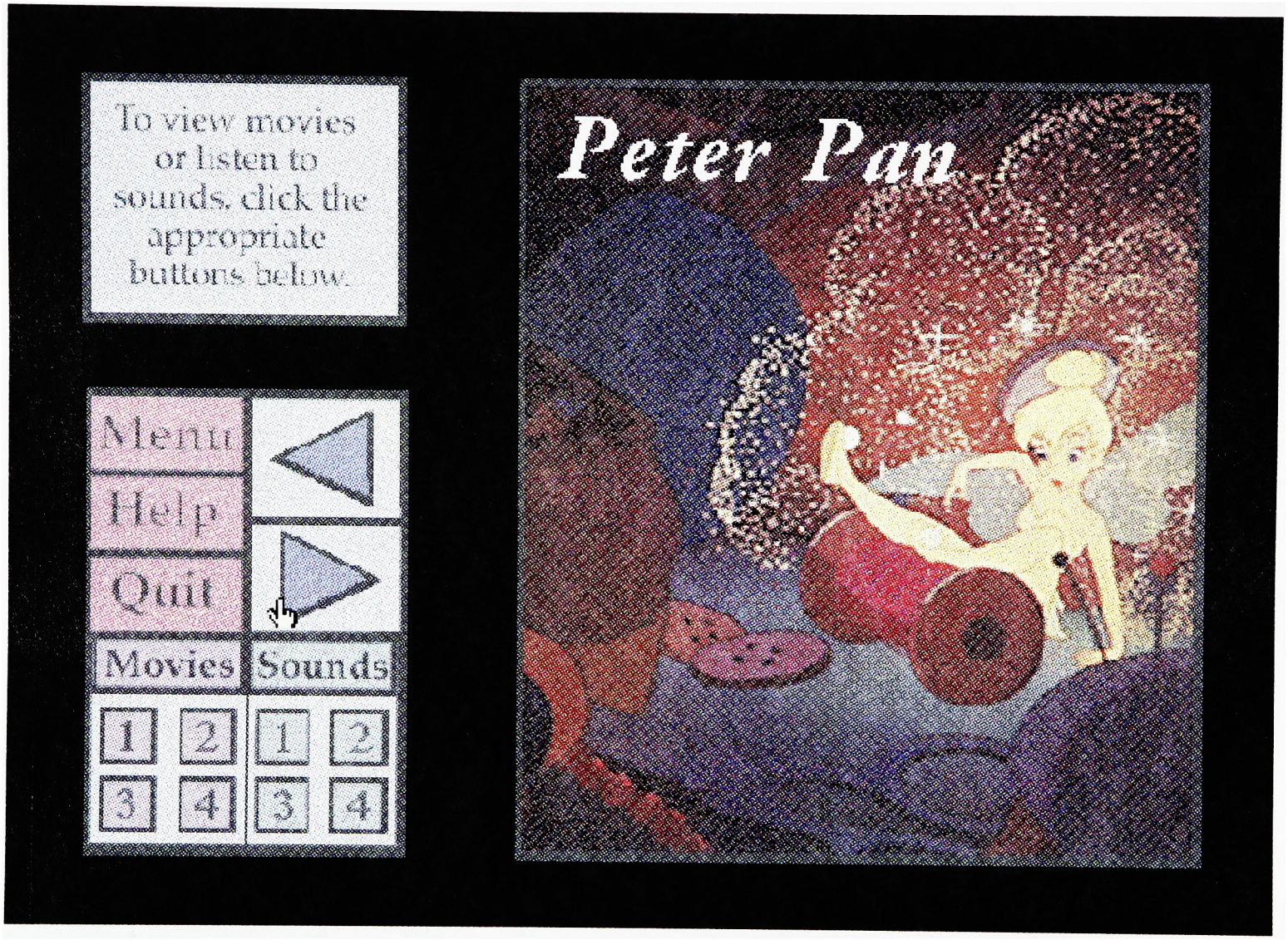


Fantasia Project A

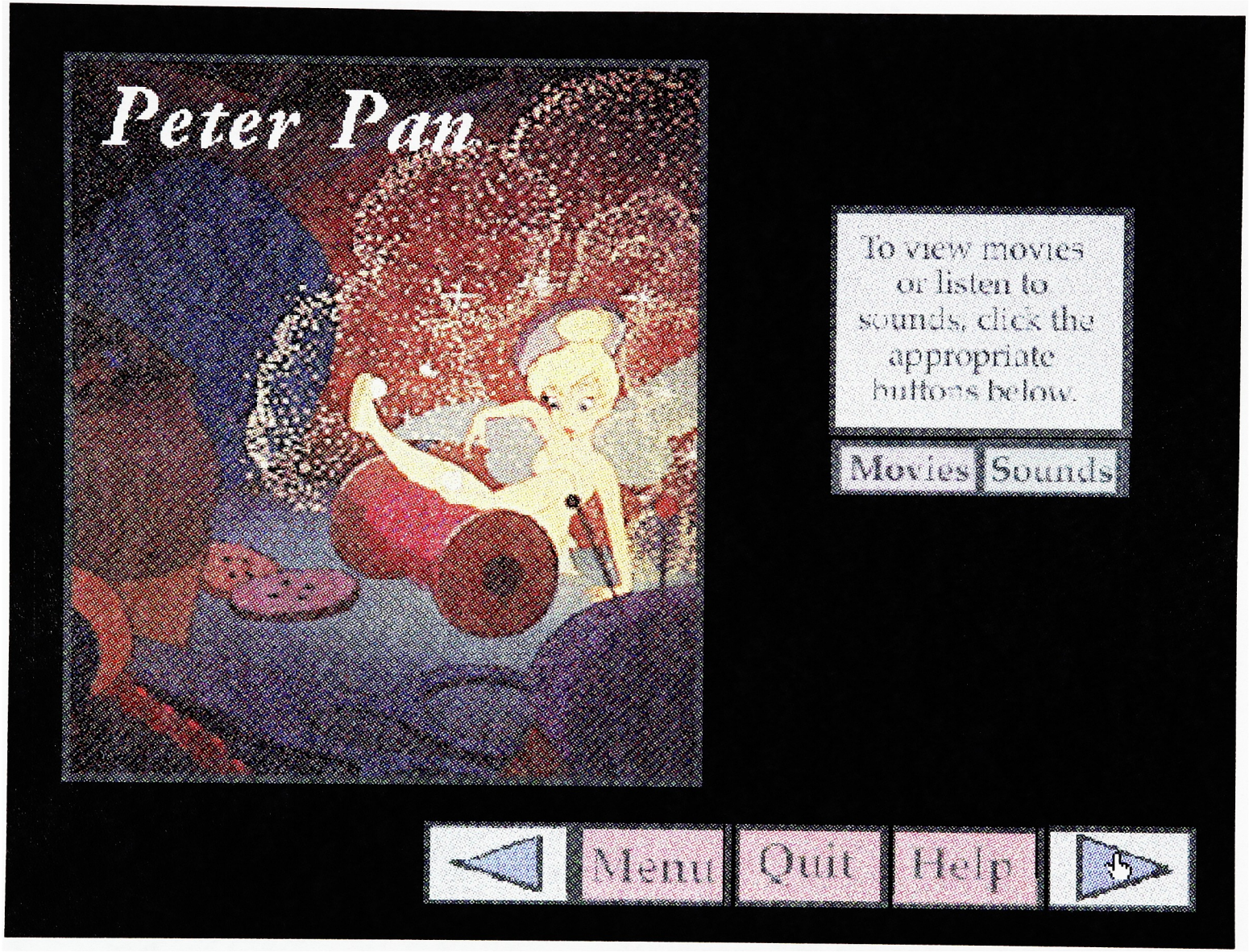


Fantasia Project B (with sound activated)

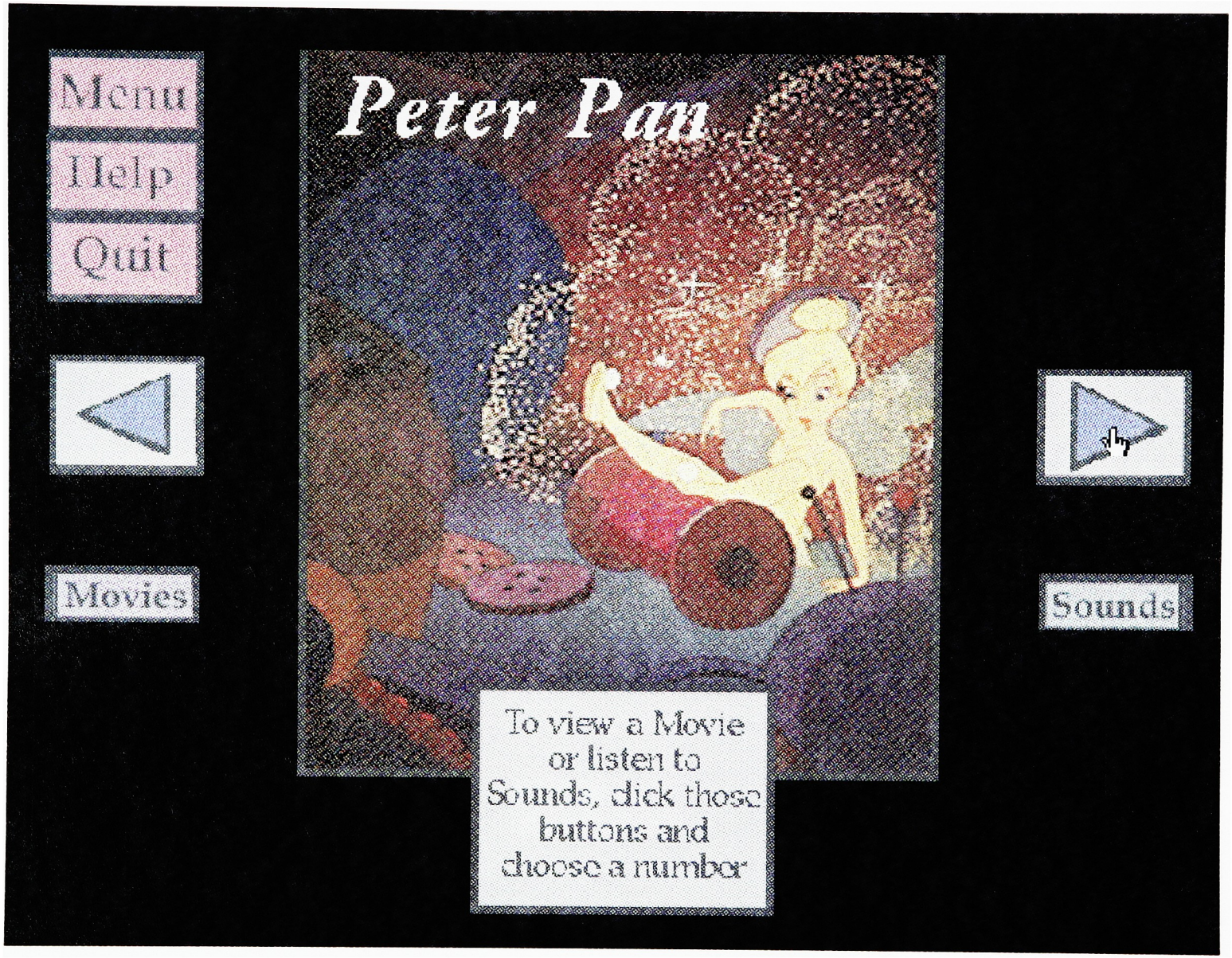
Fantasia Project C (with movie activated)

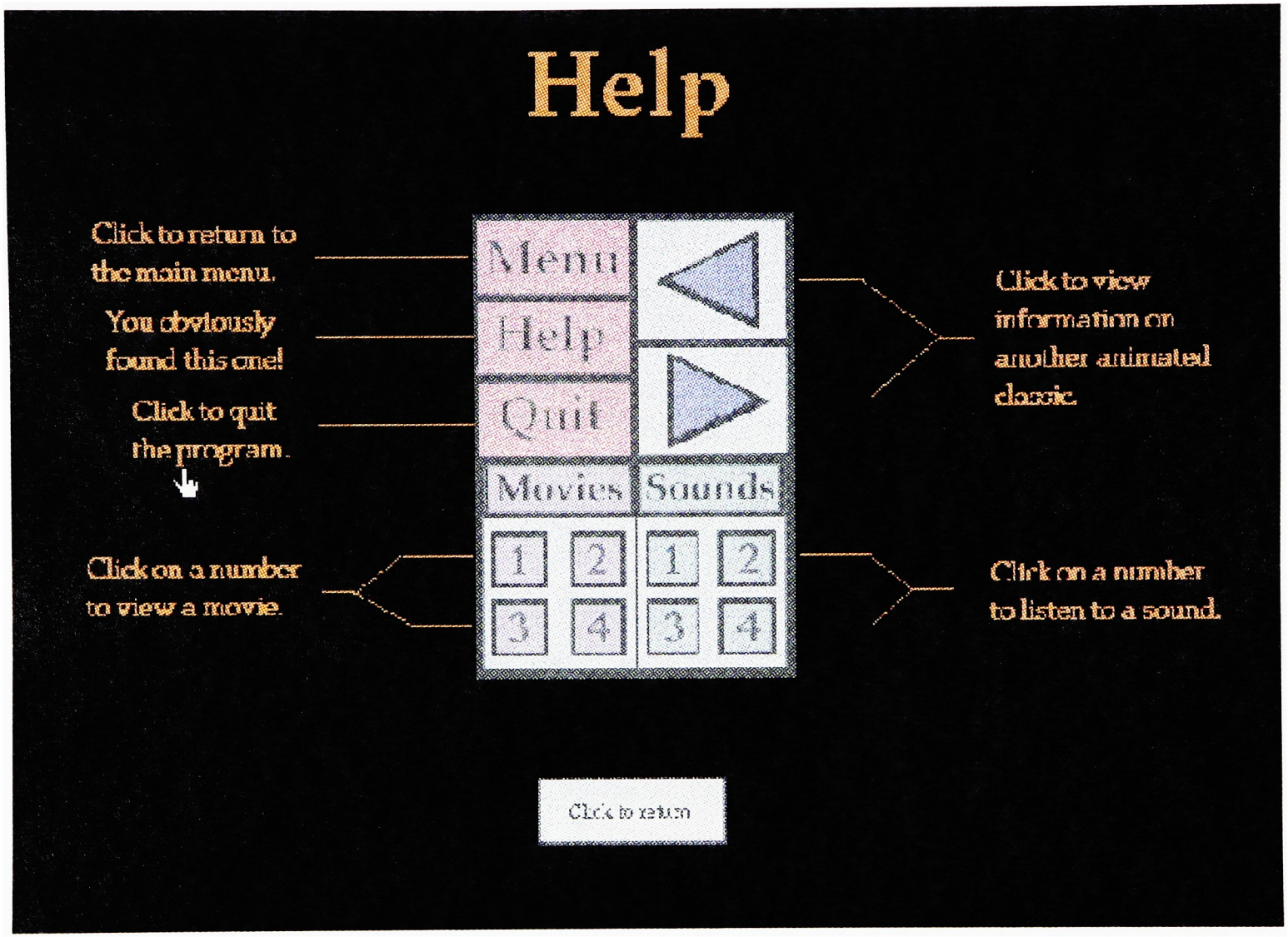


Peter Pan Project A

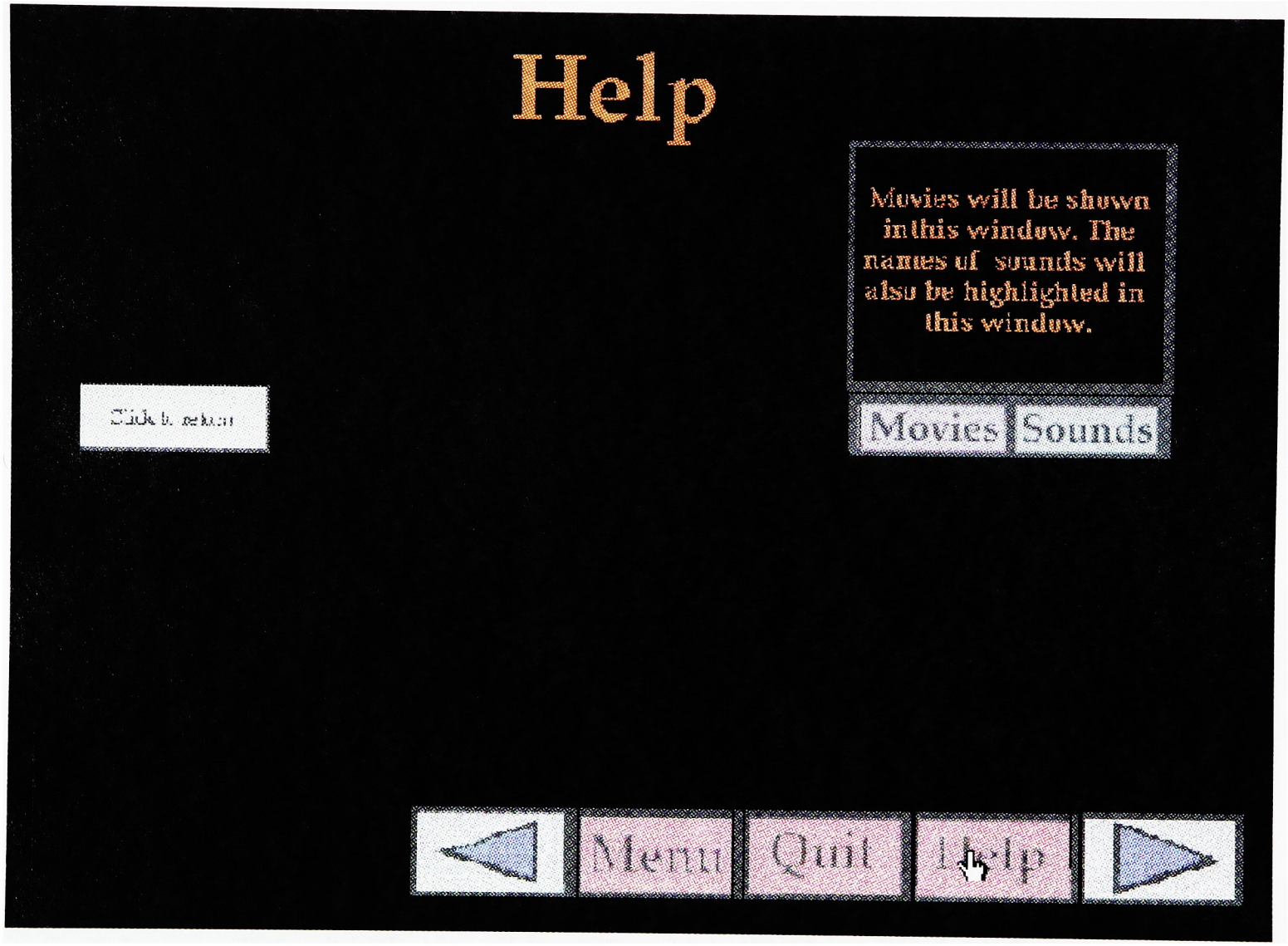


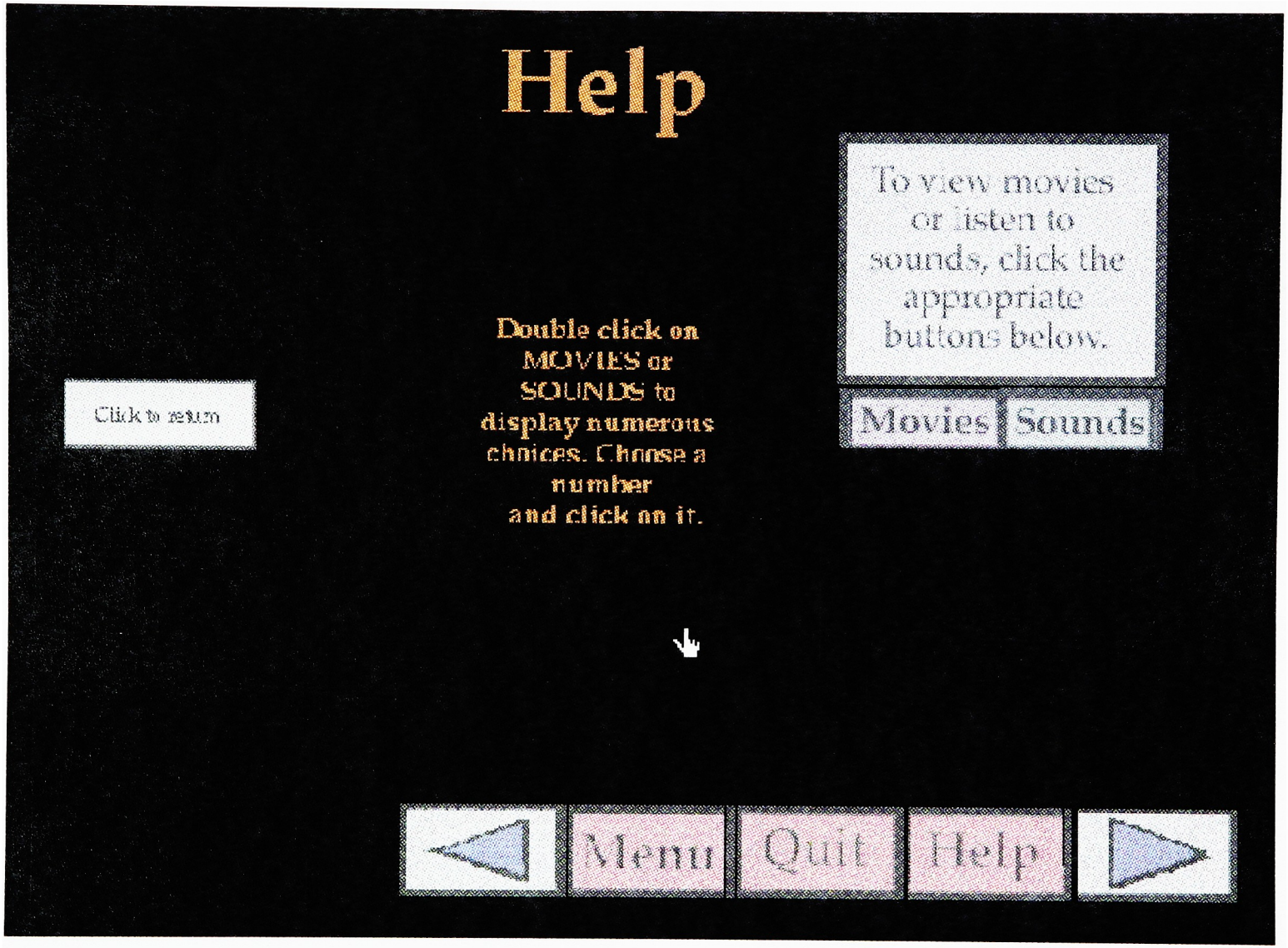
Peter Pan Project B

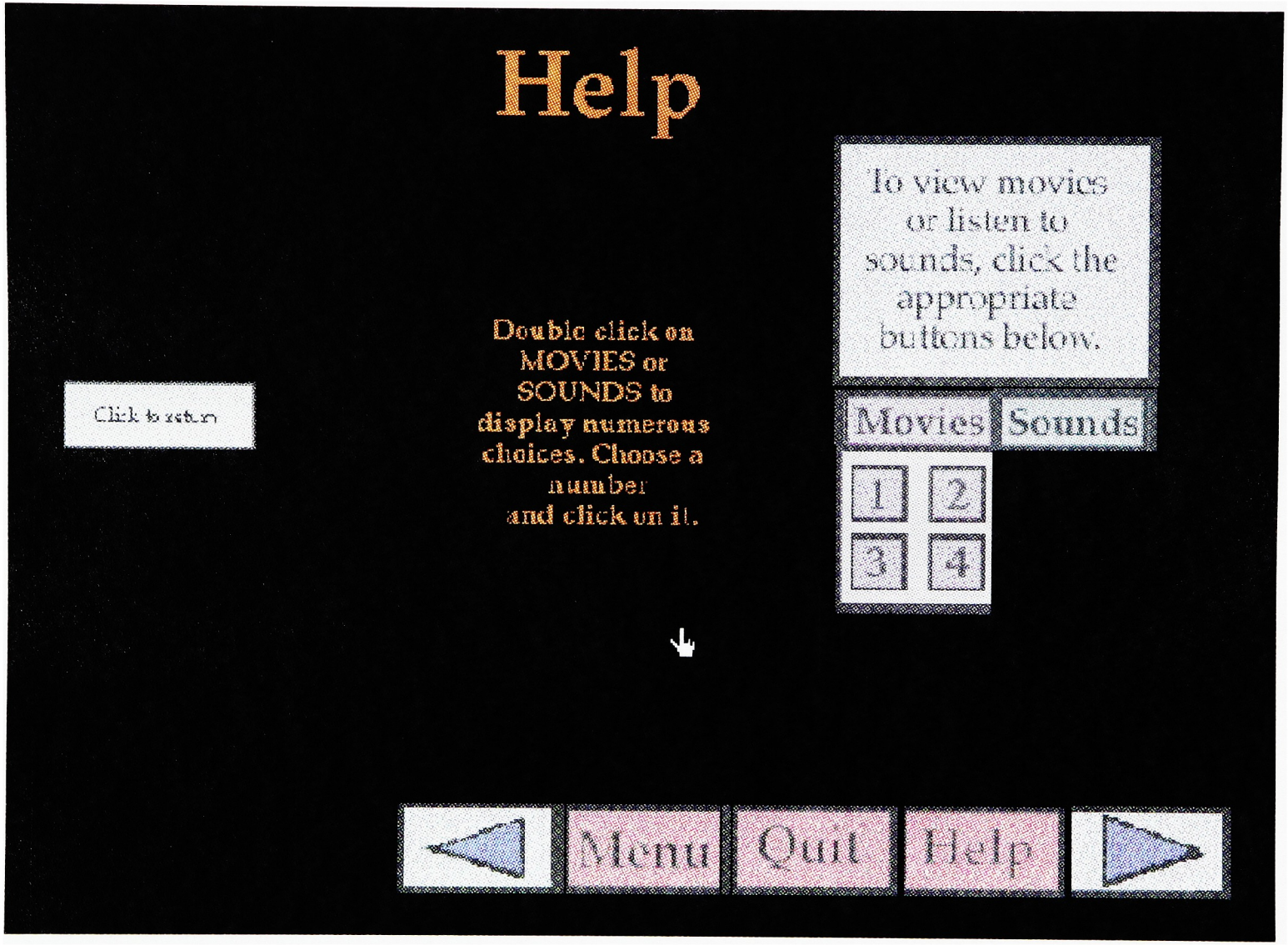

Menu
Help
Quit
Peter Pan
Movies
Sounds
To view a Movie or listen to Sounds, click those buttons and choose a number

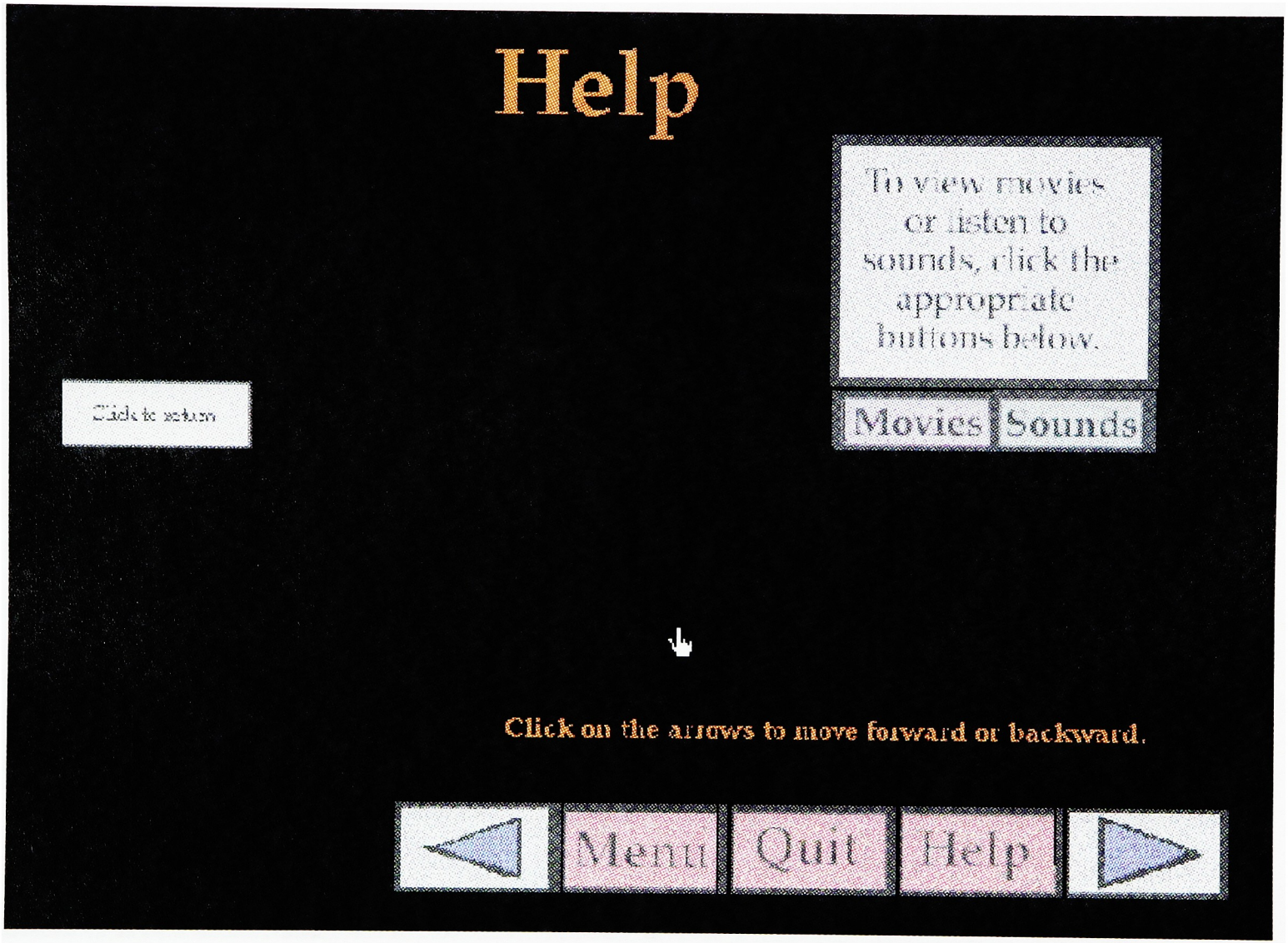


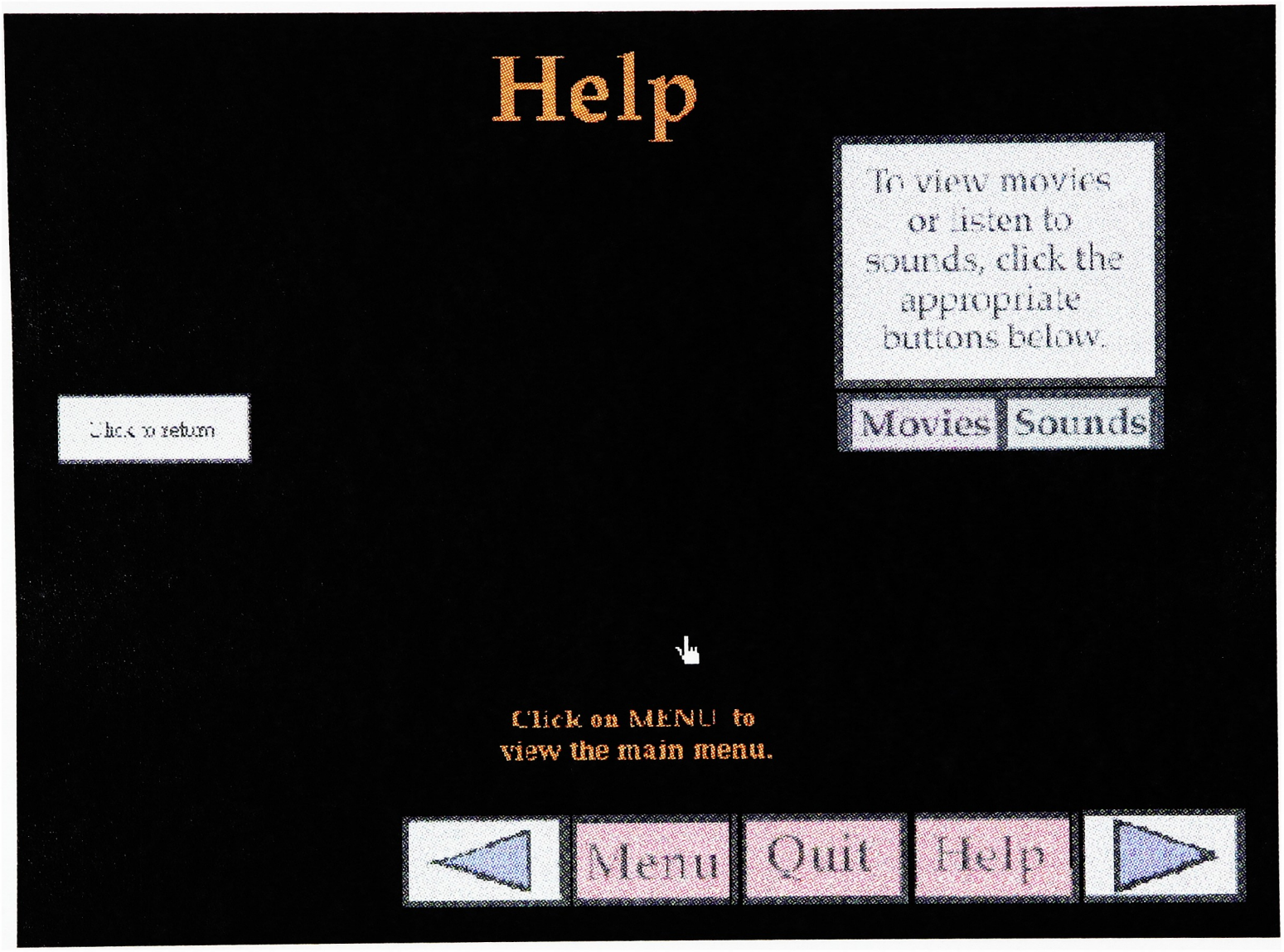
Help Project A

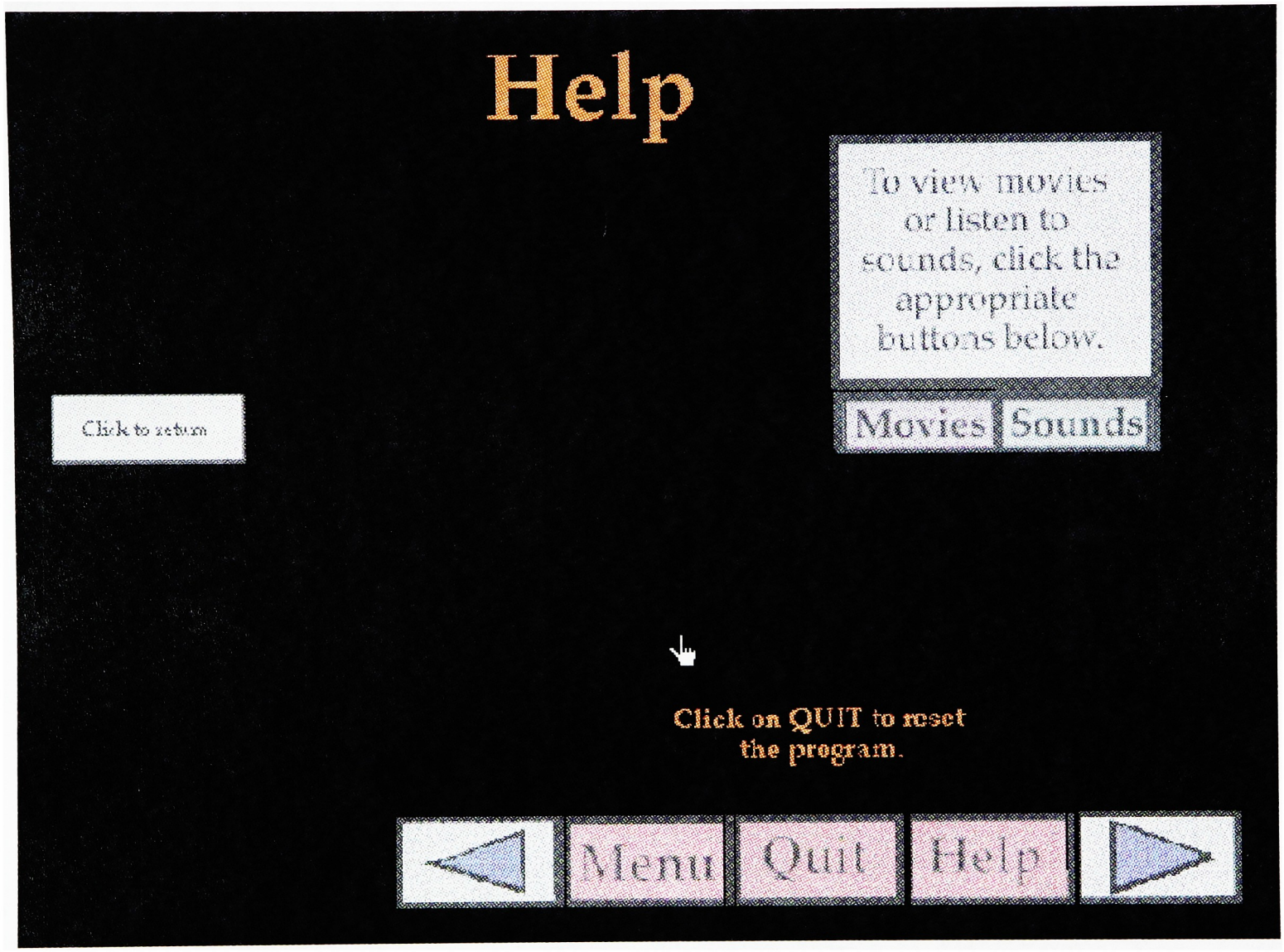

Help
Movies will be shown in this window. The names of sounds will also be highlighted in this window.
Movies
Sounds
Menu
Quit
Help

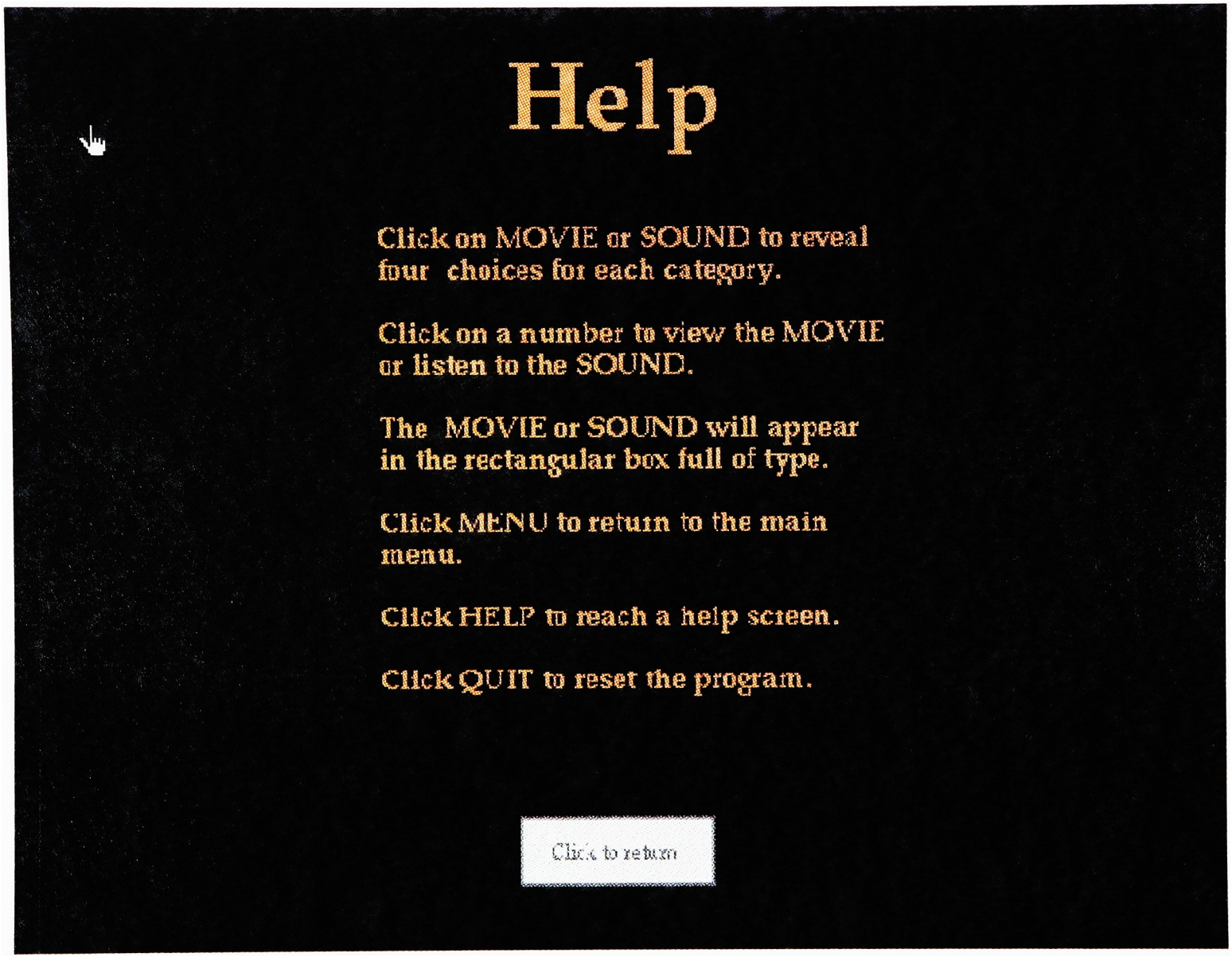

Help
To view movies or listen to sounds, click the appropriate buttons below.
Movies
Sounds
Double click on MOVIES or SOUNDS to display numerous choices. Choose a number and click on it.
Menu
Quit
Help


Help
To view movies or listen to sounds, click the appropriate buttons below.
Movies
Sounds
1
2
3
4
Double click on MOVIES or SOUNDS to display numerous choices. Choose a number and click on it.
Menu
Quit
Help


Help
To view movies or listen to sounds, click the appropriate buttons below.
Movies
Sounds
Click on the arrows to move forward or backward.
Menu
Quit
Help


Help
To view movies or listen to sounds, click the appropriate buttons below.
Movies
Sounds
Click to return
Click on MENU to view the main menu.
Menu
Quit
Help


Help
To view movies or listen to sounds, click the appropriate buttons below.
Movies
Sounds
Click to return
Click on QUIT to reset the program.
Menu
Quit
Help

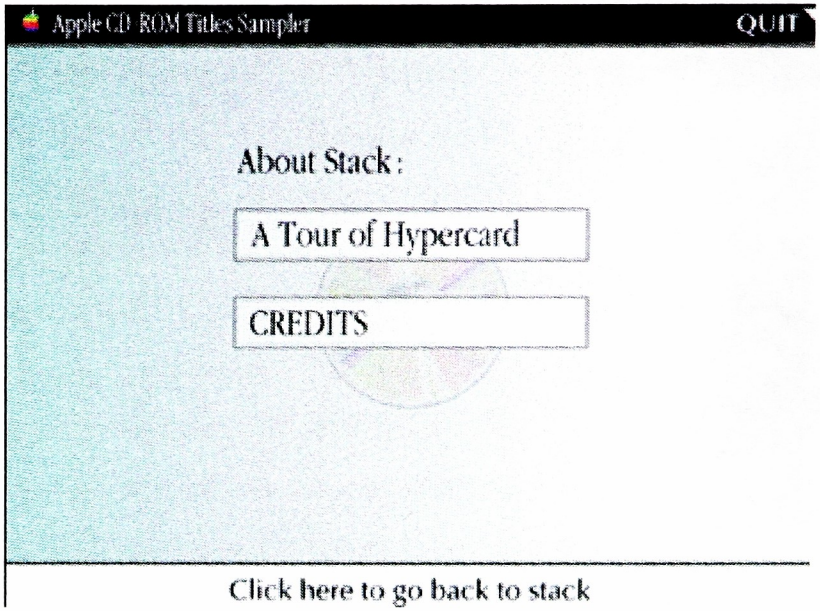

Help
Click on MOVIE or SOUND to reveal four choices for each category.
Click on a number to view the MOVIE or listen to the SOUND.
The MOVIE or SOUND will appear in the rectangular box full of type.
Click MENU to return to the main menu.
Click HELP to reach a help screen.
Click QUIT to reset the program.
Click to return

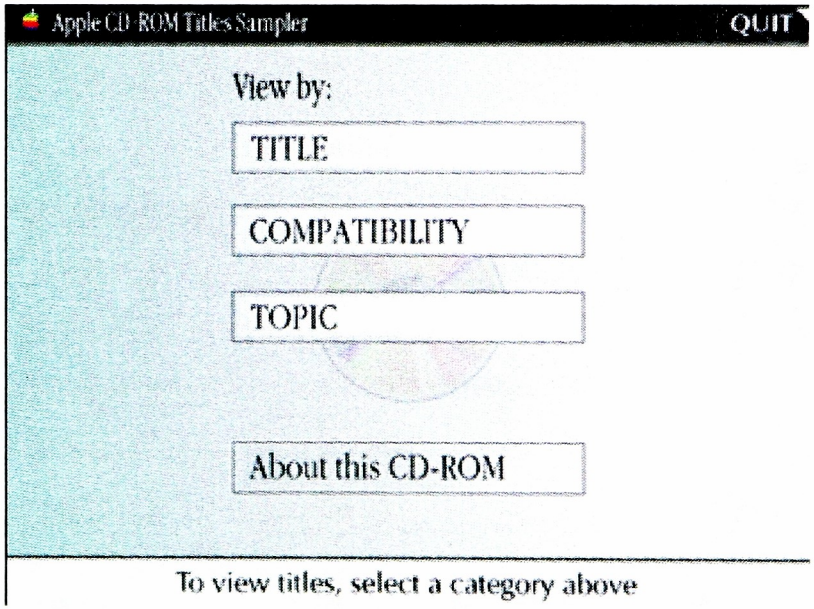
APPENDIX B

APPENDIX B

Screen Captures Taken From The Project Completed For This Thesis

Apple CD-ROM Titles Sampler





Apple CD-ROM Titles Sampler QUIT

CREDITS

APPLE TEAM.....LINDA STONE NEUMANN
GREGORY PARKS

PRODUCTION/PROGRAMMING..... MARC CHARNOW
CHRIS KRUEGER
STEVE NELSON
AMY PERTSCHUK
GOOPY ROSSI
BEVERLY DAVILLA TRACEY

Click here to go back

Apple CD-ROM Titles Sampler QUIT

LISTING BY NAME

ABOUT

View by:

- Title
- Publisher

600 Days to Coco's Island
A-V Online on SilverPlatter
A.D.A.M.
ABC Songbook
Aesop's Fables
African Wildlife
AgfaType CD-ROM
AGRICOLA on SilverPlatter
AGRIS SilverPlatter
AIDSLINE
AIDSLINE on SilverPlatter
Airplane CD

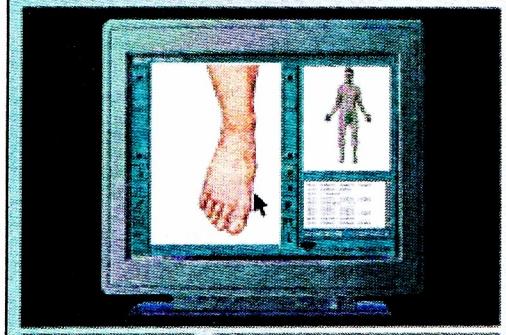
A N B O C P D Q E R F S G T H U I V J W K X L Y M Z 1 2 !

View by: NAME COMPATIBILITY TOPIC

Apple CD-ROM Titles Sampler QUIT

A.D.A.M.

A.D.A.M. Software



A.D.A.M. (Animated Dissection of Anatomy for Medicine) is a multimedia application combining superbly rendered, high-resolution graphics of the human anatomy with a database of medical information. A.D.A.M. lets users peel away the skin and view the human body one layer a time, revealing every vein, nerve, bone, tendon, and ligament. Users can link their own materials, such as text,

Run Demo | Ordering Information

Previous INDEX Next

Apple CD-ROM Titles Sampler QUIT

COMPATIBILITY LISTING

ABOUT

Configuration

- System 7.0x
- Color 2 MB RAM
- Color 5 MB RAM
- Black and White
- 12" Color Screen
- 9" Screen (Classic)

600 Days to Coco's Island
A-V Online on SilverPlatter
ABC Songbook
African Wildlife
AGRICOLA on SilverPlatter
AGRIS SilverPlatter
AIDSLINE
AIDSLINE on SilverPlatter
Airplane CD
Amanda Stories
America Alive GUIDisc
Anatomist 2.1

A N B O C P D Q E R F S G T H U I V J W K X L Y M Z 1 2 !

View by: NAME COMPATIBILITY TOPIC

Apple CD-ROM Titles Sampler QUIT

TOPIC LISTING

ABOUT

Select Topic

- Reference
- Education
- Software & Tools
- Clip Media & Fonts
- Children's Corner
- Entertainment

A-V Online on SilverPlatter
A.D.A.M.
AGRICOLA on SilverPlatter
AGRIS SilverPlatter
AIDSLINE
AIDSLINE on SilverPlatter
America Alive GUIDisc
Apple Macintosh Software Product Database
THE BABY FILE
CANCERLIT
CardLine
The CD-ROM Developer's Lab

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z 1,2 !

View by: NAME COMPATIBILITY TOPIC

Apple CD-ROM Titles Sampler QUIT

LISTING BY NAME

ABOUT

View by:

- Title
- Publisher

A.D.A.M.
A.D.A.M.

Addison-Wesley Publishing Company
Exploring Mathematics with Mathematica

Adobe Systems Incorporated
Type On Call

Agfa Corporation
AgfaType CD-ROM

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z 1,2 !

View by: NAME COMPATIBILITY TOPIC

Apple CD-ROM Titles Sampler QUIT

A.D.A.M.

A.D.A.M. Software

Ordering Information

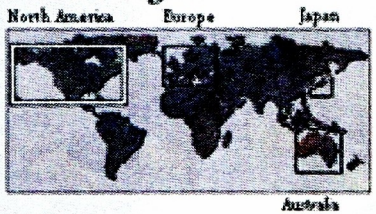
North America

A.D.A.M. Software, Inc.
1899 Powers Ferry Rd., Suite 460
Marietta, GA
800-755-ADAM
404-955-3088

System Requirements

Macintosh II ci or later II, Quadra family, 13" or larger color monitor.

Select a Region



Back to Title Description | Add to Selection List | Show Selection List

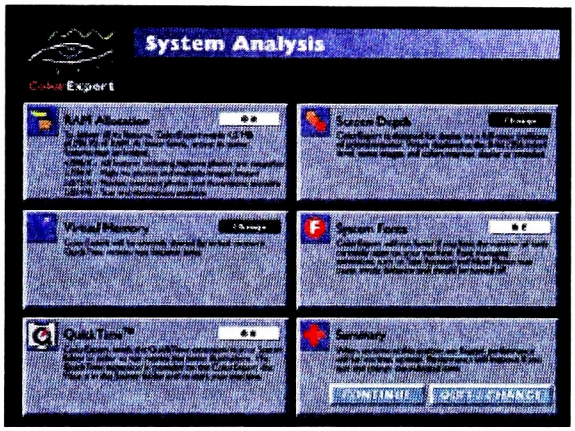
Previous INDEX Next

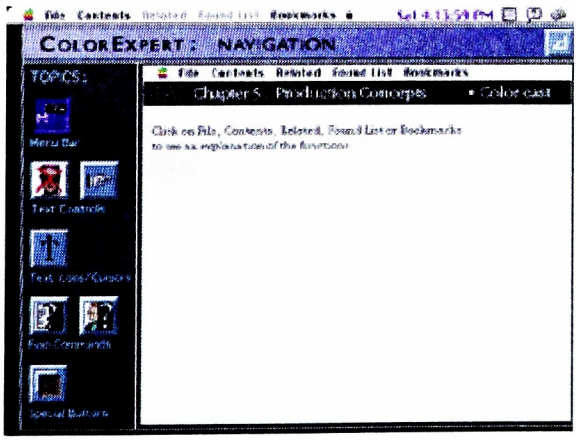
Apple CD-ROM Titles Sampler QUIT

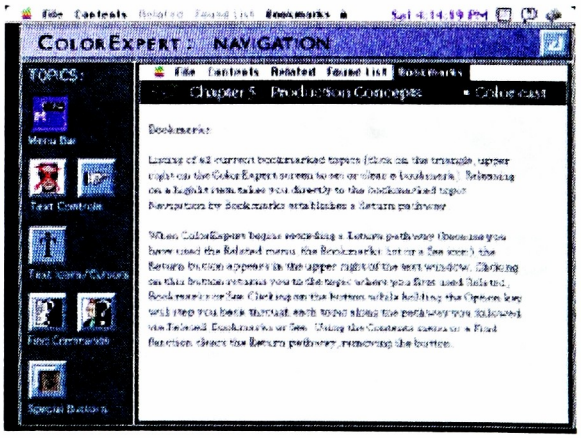
Click to continue

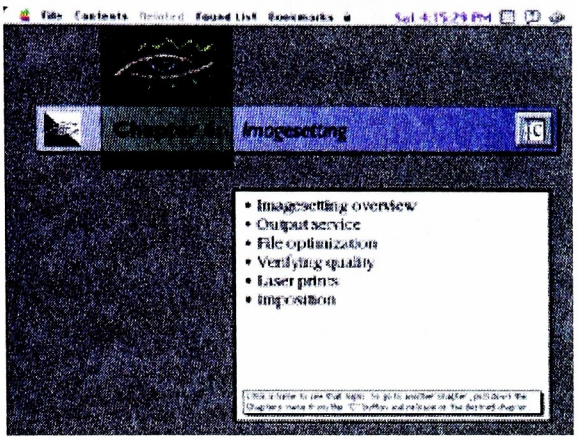
ColorExpert

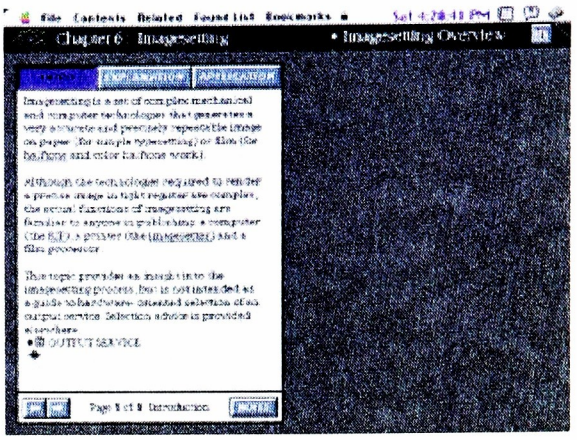
ColorExpert Inc.

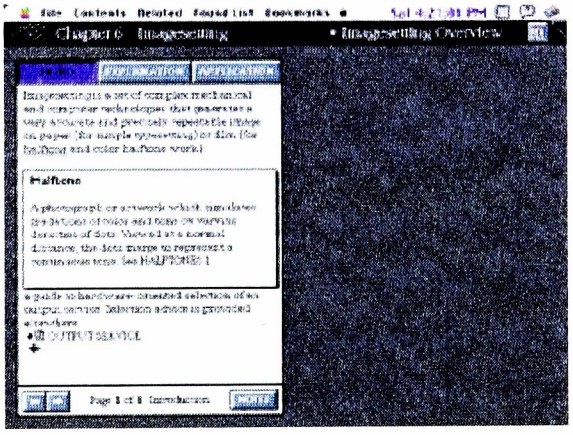


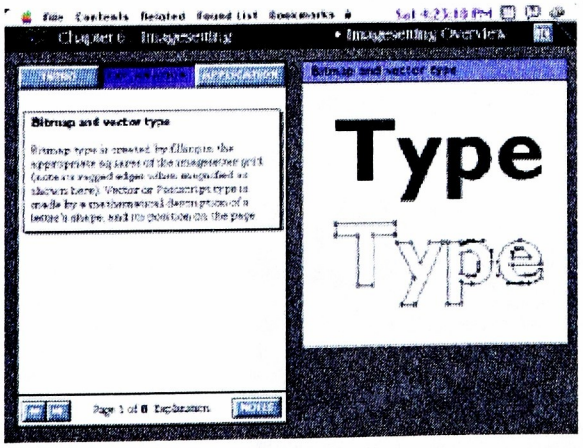


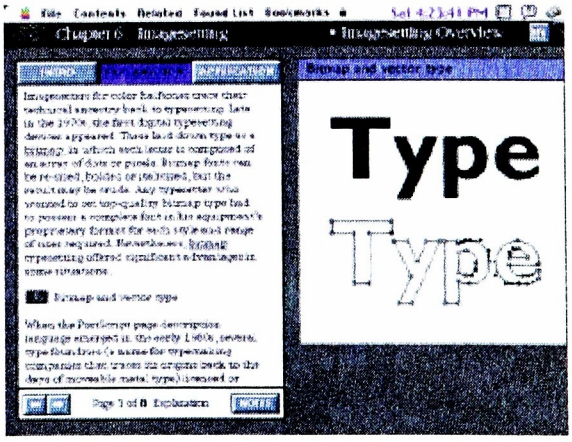


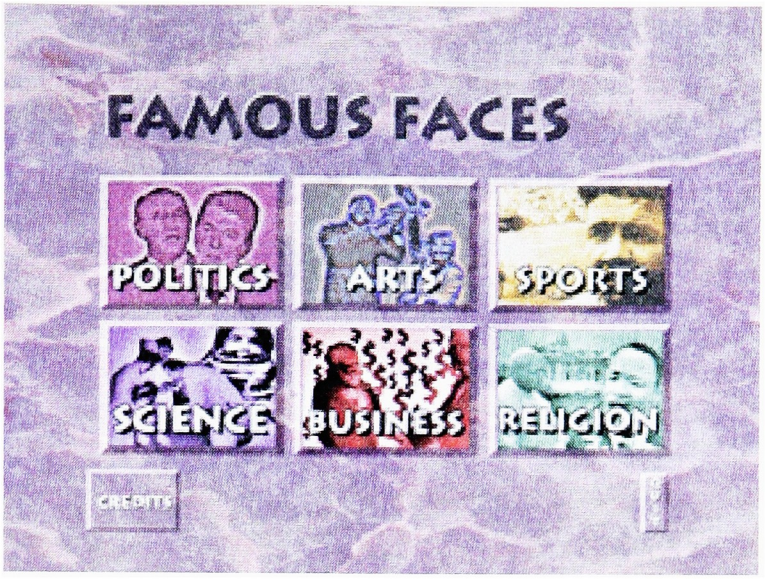

Imagesetting
• Imagesetting overview
• Output service
• File optimization
• Verifying quality
• Laser prints
• Impositions


Chapter 6 Imagesetting
• Imagesetting Overview

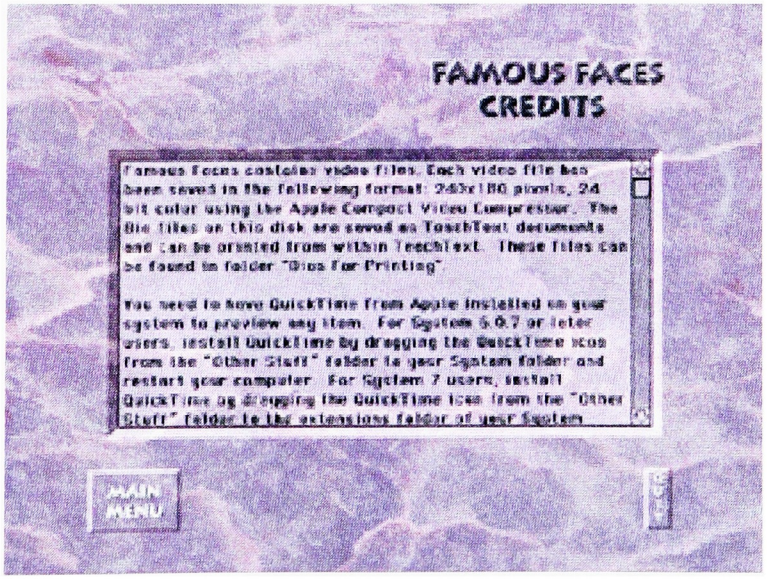

Chapter 6 Imagesetting
• Imagesetting Overview
Halftone

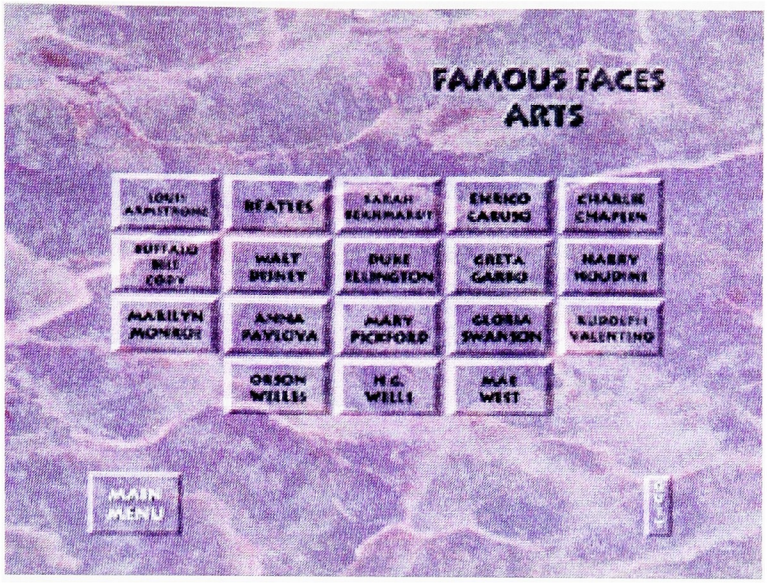

Chapter 6 Imagesetting
• Imagesetting Overview
Bitmap and vector type
Type
Type

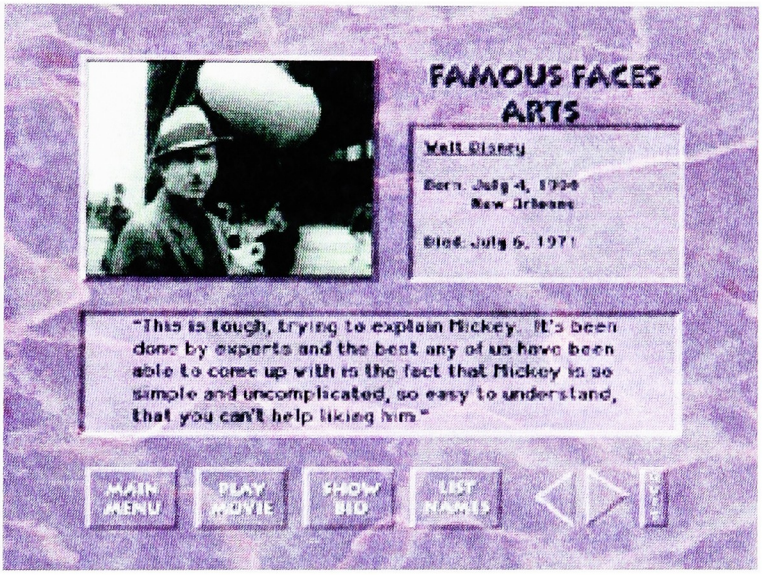

Chapter 6 Imagesetting
• Imagesetting Overview
Bitmap and vector type
Type
Type

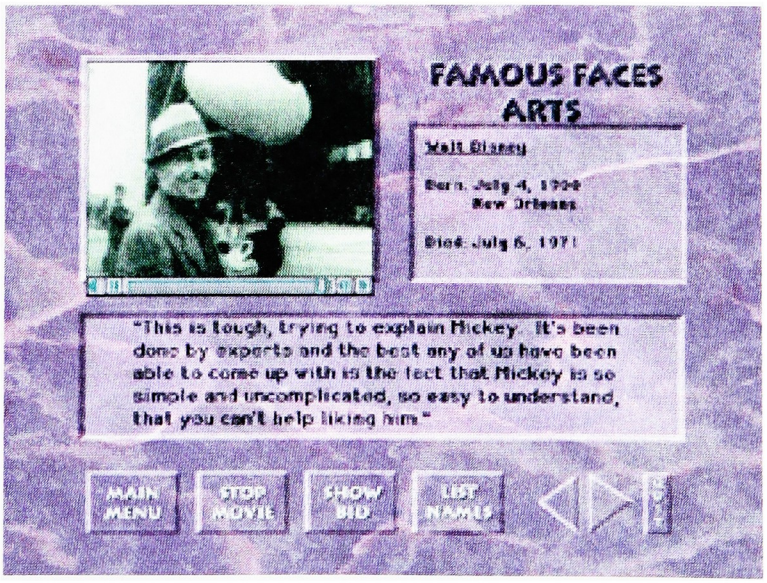


FAMOUS FACES




FAMOUS FACES
ARTS
LOUIS ARMSTRONG
BEATLES
SARAH BERNHARDT
ENRICO CARUSO
CHARLIE CHAPLIN
BUFFALO BILL CODY
WALT DISNEY
DUKE ELLINGTON
GRETA GARBO
HARRY HOUDINI
MARILYN MONROE
ANNA PAVLOVA
MARY PICKFORD
GLORIA SWANSON
RUDOLPH VALENTINO
ORSON WELLES
H.G. WELLS
MAE WEST
MAIN MENU


FAMOUS FACES
ARTS
Walt Disney
Born: July 4, 1900
New Orleans
Died: July 6, 1971
"This is tough, trying to explain Mickey. It's been done by experts and the best any of us have been able to come up with is the fact that Mickey is so simple and uncomplicated, so easy to understand, that you can't help liking him."
MAIN MENU
PLAY MOVIE
SHOW BIO
LIST NAMES

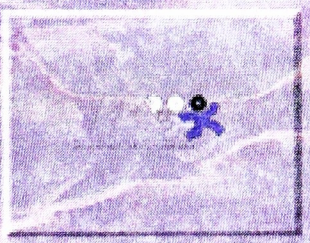

FAMOUS FACES
ARTS
Walt Disney
Born: July 4, 1900
New Orleans
Died: July 6, 1971
"This is tough, trying to explain Mickey. It's been done by experts and the best any of us have been able to come up with is the fact that Mickey is so simple and uncomplicated, so easy to understand, that you can't help liking him."
MAIN MENU
STOP MOVIE
SHOW BIO
LIST NAMES

FAMOUS FACES
SCIENCE

ALEXANDER GRAHAM BELL | MADAME CURIE | THOMAS EDISON | ALBERT EINSTEIN

JOHN GLENN | CHARLES LINDBERGH | JONAS SALK | WRIGHT BROTHERS

MAIN MENU



FAMOUS FACES
SCIENCE

John Herschel Glenn, Jr.

Born: July 10, 1921
Cambridge, Ohio

Died: ---

"That view (of seeing the Earth from orbit) is tremendous."

SHOW BIO | LIST NAMES | Loading...

FAMOUS FACES
SCIENCE

John Herschel Glenn, Jr.

Born: July 10, 1921
Cambridge, Ohio

Died: ---

"That view (of seeing the Earth from orbit) is tremendous."

MAIN MENU | PLAY MOVIE | SHOW BIO | LIST NAMES

FAMOUS FACES
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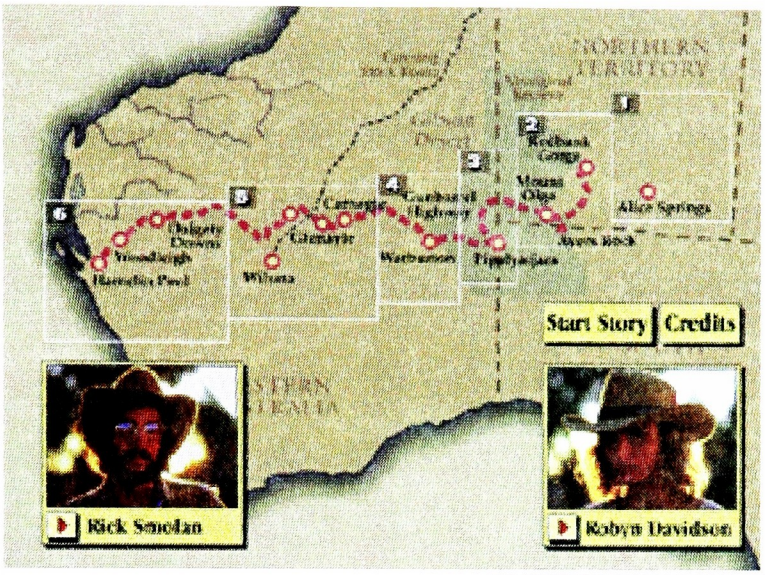
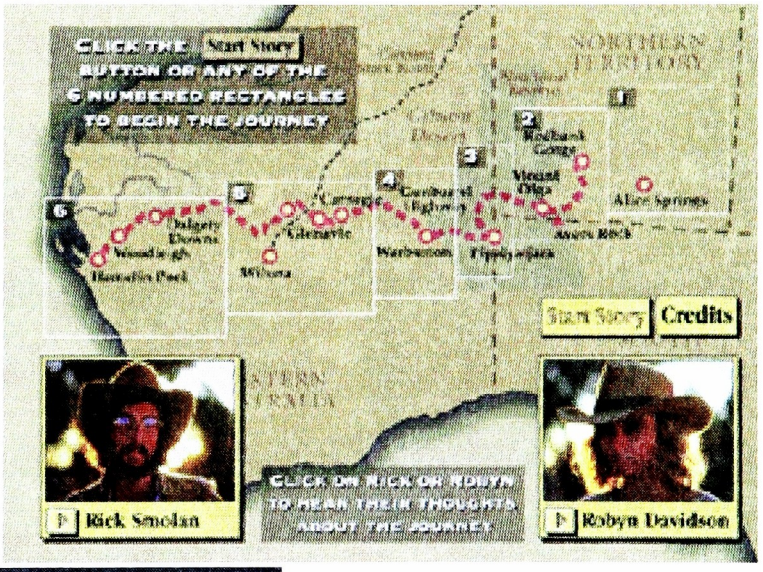
MAIN MENU | STOP MOVIE | SHOW BIO | LIST NAMES

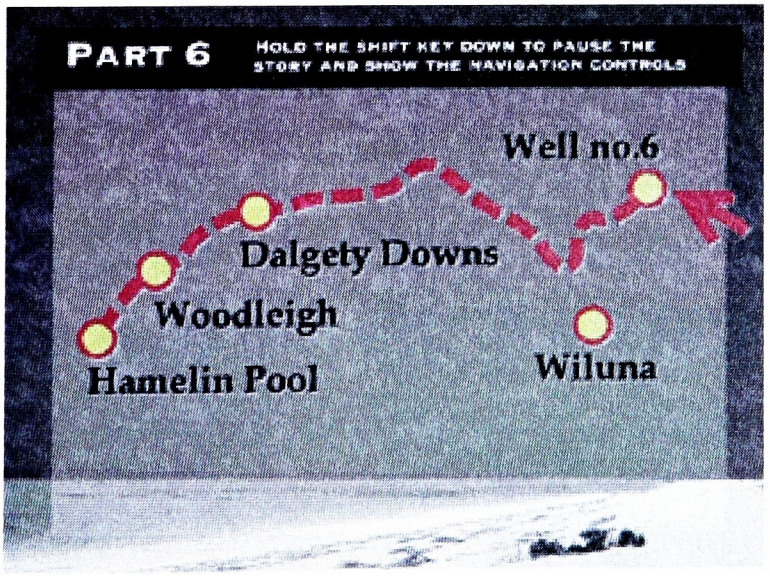


FROM

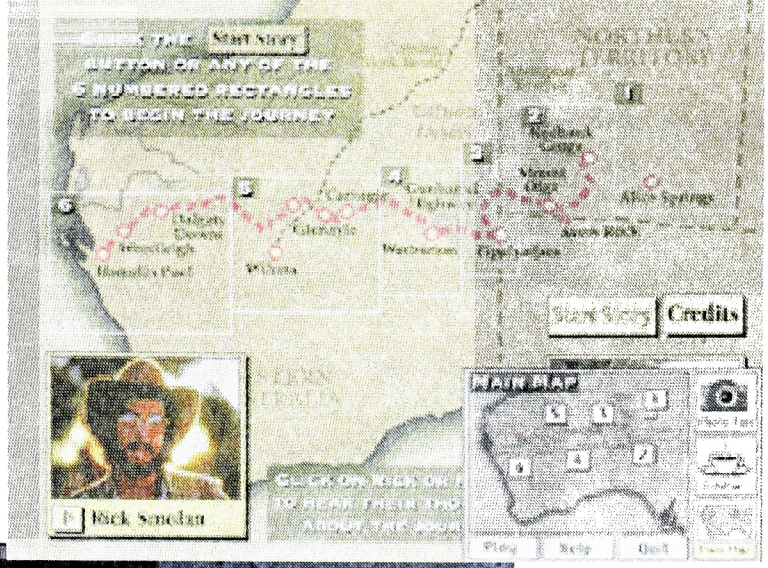
ALICE

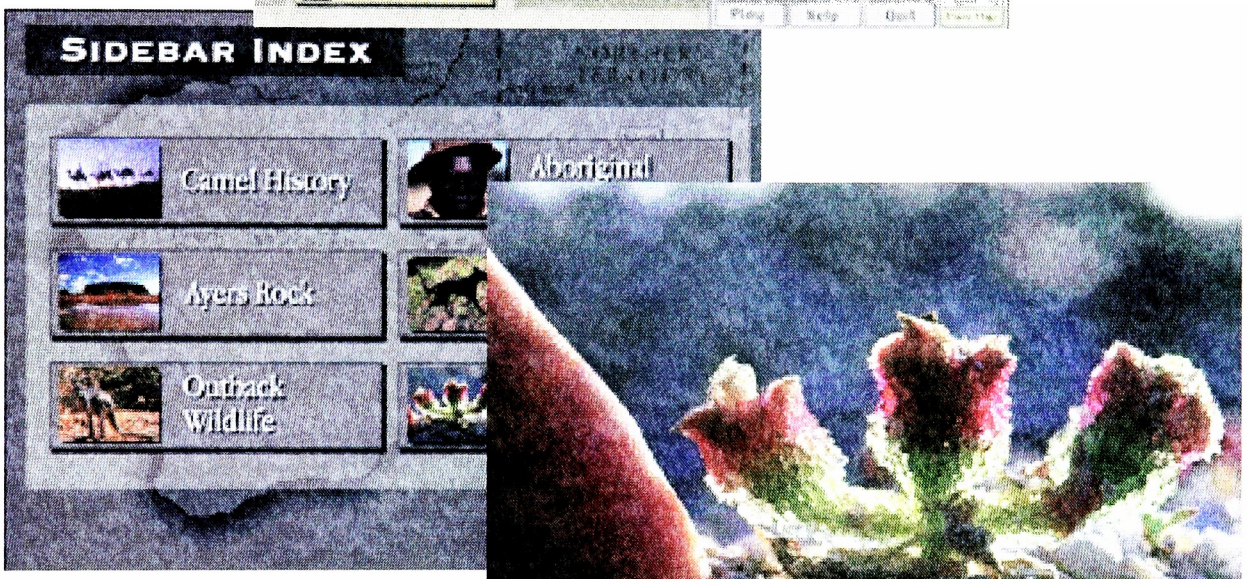
TO





OCEAN


Start Story
Credits
Rick Smolan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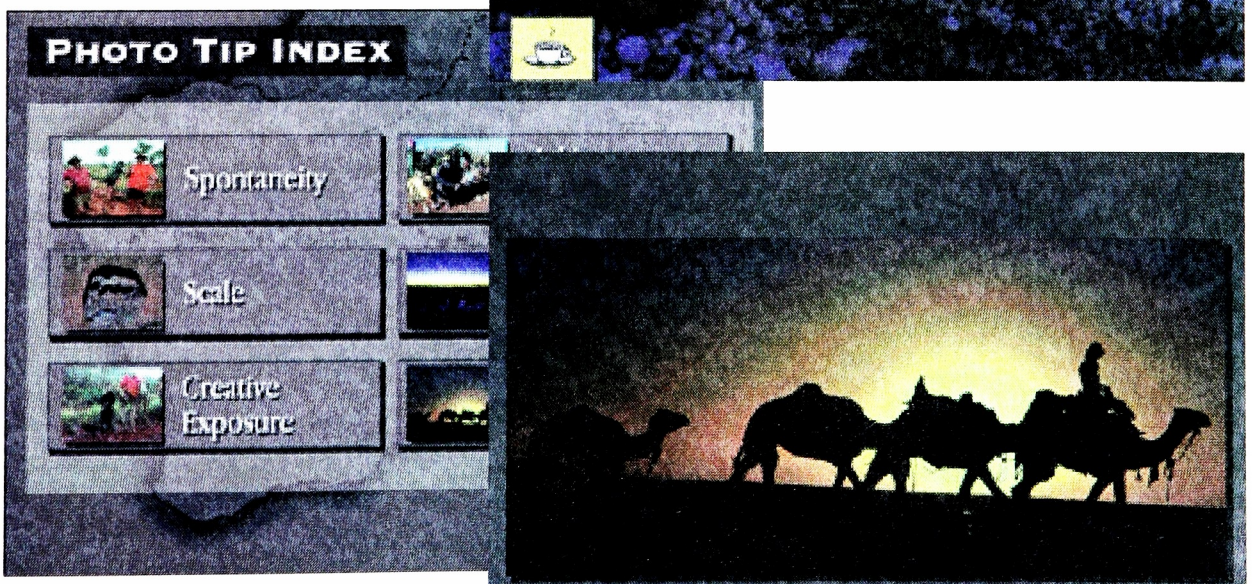
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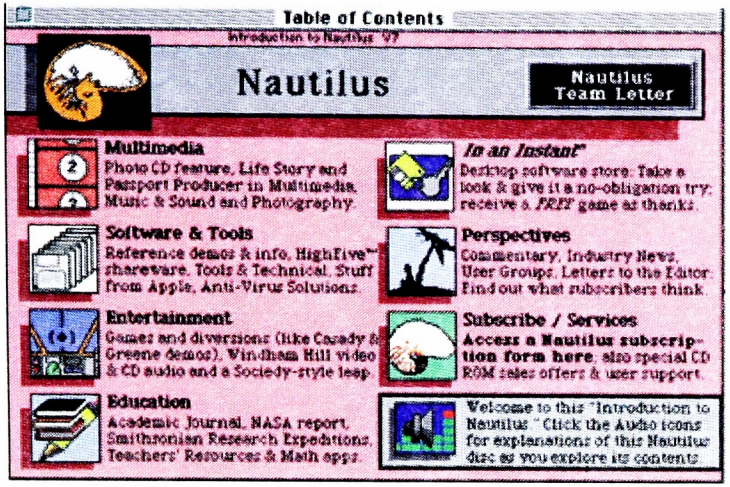
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Introduction to Nautilus '93
Nautilus
Nautilus Team Letter
Multimedia
Photo CD feature, Life Story and Passport Producer in Multimedia, Music & Sound and Photography.
In an Instant
Desktop software store: Take a look & give it a no-obligation try; receive a FREE game as thanks.
Software & Tools
Reference demos & info, HighFive shareware, Tools & Technical Stuff from Apple, Anti-Virus Solutions.
Perspectives
Commentary, Industry News, User Groups, Letters to the Editor. Find out what subscribers think.
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Games and diversions (like Cassidy & Greene demos), Windham Hill video & CD audio and a Society-style leap.
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Academic Journal, NASA report, Smithsonian Research Expeditions, Teachers' Resources & Math apps.
Welcome to this "Introduction to Nautilus." Click the Audio icons for explanations of this Nautilus disc as you explore its contents.

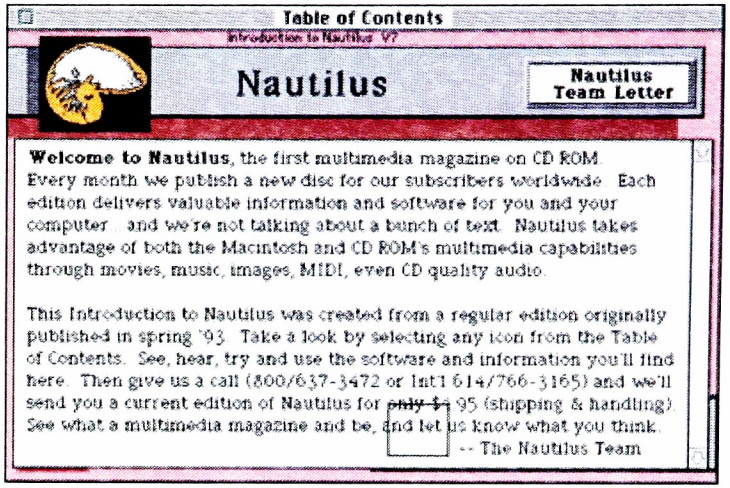
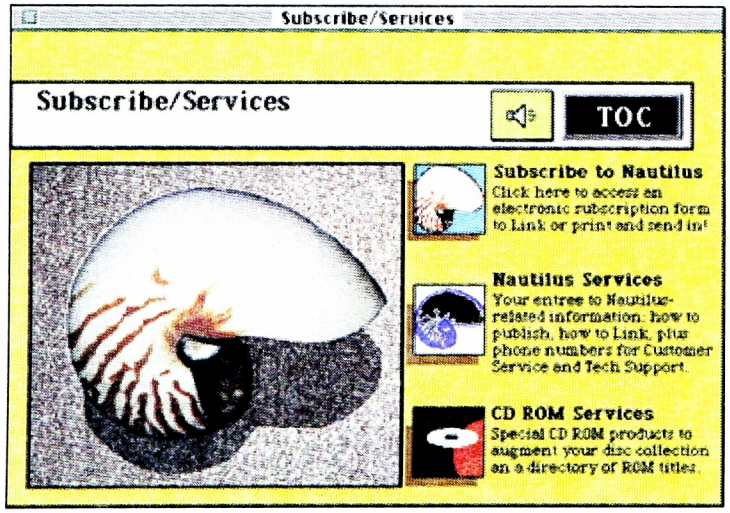


Table of Contents
Introduction to Nautilus '93
Nautilus
Nautilus Team Letter
Welcome to Nautilus, the first multimedia magazine on CD ROM. Every month we publish a new disc for our subscribers worldwide. Each edition delivers valuable information and software for you and your computer... and we're not talking about a bunch of text. Nautilus takes advantage of both the Macintosh and CD ROM's multimedia capabilities through movies, music, images, MIDI, even CD quality audio.
This Introduction to Nautilus was created from a regular edition originally published in spring '93. Take a look by selecting any icon from the Table of Contents. See, hear, try and use the software and information you'll find here. Then give us a call (800/637-3472 or Int'l 614/766-3165) and we'll send you a current edition of Nautilus for ~~only $~~ 9.95 (shipping & handling). See what a multimedia magazine and be, and let us know what you think.
-- The Nautilus Team

NAUTILUS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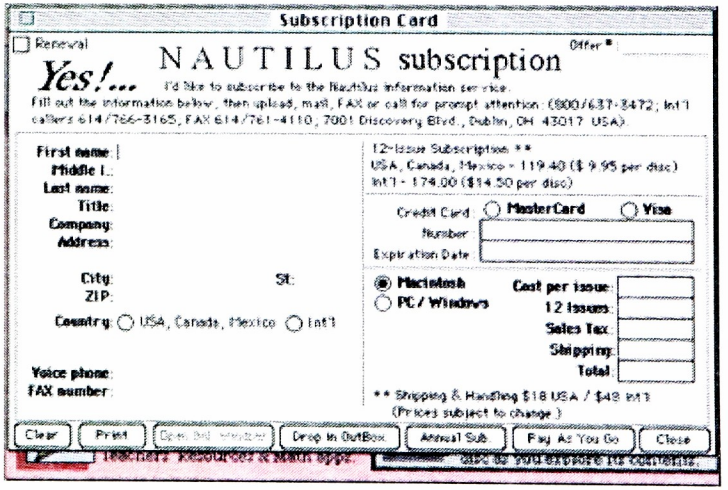
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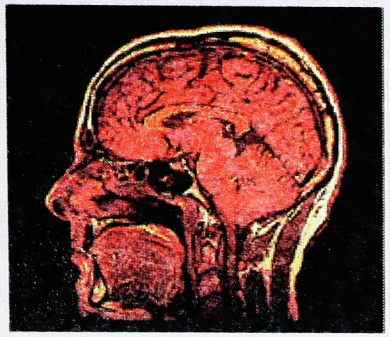
Education

Education

TOC



Academic Journal
Combining MRI and EEG to study the brain; report includes images and stacks.

The Smithsonian
Expeditions for June '93. Dinosaurs and other digs, presidents and other stars.

NASA
Endeavour mission STS-54 including satellites, toys, X-rays. Materials for your use.

U.S Geological Survey

Mathematics

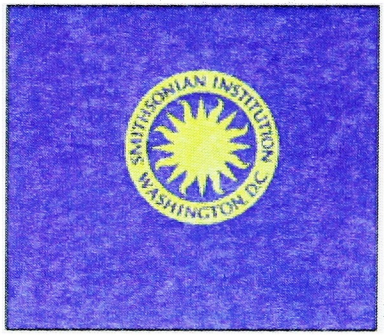
Intellimation

Teachers' Resources

Education

Education

Smithsonian, June '93



"I had looked forward to this expedition for four years...The overall diversity was amazing and certainly a very memorable experience to cherish in years to come!" -- Expedition Participant

Education

Education 5 of 31

Smithsonian, June '93
Paleo Indians at Saltville

...excavate, catalog and analyze bones, teeth and other paleontological and archeological specimens from the region. And you can help!

Smithsonian
- Paleo Expedition Details
- Butler Audio
- Butler Transcription

Education

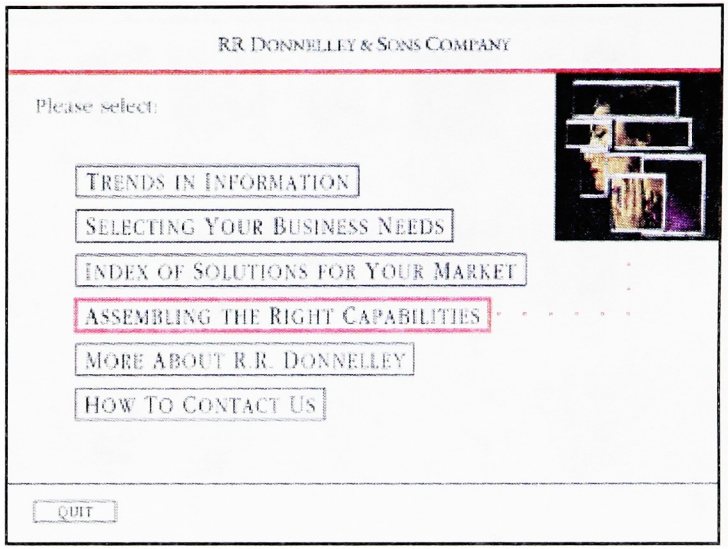
Education 10 of 31

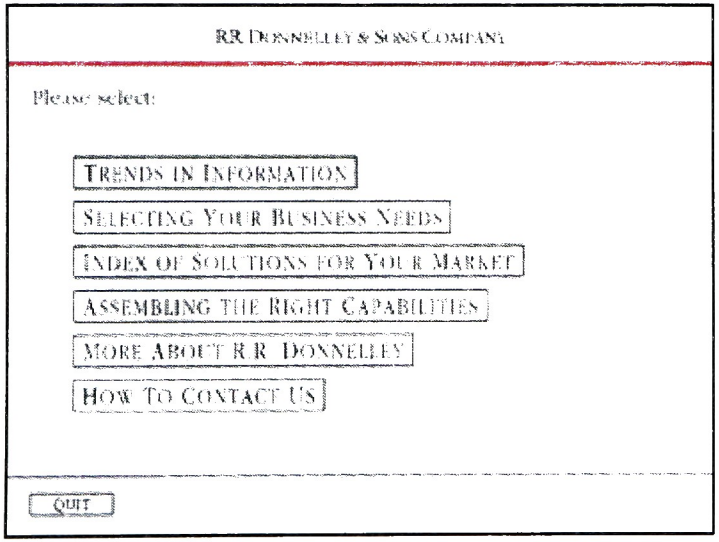
Smithsonian, June '93
How To...

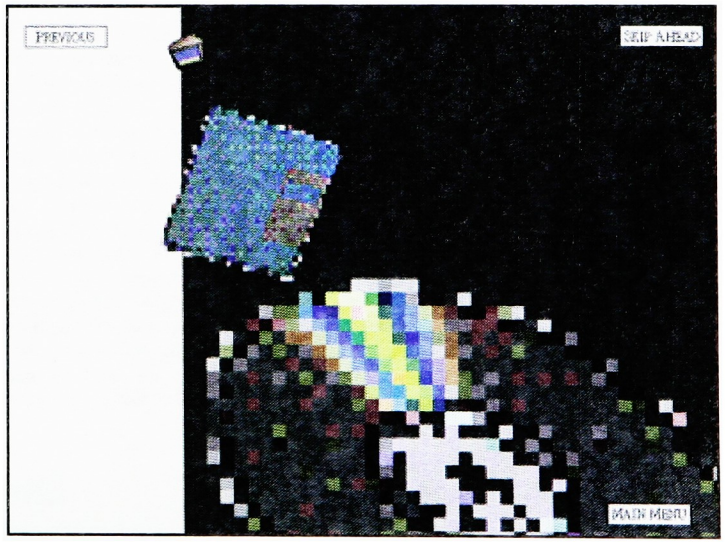
Smithsonian Institution
490 L'Enfant Plaza, S.W.
Suite 4210
Washington, D.C. 20560
202/287-3210

Smithsonian
- Expedition News
- Events
- Application
- Qualifications Information
- Membership Information

RR Donnelley & Sons Company







RR Donnelley & Sons Company

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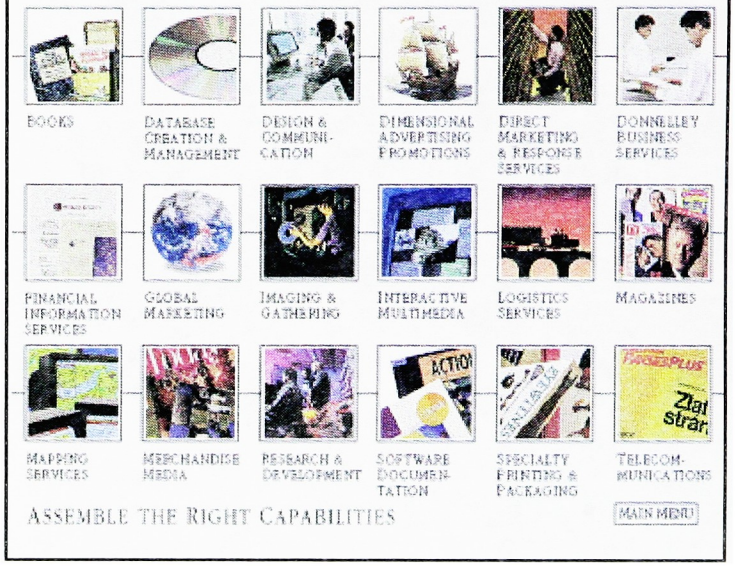
- Financial
- International Printing / Publishing
- Magazines
- Information / Technology
- Software Documentation
- Telecommunications

MAIN MENU



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MENU

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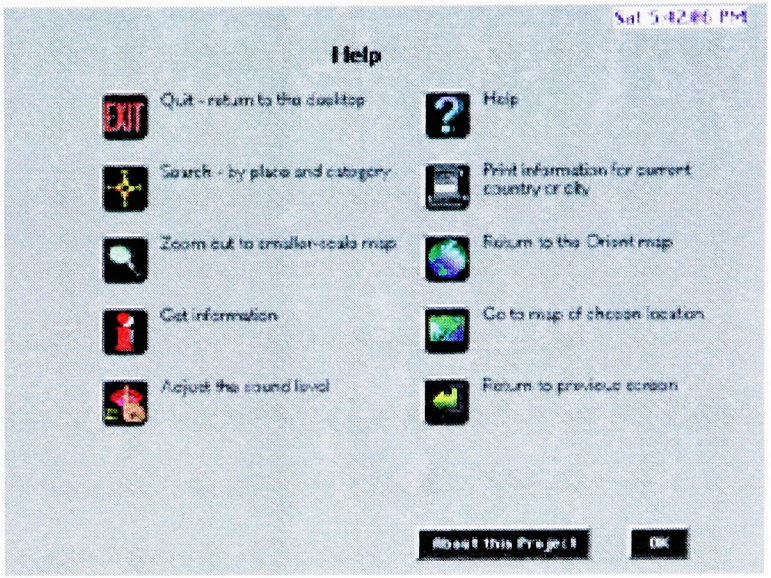
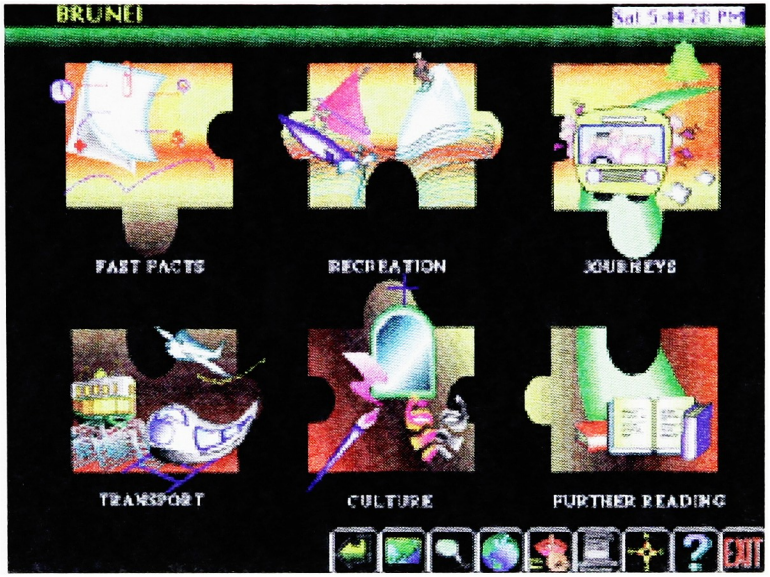
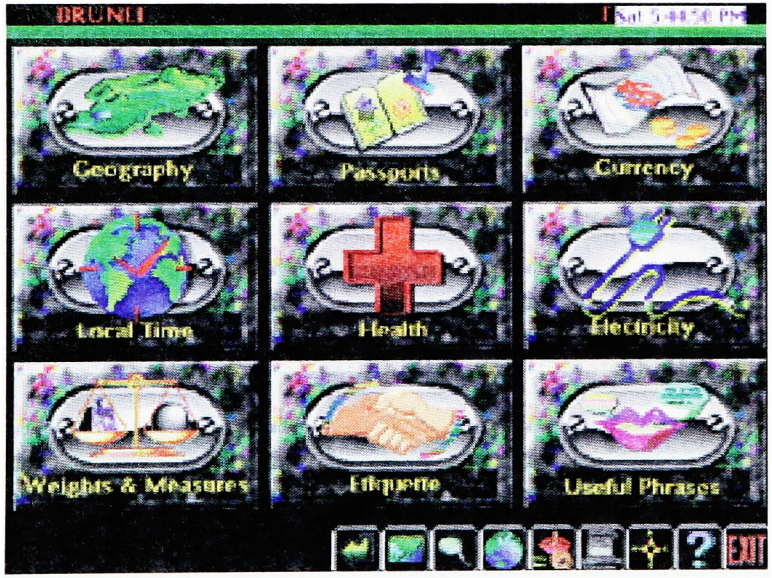
Books

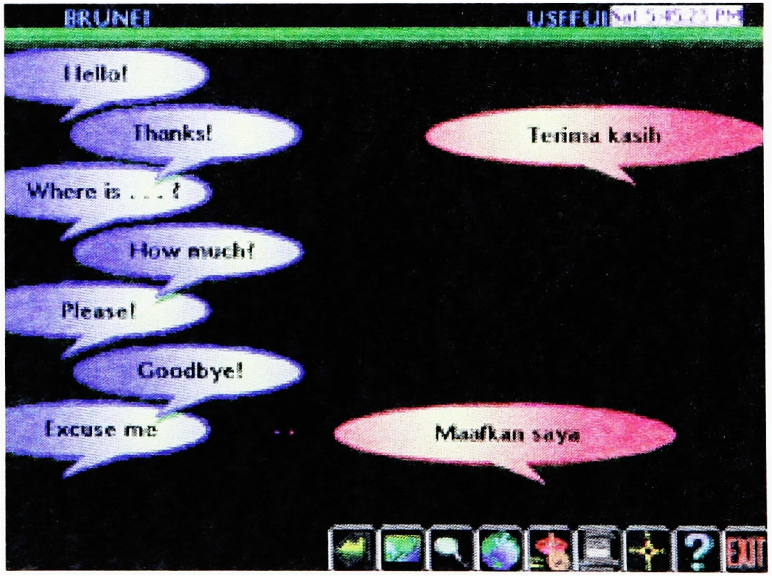
MENU

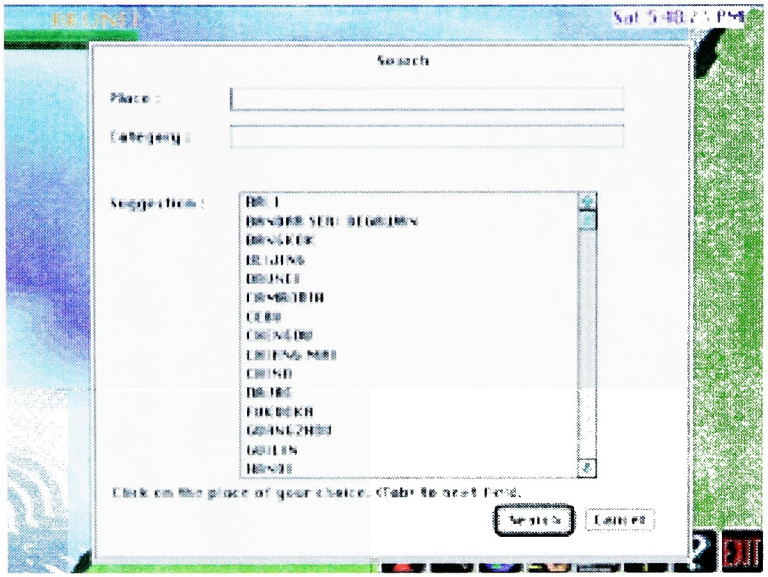
Interoptica's Multimedia Travel Encyclopedia




BRUNEI
FAST FACTS
RECREATION
JOURNEYS
TRANSPORT
CULTURE
FURTHER READING
EXIT

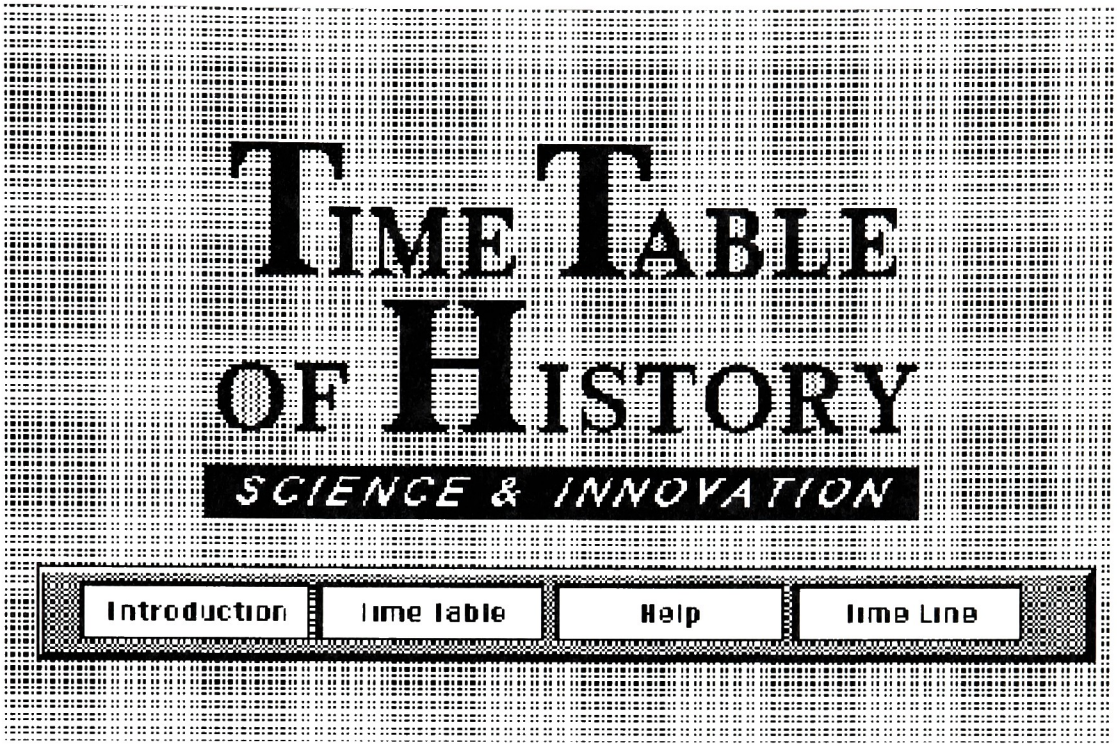

BRUNEI
Geography
Passports
Currency
Local Time
Health
Electricity
Weights & Measures
Etiquette
Useful Phrases
EXIT

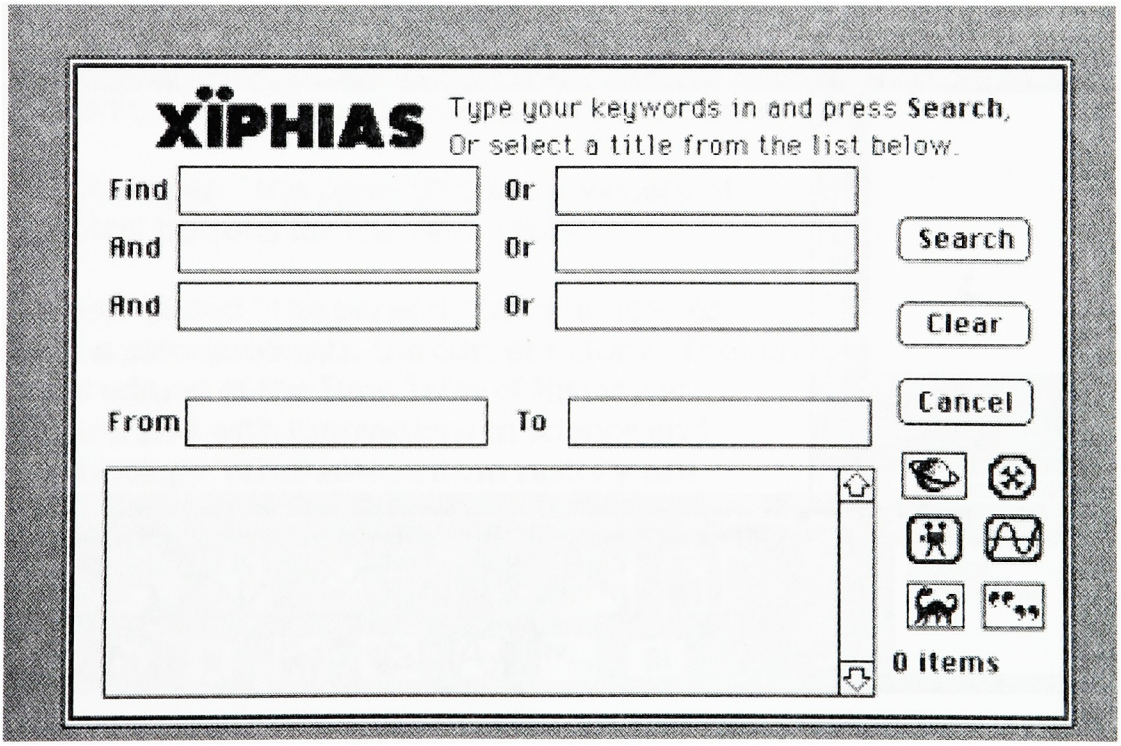

BRUNEI
Hello!
Thanks!
Terima kasih
Where is . . . ?
How much!
Please!
Goodbye!
Excuse me
Maafkan saya
EXIT

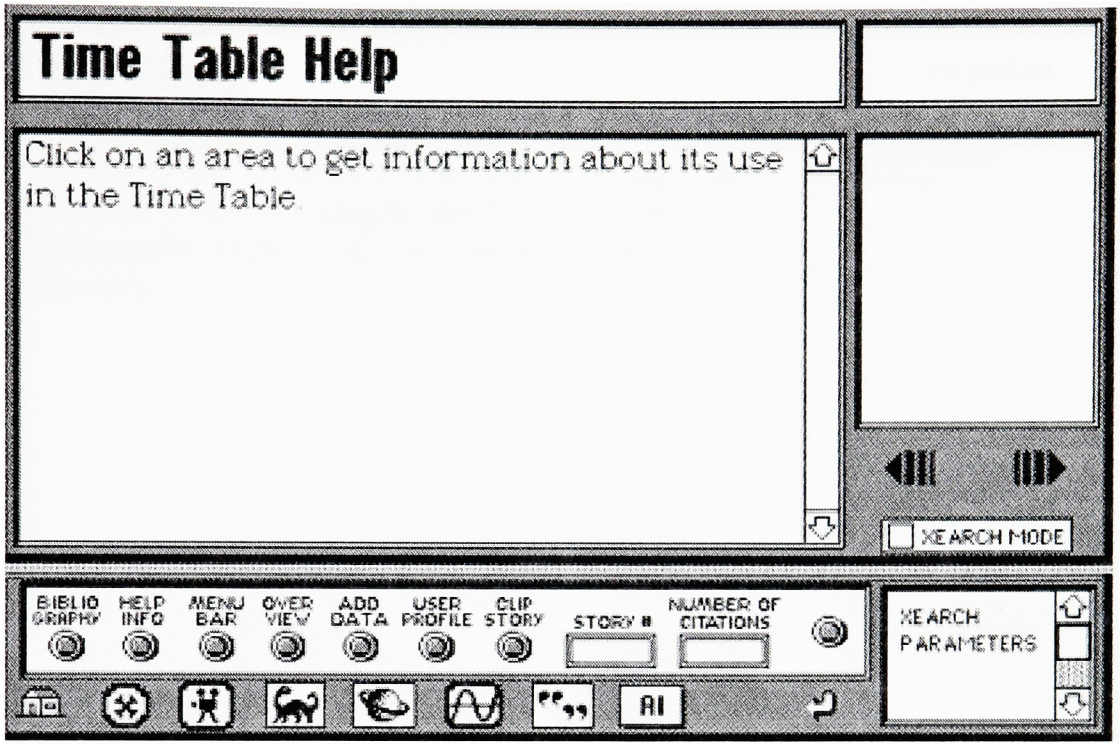

BRUNEI
Search
Place :
Category :
Suggestions :
EXIT

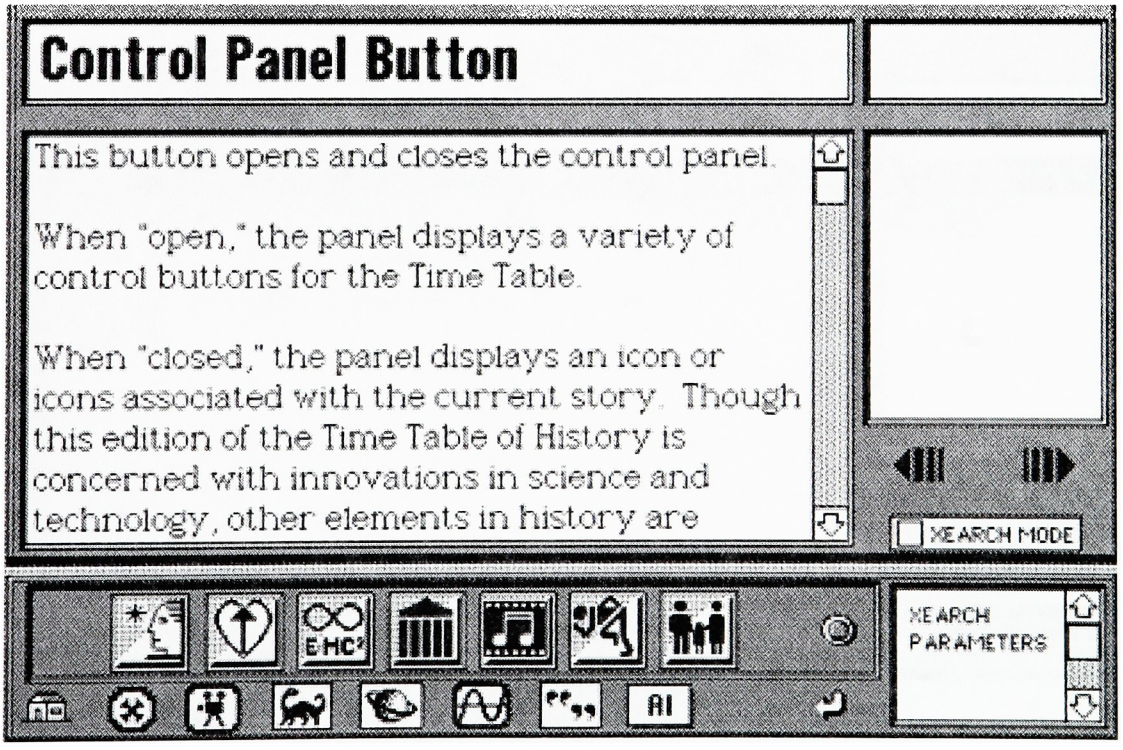

BRUNEI
AIRLINES
EXIT

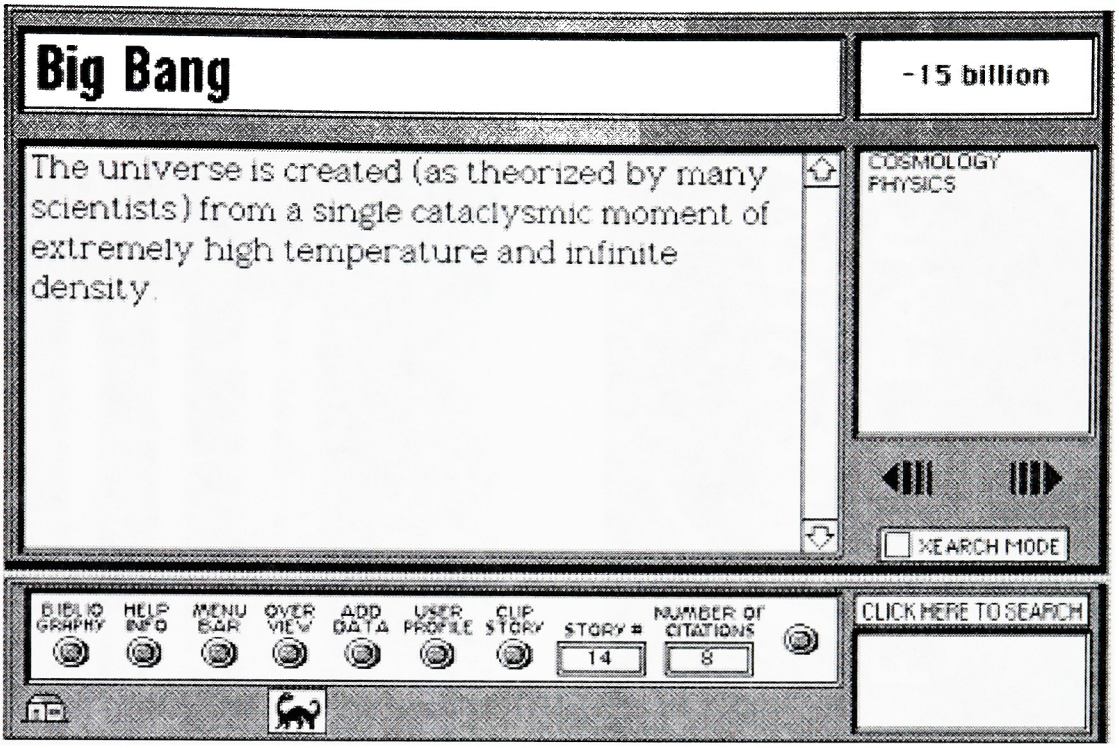

BRUNEI
SHIPS
Labuan Island
South China Sea
Malaysia
Brunei
Indonesia
EXIT

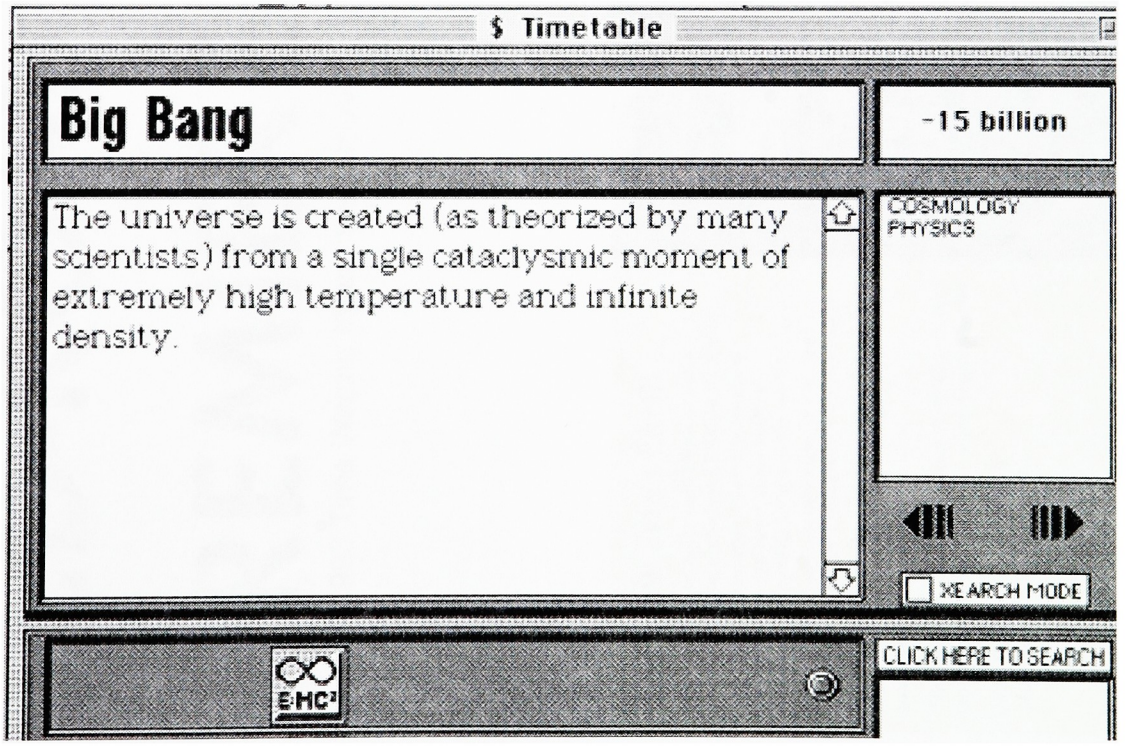





Time Table Help
Click on an area to get information about its use in the Time Table.
XEARCH MODE
BIBLIO GRAPHY
HELP INFO
MENU BAR
OVER VIEW
ADD DATA
USER PROFILE
CLIP STORY
STORY #
NUMBER OF CITATIONS
XEARCH PARAMETERS
AI


Control Panel Button
This button opens and closes the control panel.
When "open," the panel displays a variety of control buttons for the Time Table.
When "closed," the panel displays an icon or icons associated with the current story. Though this edition of the Time Table of History is concerned with innovations in science and technology, other elements in history are
XEARCH MODE
E=MC²
XEARCH PARAMETERS
AI


Big Bang
-15 billion
The universe is created (as theorized by many scientists) from a single cataclysmic moment of extremely high temperature and infinite density.
COSMOLOGY
PHYSICS
SEARCH MODE
BIBLIO GRAPHY
HELP INFO
MENU BAR
OVER VIEW
ADD DATA
USER PROFILE
CLIP STORY
STORY #
14
NUMBER OF CITATIONS
8
CLICK HERE TO SEARCH


$ Timetable
Big Bang
-15 billion
The universe is created (as theorized by many scientists) from a single cataclysmic moment of extremely high temperature and infinite density.
COSMOLOGY
PHYSICS
SEARCH MODE
E=MC²
CLICK HERE TO SEARCH

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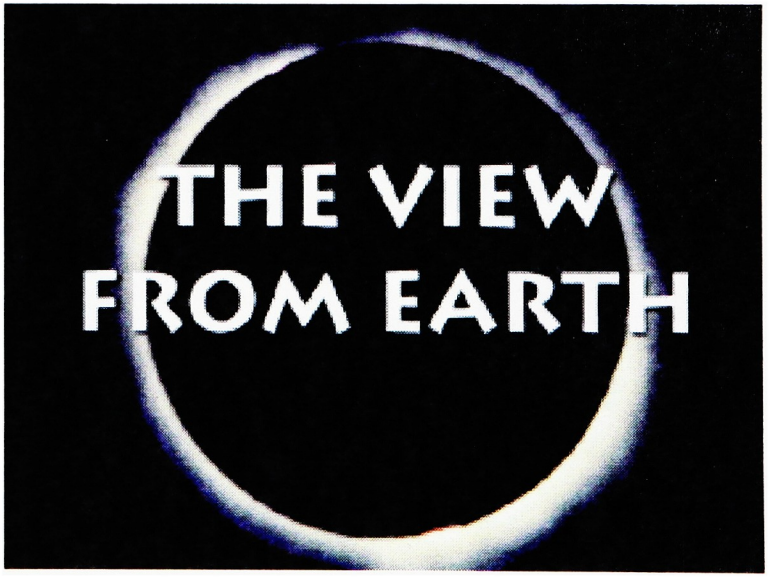

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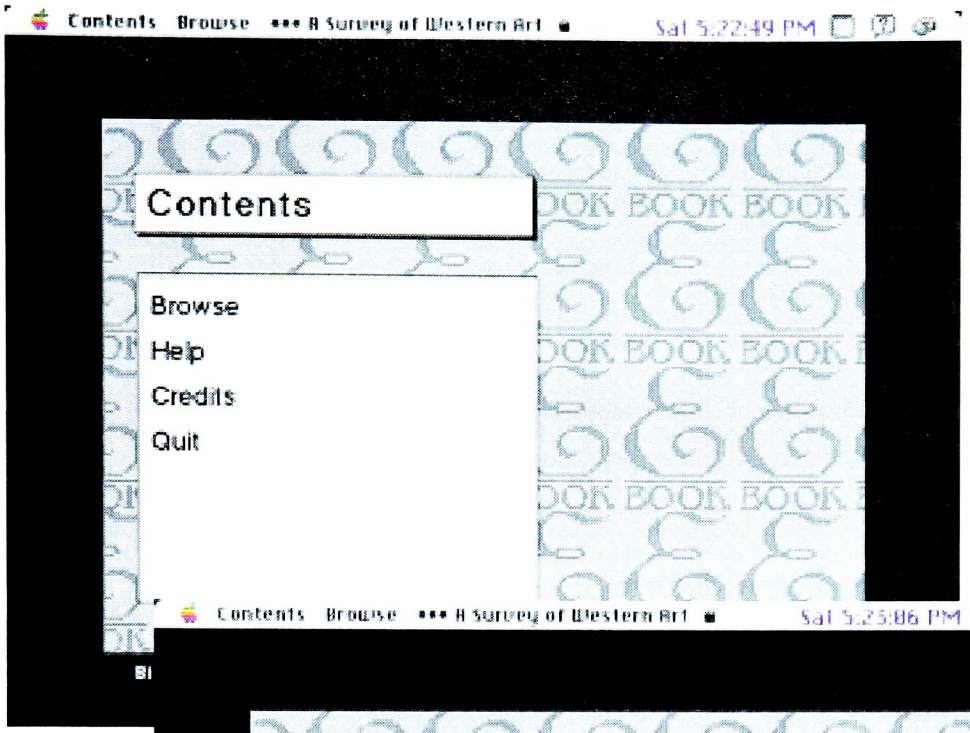

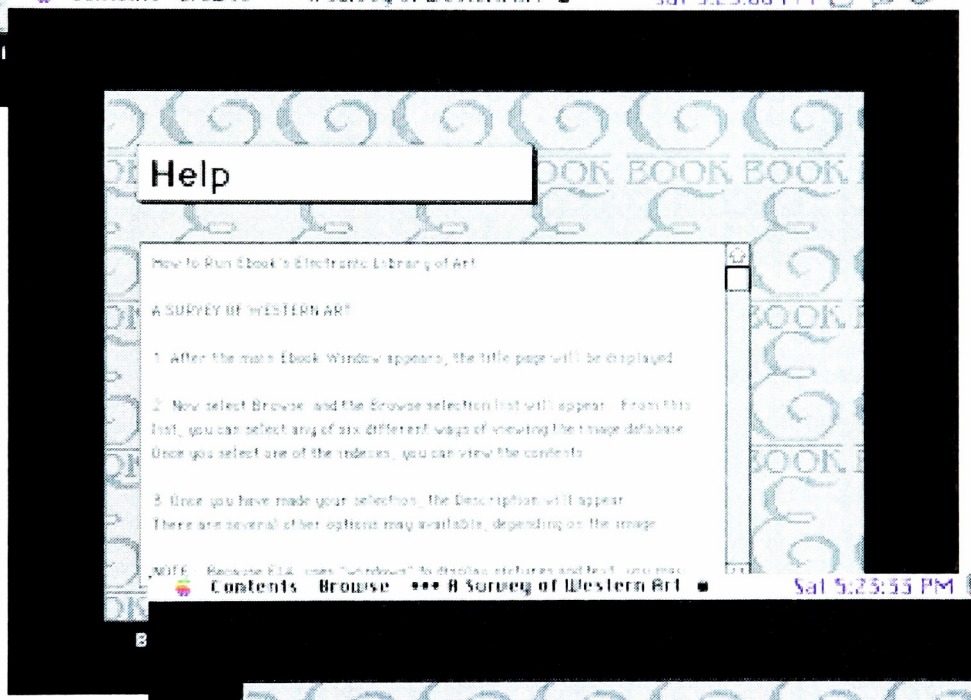

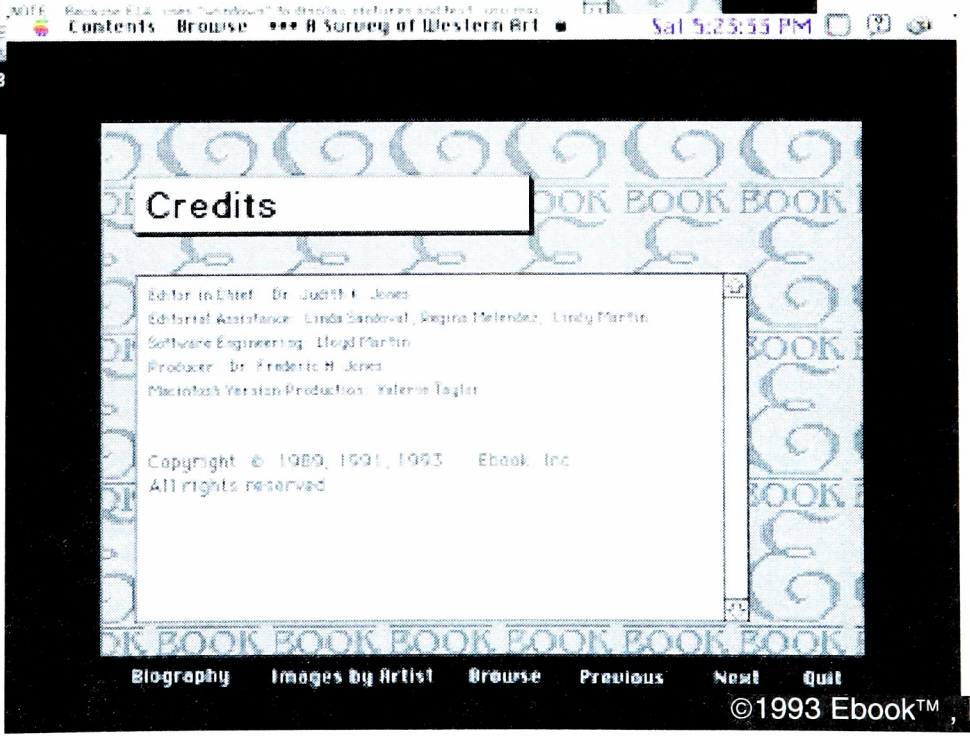

Survey of Western Art

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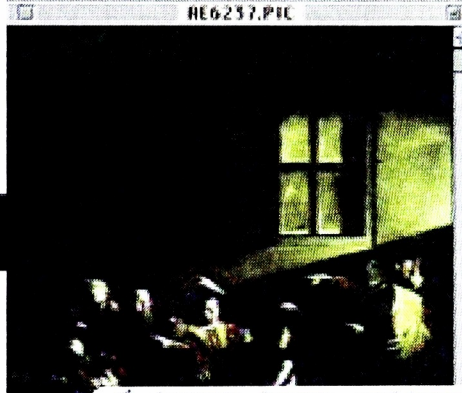

Michelangelo Merisi da Caravaggio

Italian Male
1571-1609/10

Baroque
1599-1600
Painting
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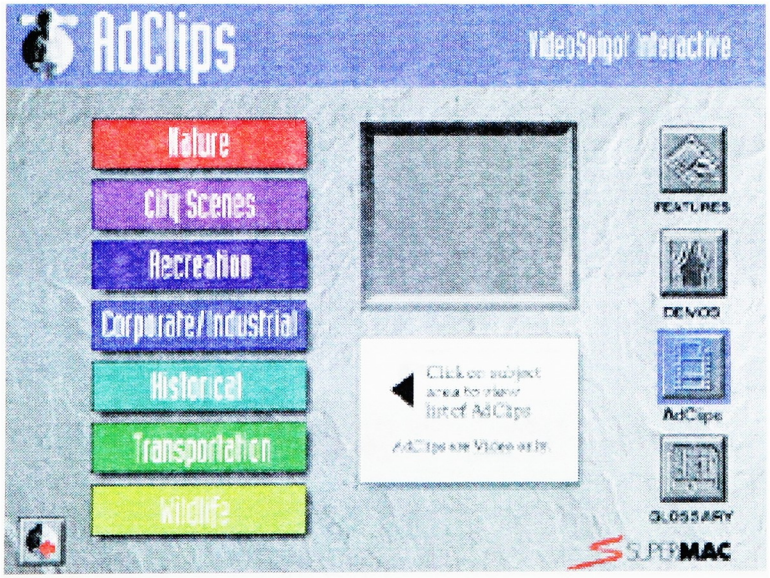
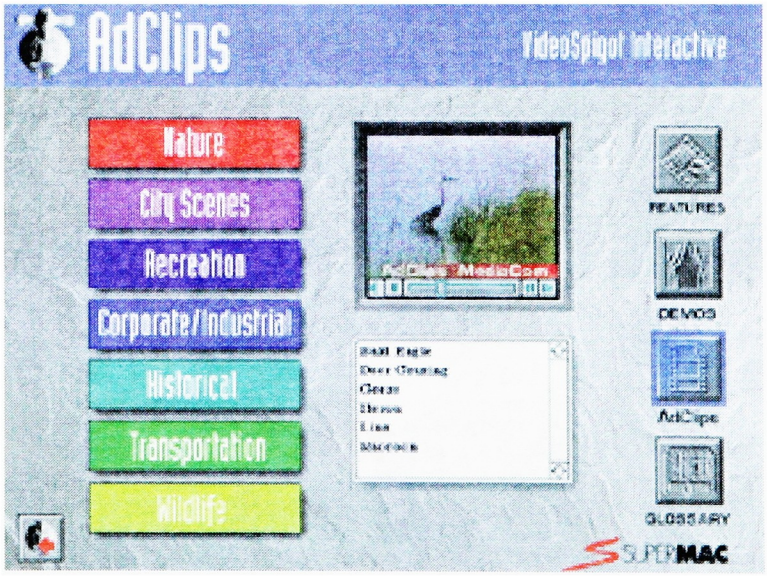
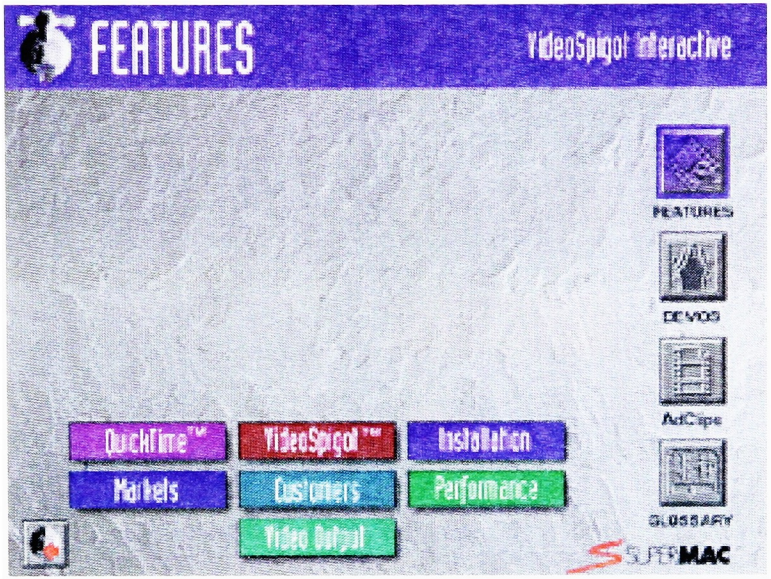
Marketing Toolkit
Volume 2



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Video Output
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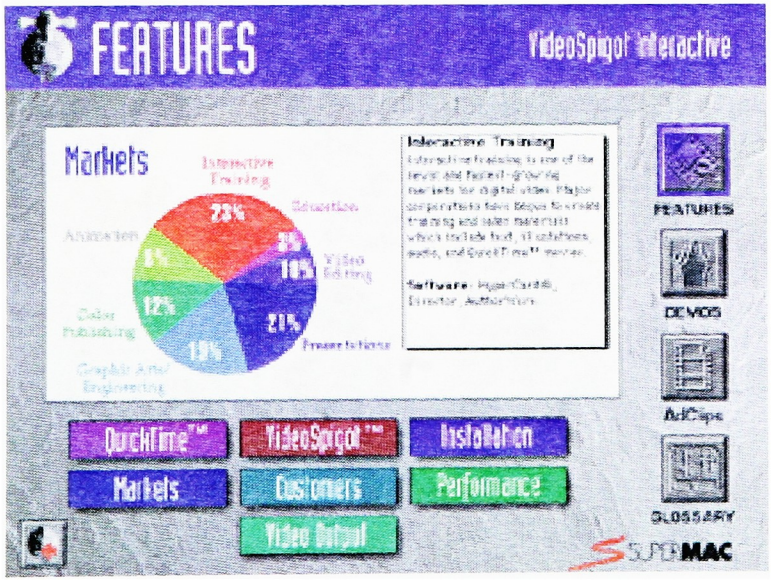
DEMOS
AdCaps
GLOSSARY
SUPERMAC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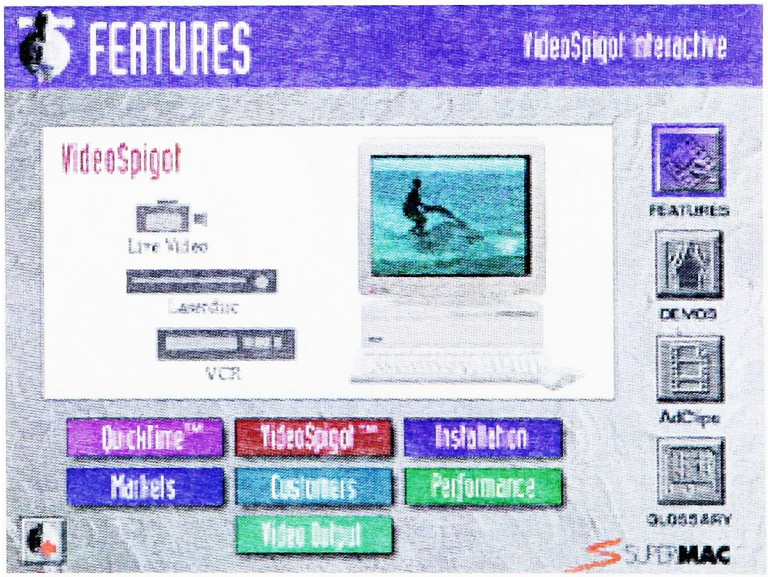
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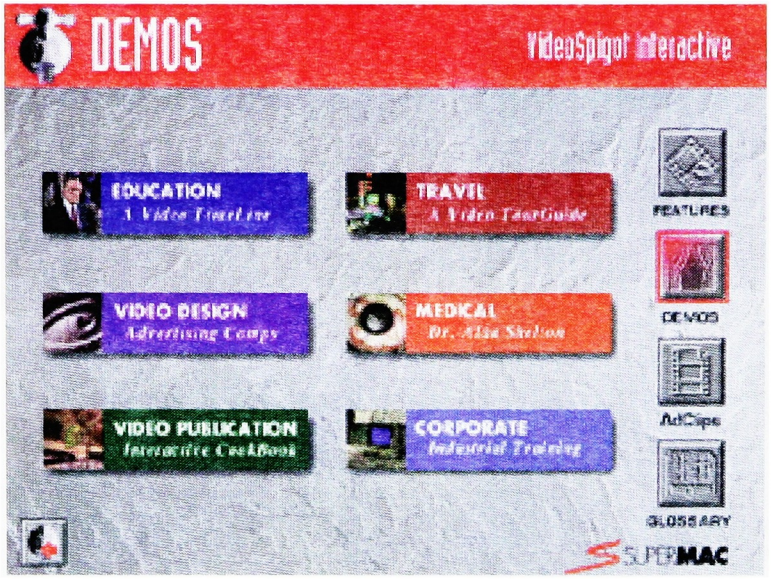
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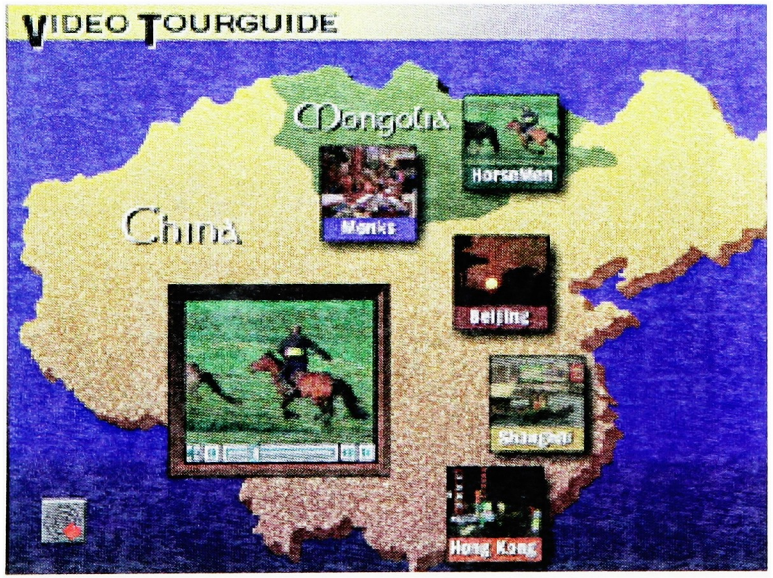
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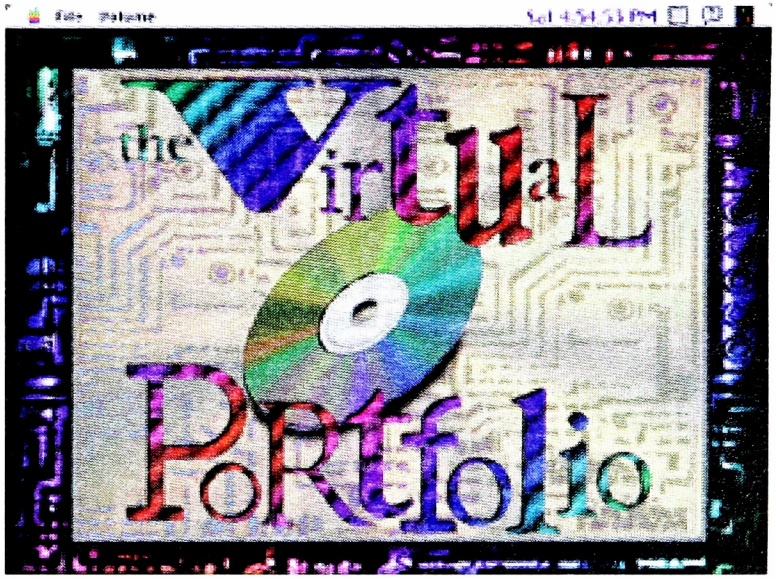
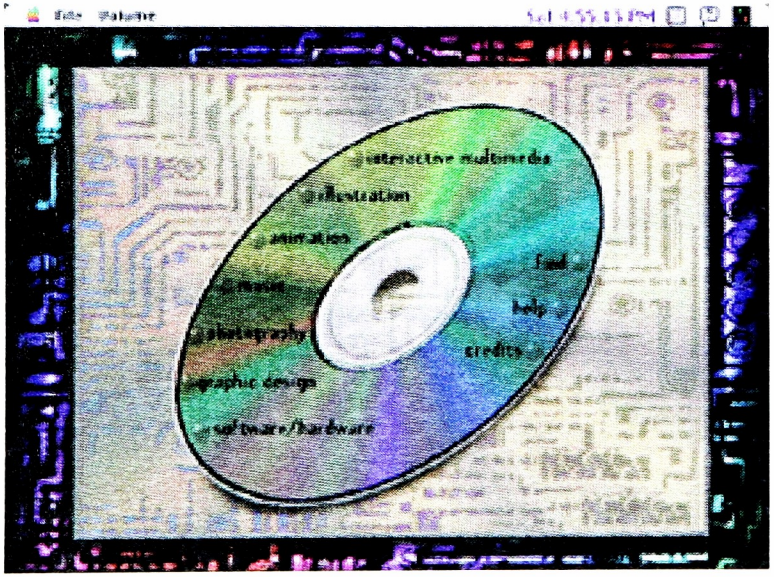
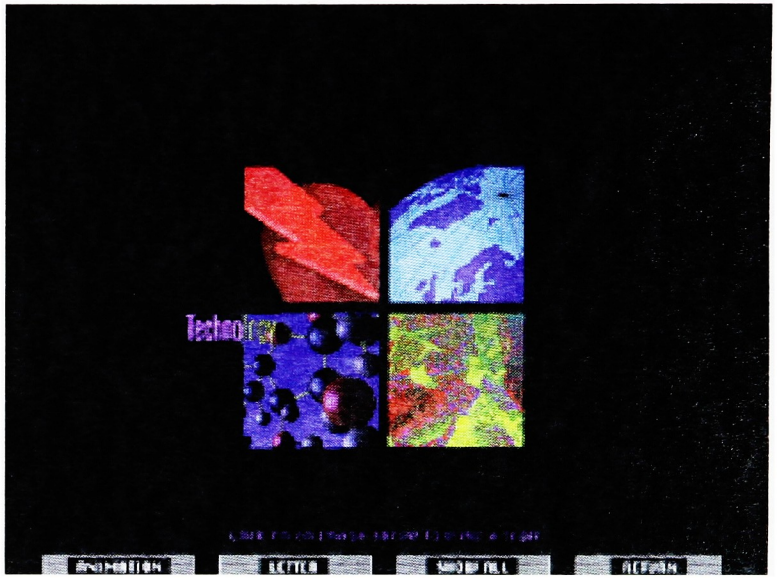
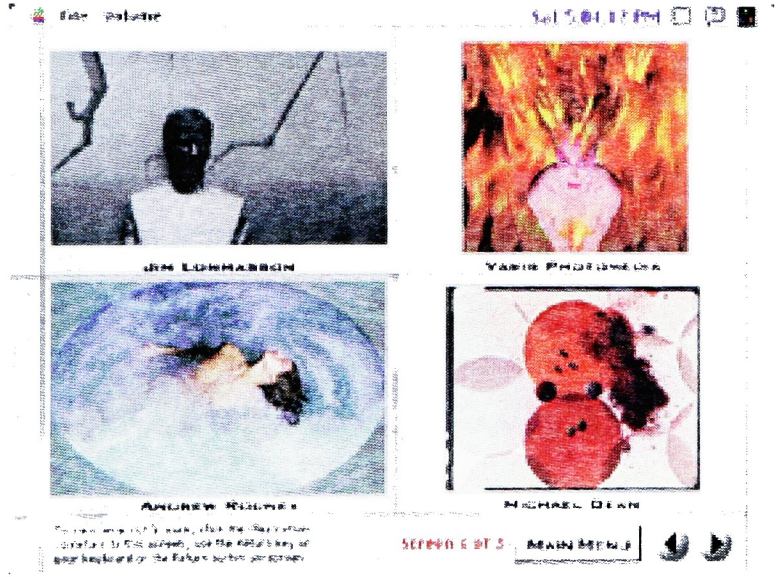





MicroColor
MAIN MENU

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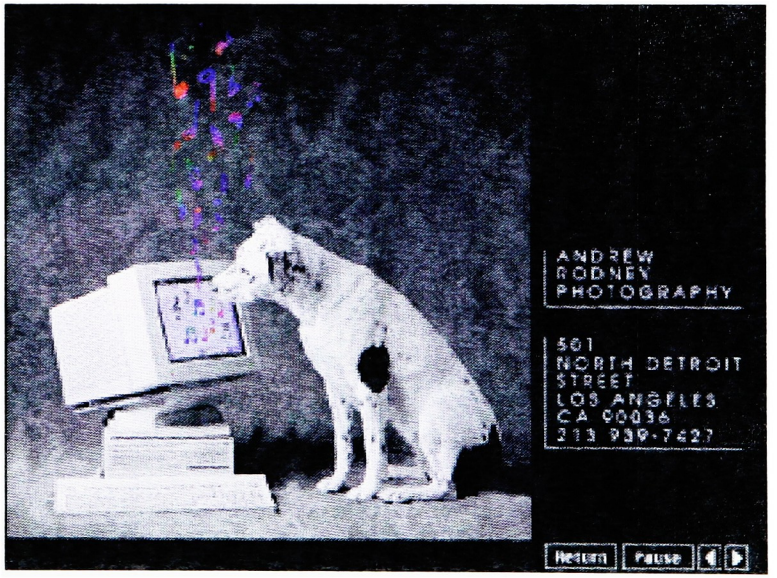
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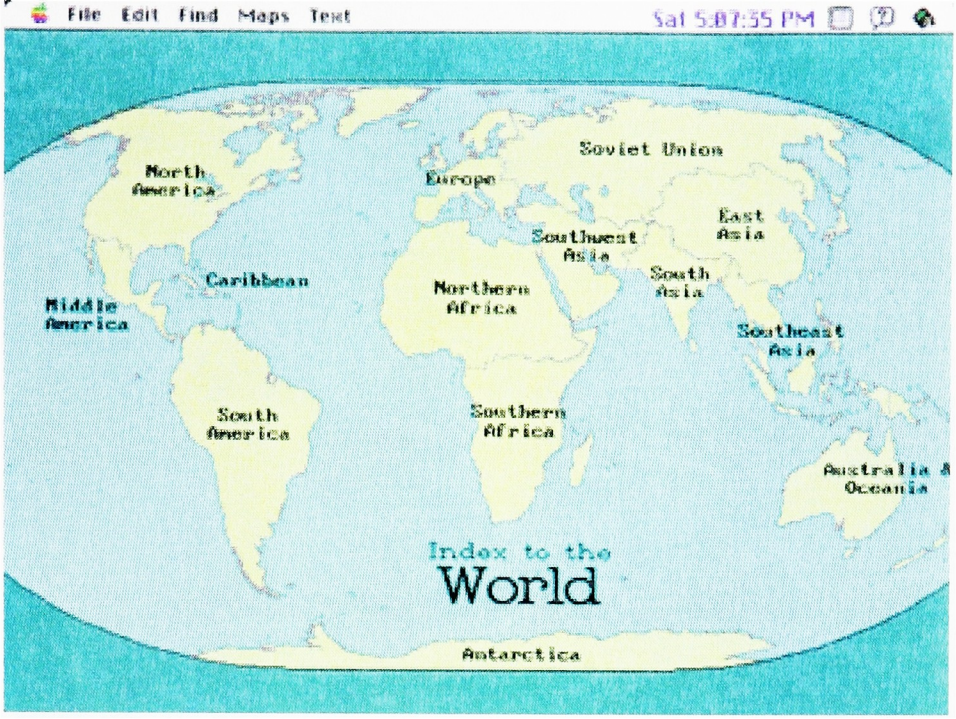

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WORLD ATLAS


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Köln
Dresden
Bonn
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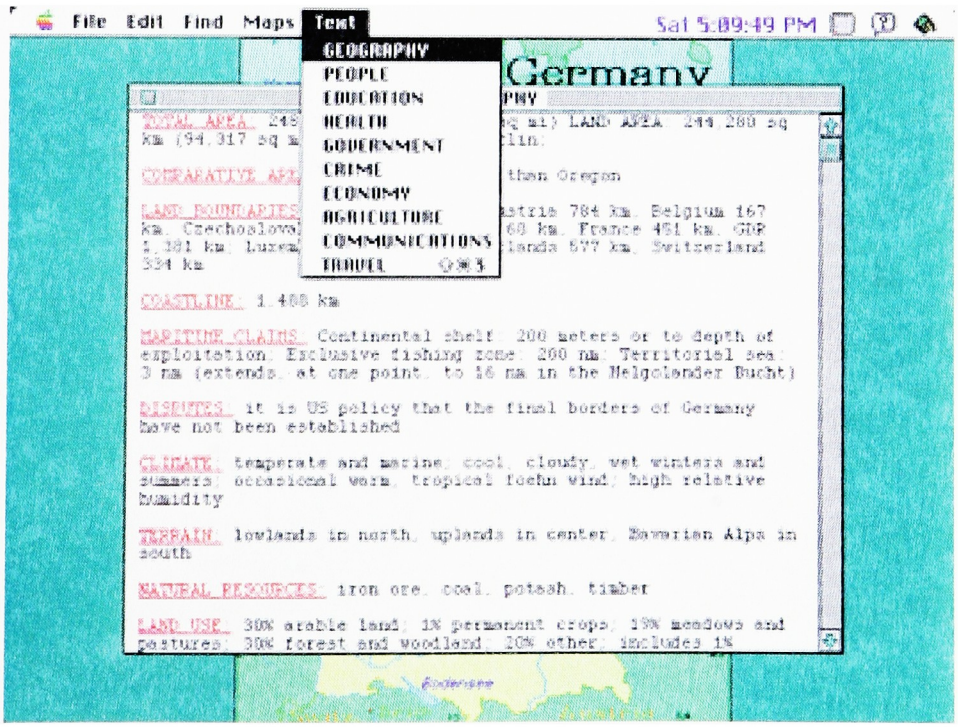
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GEOGRAPHY
PEOPLE
EDUCATION
HEALTH
GOVERNMENT
CRIME
ECONOMY
AGRICULTURE
COMMUNICATIONS
TRAVEL
Germany
TOTAL AREA: 249
km (94,317 sq m
COMPARATIVE ARE
than Oregon
LAND BOUNDARIES
Km, Czechoslova
1,381 km, Luxem
334 km
COASTLINE: 1,488 km
MARITIME CLAIMS: Continental shelf: 200 meters or to depth of exploitation; Exclusive fishing zone: 200 nm; Territorial sea: 3 nm (extends at one point, to 16 nm in the Helgolander Bucht)
DISPUTES: it is US policy that the final borders of Germany have not been established
CLIMATE: temperate and marine; cool, cloudy, wet winters and summers; occasional warm, tropical foehn wind; high relative humidity
TERRAIN: lowlands in north, uplands in center, Bavarian Alps in south
NATURAL RESOURCES: iron ore, coal, potash, timber
LAND USE: 30% arable land; 1% permanent crops; 19% meadows and pastures; 30% forest and woodland; 20% other; includes 1%