ROCHESTER INSTITUTE OF TECHNOLOGY
A Thesis Submitted to the Faculty of
The College of Imaging Arts and Sciences
in Candidacy for the Degree of
MASTER OF FINE ARTS

COMPUTER GRAPHICS ARCHIVE: PROTOTYPE 1
By
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May 21, 1991

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Date: 5/1/95

Dedication

I am dedicating this book to my parents for their continual love and support for everything I have ever wanted to do. I love you both very much. Thank you.

David LaMarca: for helping me get through this past year with his continual love, support, and understanding.

Becky and Jenny: for being the best sisters in the world, and supporting everything I have done.

George and Jean LaMarca: for taking care of me as if I was their own daughter.

Jamie Molnar: for the construction of the computer kiosk, and being such a good friend.

Catherine, Shan, Barb, Ed, Wu, Cindy, Laura, Amy and Clay: for being good friends, and making my time at RIT livable, and sometimes even fun.

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The Computer Graphics Archive 1.0 is an interactive Archive designed in HyperCard 2.0 on a Macintosh IIcx. It was developed as a research tool for students and professionals interested in the history or field of computer graphics design.

The Archive contains information on computer graphics designers and their work, a comparative timeline that traces the history of computing and computers with relation to communication and media, and a glossary built into the stack to help the user understand more clearly what they are researching.

The structure of the Archive allows the user to access information interactively, thus providing them with the means of easily accessing whatever information that they care to research at any time during their use of the Archive.

In this book there will be individual chapters dedicated to the different elements that went into creating the Computer Graphics Archive. In each of these chapters I will include not only an explanation of how that particular element works, and was created, but I will include examples of this section, and printouts of the scripting (programming) that was used to have this section of the Archive actually run. I have decided to write this book in this manner because of the complexity of the Archive. The Archive is so interactive that it is very complicated to explain verbally, and the best way that I could see to explain it was to divide it up into sections that made up the complete project.

The opening stack, or teaser stack, was primarily developed for use in the actual show. It consists of several grayscale images that flash on the screen in a continual loop, until the mouse is clicked. I also incorporated a timer into all of the other stacks so if the Archive is not used for 2 minute it defaults to the opening screen.

There were basically two reasons that I incorporated the development of the opening stack in the Archive, the first reason is that I preferred having some sort of movement on the screen to peak a possible user's interest at the thesis show. The second reason that I decided to use an opening screen is that it allows the computer to return to the beginning of the Archive, so that when a person is finished with the computer he won't have to worry about returning to the beginning for other people. After testing my thesis on several students I concluded that they never went to the beginning of the Archive after researching, thus an opening stack was evidently necessary.

In scripting this stack I came across several complications, but the most interesting problem that came across were the grayscale images. I had a problem getting the pictures to loop, because of the size of the images and the processing commands the mouseclick was not getting recognized. I ended up looking in other thesis' and found a stack that was similar to what I was interested in. I studied the previous students programming and rearranged mine so that it would work.
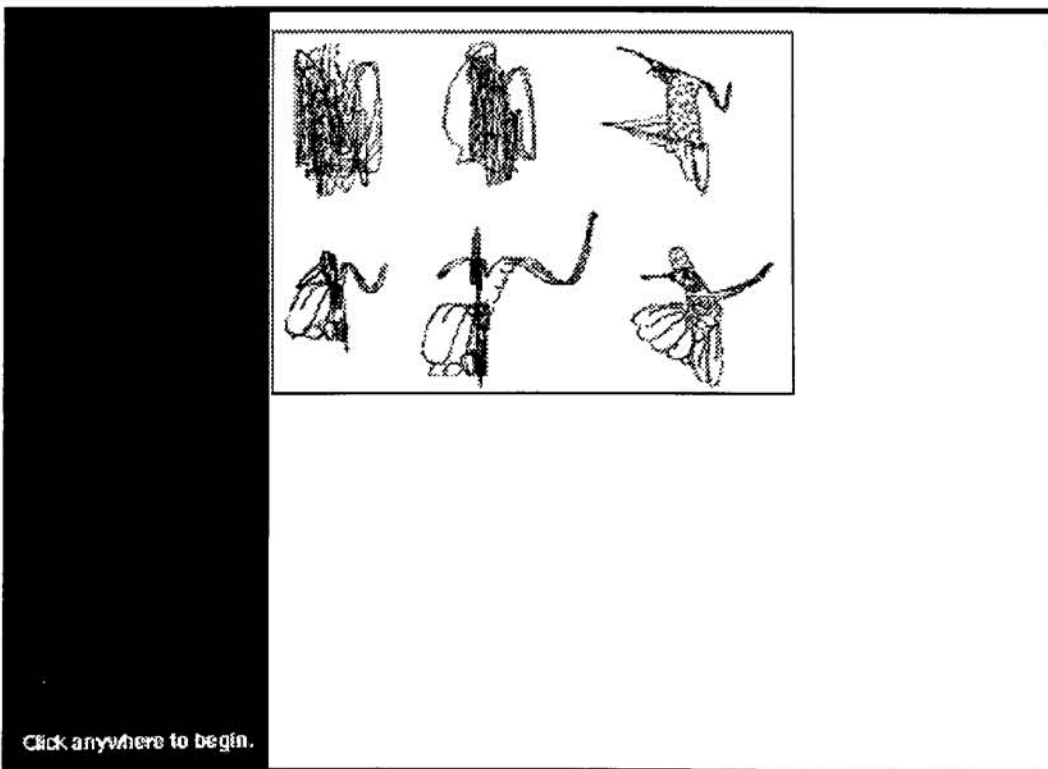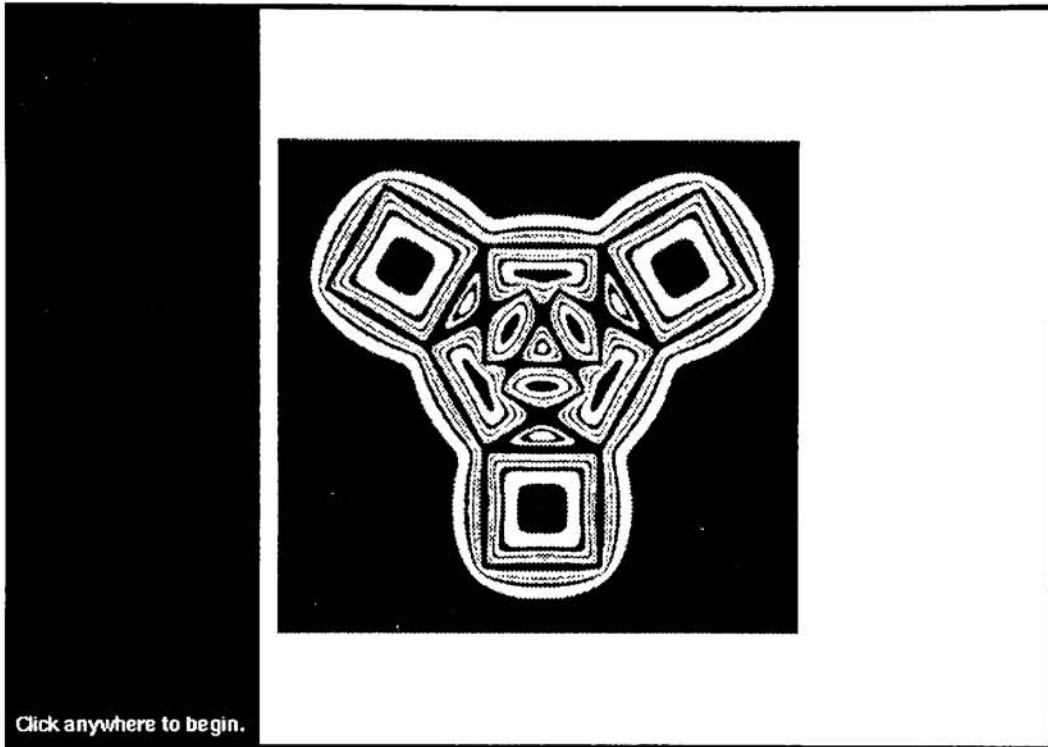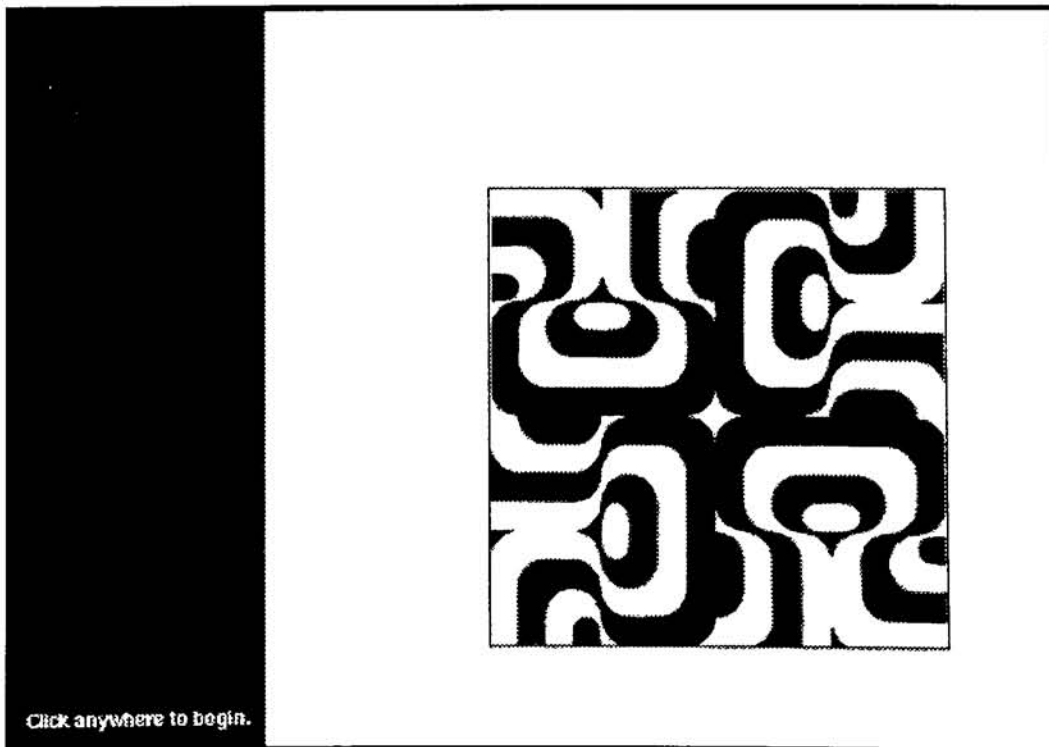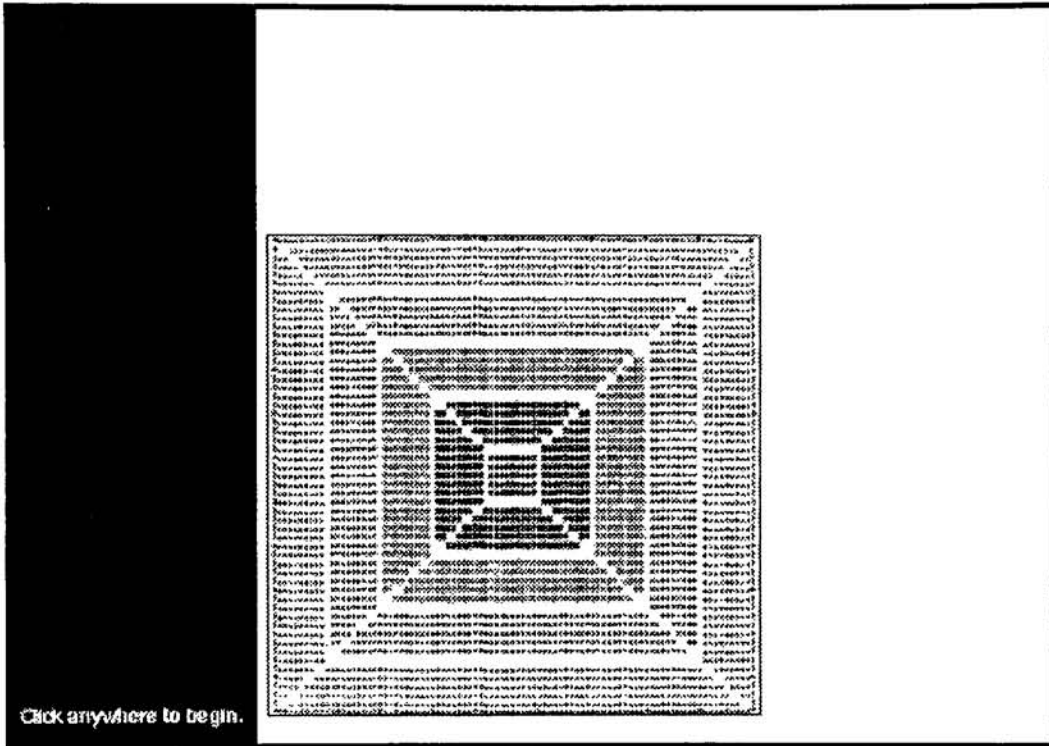
Click anywhere to begin.

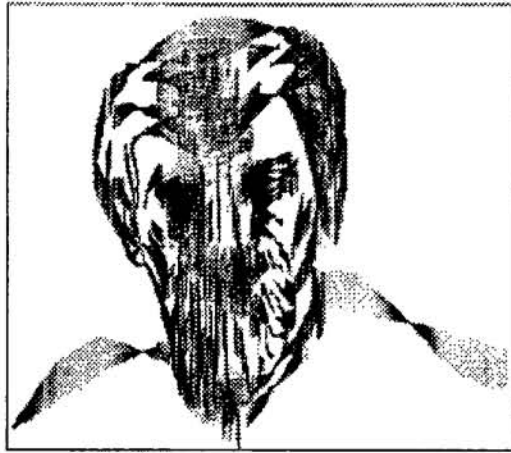Click anywhere to begin.

Click anywhere to begin.

Click anywhere to begin.

Click anywhere to begin.
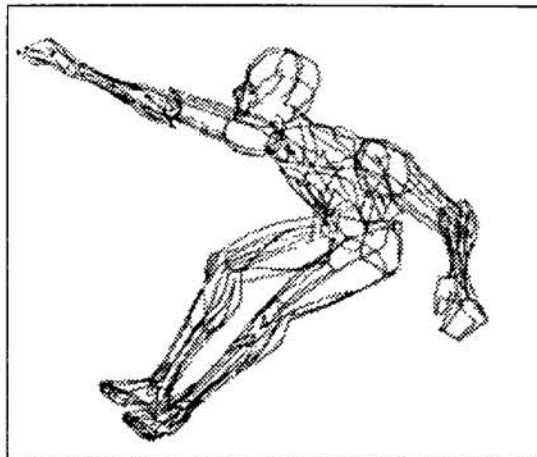
Click anywhere to begin.

Click anywhere to begin.

Click anywhere to begin.
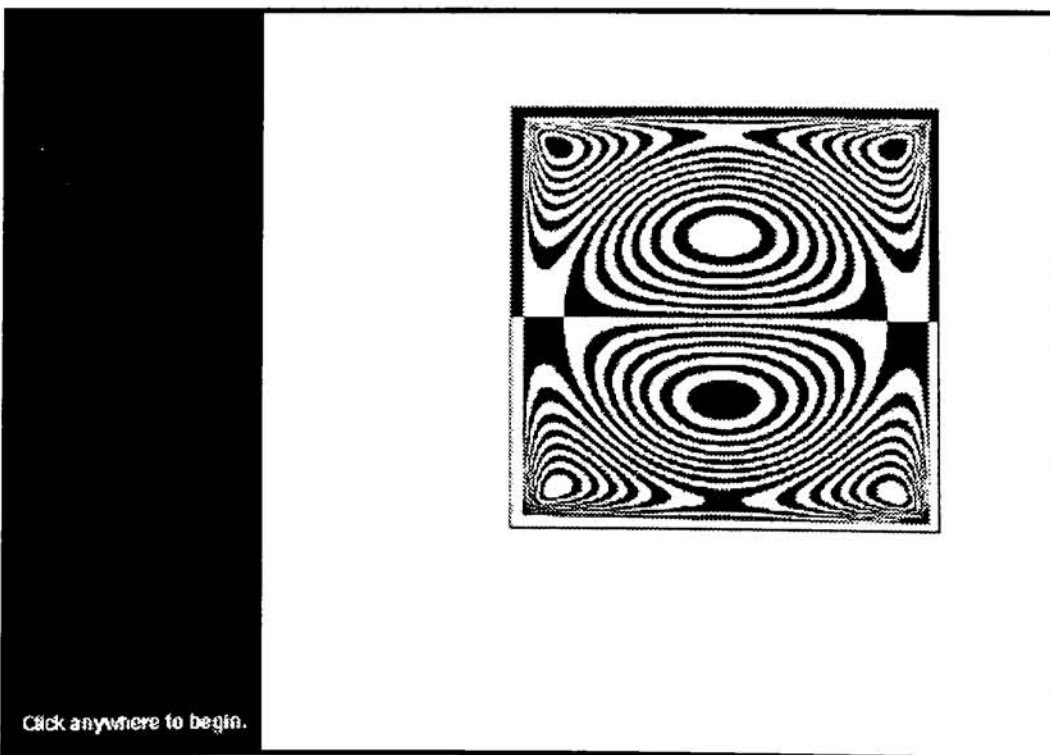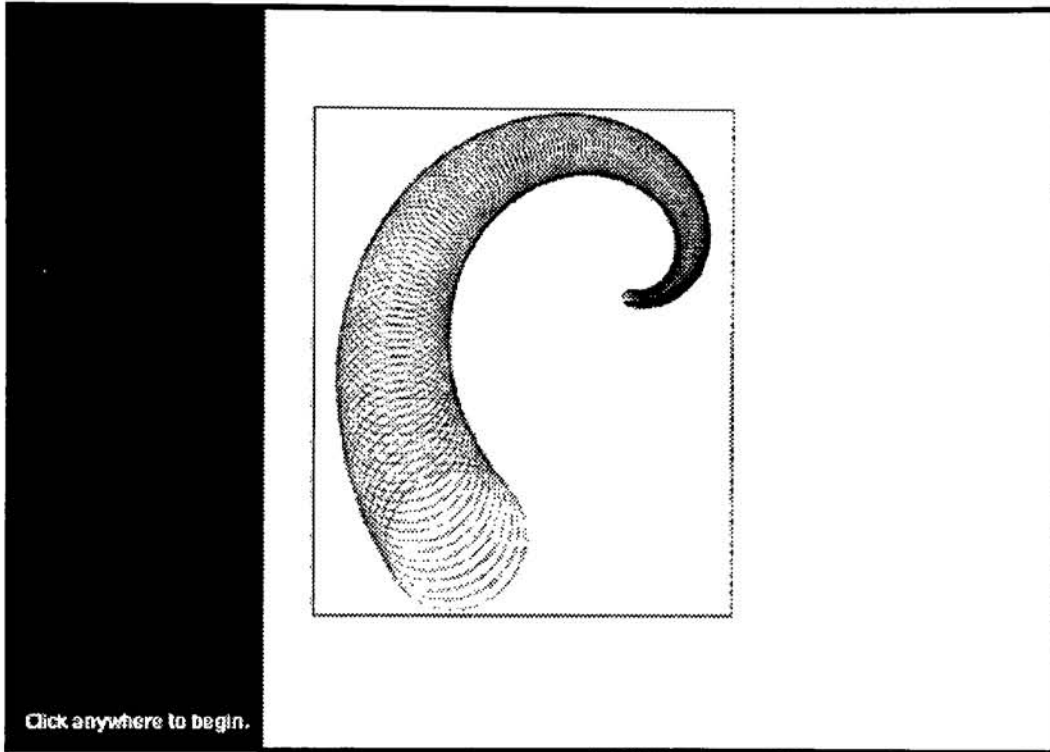
This is a sample script that would appear on each of the card scripts in the Opening Stack. This would be modified for each individual card.

```
-- -- on openCard
-- repeat until the mouse is down
-- picture "csuri", resource, rect, false
-- show window "csuri" at 165, 15
-- wait 10 ticks
-- hide window "noll"
-- end repeat
-- go to next cd

-- end openCard
-- -- on mouseDown
-- -- go to cd 1 of stack "User Selection"
-- -- hide window "csuri"
-- -- hide window "noll"
-- -- end mouseDown
```

The "User Selection" is a stack that was initiated later in the development of the Archive. It was developed to broaden the range of users, by dividing the users into "Beginner" and "Advanced", thus allowing people with different levels of expertise to use this stack. Without this division I found that I was leaving out the "Beginners" who knew little if anything about the Macintosh let alone HyperCard 2.0©.

This stack works by simply choosing either "Beginner" or "Advanced" after reading a short description of both. If "Beginner" is decided upon, then you must select the "Beginner" button on the left of the screen. This will bring you to the introduction of the Archive which basically describes the stack, its units, and the navigational process. If "Advanced" is selected then it gives you directions to go directly to the compass icon which takes you to the map of the Archive (the navigation control center). From this map you can select what you would like to research and go directly to the section of interest.

During the development of this stack I had experimented with other much more complicated versions of user level divisions. The levels went beyond "Beginner" and "Advanced", they expound on the "Advanced" level with such categories such as Research, Student, Designer, etc. This would have been extremely complicated, not only to decide which categories would be the best choices to have in the Archive, but would bring on extremely complicated links, and programming, so a decision was made to keep the "User Selection" stack simple and effective. Although it was not as extensive as I would have liked, I feel as though I have touched upon a very interesting topic that has potential to grow into a thesis topic in itself.

Computer Graphics Archive

☶ Introduction

User-level selection.

Beginner User
This is for anyone who has no prior Macintosh or HyperCard experience. To learn how to navigate though this stack select the **Introduction** button to the right of this text. This will give you an explanation of the stack, and general instructions on how to get through the Archive. If further assistance is needed select the Help button in the lower left of the screen.

Advanced User
This is for anyone who has Macintosh and HyperCard experience. If you are an advanced user you may go directly to a map of the Archive by selecting the compass icon, or you may go directly to a specific topic of interest. If for any reason you wish to look at the **Introduction** you may access it through the map.

Glossary
Print
Help
Quit

Computer Graphics Archive

☶ Timeline
☶ Designers

What is in the Computer Graphics Archive?

This is the first prototype of an on going project for the department of Computer Graphics Design Department. The Computer Graphics Archive contains historical information on the history of computer graphics design that has been divided into several sections, to make accessing the information easier for user.

Who was the Computer Graphics Archive designed for?

The Archive was developed with people who are interested in computer graphics design, especially students of design or computer design and design professionals.

How to use the Archive.

This archive is made with HyperCard 2.0, and was designed to be very simple to use, but if at anytime you find yourself lost or confused you simply click the **HELP** button located on the lower left of the screen. Now some general information on how to navigate through the archive:

|← →| ↵
Glossary
Print
Help
Quit

Computer Graphics **Archive**

CGA

- To navigate to different stack in the archive you select the topic of interest, they are located in the upper left of the screen, or you can select the **compass icon** to move freely around the Archive by simply selecting where you would like to be on the map.

- To navigate through a stack select either the **forward or back arrow**, they are located in the lower left of the screen.

- To get to the beginning of a stack use the **return button**, this is located to the right of the directional arrows.

- To go to the navigation control center select the **compass icon** to the left of the text.

- If you would like to have a hard copy of information located in the archive then select the **PRINT** button, located in the lower left of the screen.

- If you are finished with the archive then you can select the **QUIT** button to exit, this is located in the lower left of the screen.
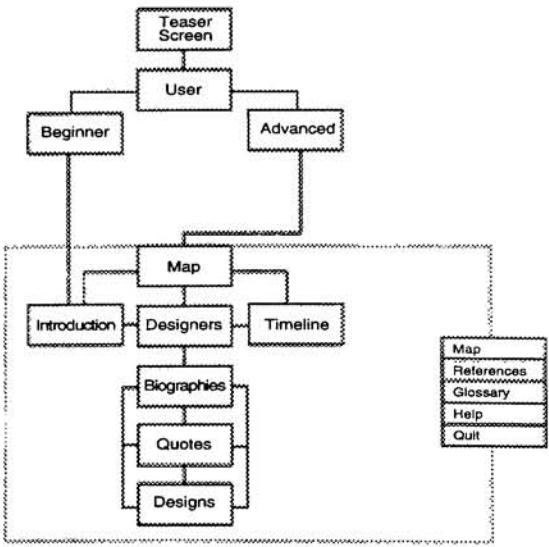
Glossary
Print
Help
Quit

Computer Graphics **Archive**

CGA

Glossary
Print
Help
Quit

This is the card script for the User Stack:

```
on opencard
  set the scroll of cd fld 1 to 0
end opencard
```

This is the stack script for the User Selection Stack:

```
on idle
  showPict "archive", 177,34
  showPict "T&D", 46,60
  showPict "log", 580,15

  global counter
  put the mouseloc into mouseCheck
  wait 6 ticks
  if the mouseloc<> mouseCheck then
    put 0 into counter
  else
    put counter +1 into counter
  end if
  if counter =200 then
    put 0 into counter
    go to cd 1 of stack "Teaser Stack"
  end if
end idle
```

```
on openStack
  hide menubar
end openStack
```

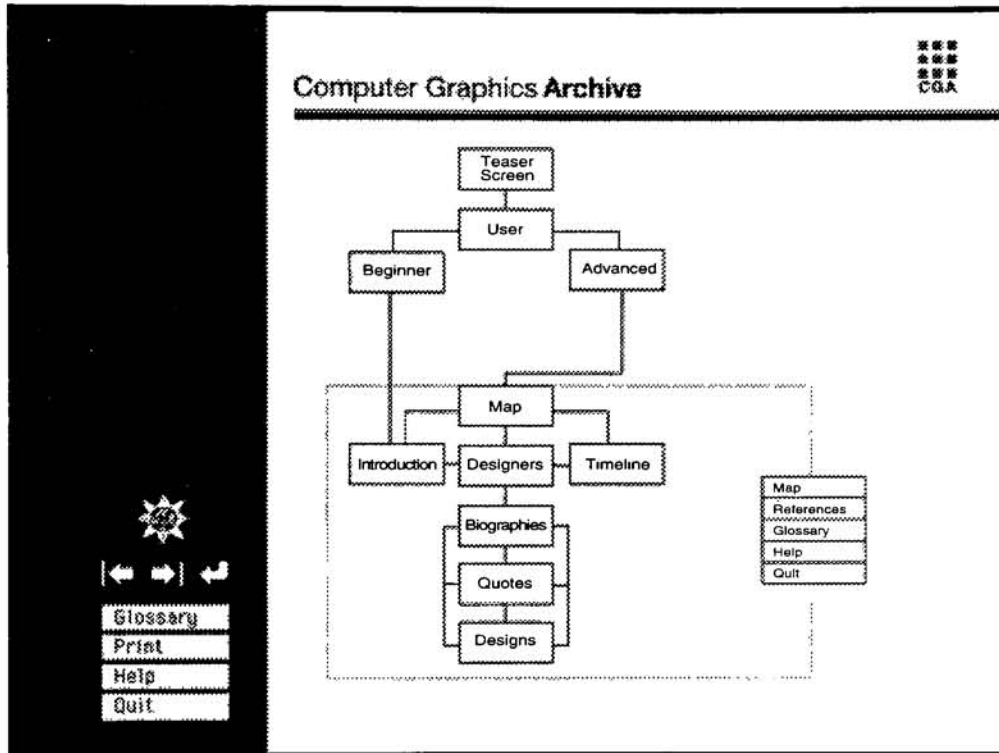The navigator is essentially a schematic view of the Archive. It not only shows the overall working of the Computer Graphics Archive, it gives the user another way of navigating through the stacks. It gives the user the choice of skipping from one stack to another quickly and easily, whether or not the stack is available from the section they are in at the time.

The user is able to get to the navigation control (map) of the Archive by selecting the compass button located in the lower left hand corner of the screen. This icon remains a constant throughout the entire Archive, giving the user complete freedom as to what they would like to know about and when.

There were many schematic drawings of the Archive before deciding on the linear view. I found it very difficult to express exactly how the CGA worked on paper because of the interactivity of the stacks. Another concern was the constant buttons that were in the lower left hand corner of the screen, I had no idea how to show these buttons in the schematic of the stack. Finally a decision was made to have the buttons connect with the rest of the stack, but off by themselves to show that they were constantly available.

The schematic navigation control stack in hindsight has been one of the best additions to the stack. It has increased the interactivity of the stack tremendously, thus making the Archive a much more useful tool.

Computer Graphics **Archive**

CGA

Teaser Screen

User

Beginner   Advanced

Map

Introduction   Designers   Timeline

Biographies

Quotes

Designs

Map
References
Glossary
Help
Quit

Glossary
Print
Help
Quit

The following scripts are attached to individual buttons:
"Teaser Screen"
```
on mouseUp
  go to stack "Teaser Stack"
end mouseUp
```

"User"
```
on mouseUp
  go to card id 3034 of stack "User Selection"
end mouseUp
```

"Beginner"
```
on mouseUp
  go to card id 2876 of stack "Intro.stack"
end mouseUp
```

"Advanced"
```
on mouseUp
  go to card id 2997
end mouseUp
```

"Map"
```
on mouseUp
  answer "You are already at the Map." with "OK"
end mouseUp
```

"Introduction"
```
on mouseUp
  go to card id 2876 of stack "Intro.stack"
end mouseUp
```

"Designers"
```
on mouseUp
  go to card id 3023 of stack "CGA Designers"
end mouseUp
```

"Timeline"
```
on mouseUp
  go to card id 4678 of stack "Time proto. 1 "
end mouseUp
```

"Biographies"
```
on mouseUp
  go to card id 17766 of stack "CGA biographies"
end mouseUp
```

"Quotes"
```
on mouseUp
  go to card id 5398 of stack "*CGA Quotes"
end mouseUp
```

"Designs"
```
on mouseUp
  go to card id 3016 of stack "CGA Designs"
end mouseUp
```

"Glossary"
```
on mouseUp
  go to card id 5070 of stack "Final terms"
end mouseUp
```

"Help"
```
on mouseUp
  answer "If you need assistance select the Help button in the lower left corner." with
"OK"
end mouseUp
```

Designers, Biographies, Quotes Stacks

I have decided to consolidate the review of the "Designers", "Biographies", "Designs", and "Quotes" stack into one overall topic. I find that the four topics are so interrelated that I would have a hard time explaining one section without reference to the other three.

The four sections are, in my opinion, the heart and soul of the Archive. These sections contain information on the designers, in a completely interactive manner. In these sections my main objective was to have any of the information available at any time. The four categories can be seen as separate units, but only to a certain extent. For example, while in the biography section the user can browse through and read all of the biographies, but the interactivity of this section also allows access to any of the other sections at any point in the Archive. If a user is reading a biography of a particular designer and would like to see some designs, or would like to read some quotes from that designer, all they would have to do is select the buttons on the left of the screen (either "Designs", or "Quotes"), and the chosen topic about that particular designer will appear. This is available throughout the "Designs", "Quotes", and "Biographies" sections.

The "Designers" card is involved with these sections because it is a listing of the designers available in the Archive. If the user already knows the designer they wish to research, he/she simply selects the designer or the topic of interest. If they select one of the topic buttons ("Quotes", "Biography" or "Designs") a message box will appear asking them to select the designer they would like to research, and then it will take the user directly to that information. If the user selects the designer first a message box appears asking them to select what topic they would like to research, and after selecting the topic it takes them to the information requested. After researching the information that has been accessed you can either browse through the sections of information on that particular designer, continue to browse through the topic researching other designers, or finally they can select the return button and go to the "Designers" stack and begin research from the very beginning. During all of this the user will, as in the other stacks be able to access the "Print", "Quit",

"Glossary", and "Help" button as well as the topic buttons, and the button that is linked to the navigation control stack.

This section is, as I said the heart of the Archive, and was the section that I spent the most time on. It was important to me that it be as interactive as possible to have as much information available to the viewer as possible, and to make the information simple to access. I feel as though I was very successful in designing the Archive's interactive capability, as well as the ease in which information can be inserted to enlarge the Archive. The programming of this section was the most difficult of the entire HyperCard© Stack, and became at times very frustrating, but overall this struggle was worth the result.

Computer Graphics **Designers**

CGA

Abel, Robert
Adrian, Marc
Aguirre, J. L.
Anderson, L. David (USA)
Alexanco, J. L.
Alton, Larry (USA)
Ashworth, Robert
Barbadillo, Manuel
Barnum, L.W. (USA)
Bense, Max
Berkeley, Edmund C. (USA)
Blazek, Jaroslav
(Czechoslovakia)
Blinn, Jim
Bonacic, Vladimir
(Yugoslavia)
Carpenter, Loren
Carpenter, William A. (USA)
Catmull, Ed
Caulkins, David (USA)
Childs, Tom (USA)
Chase, Harold (USA)
Colombo, Gianni
Cope, John (USA)
Cordeiro, Waldemar

Csuri, Charles (USA)
CTG (Japan)
Daly, James (USA)
Davenport, S. (USA)
Davis, Michael (USA)
Dayhoff, Ruth E. (USA)
Delgado, Gerado
Derby, Steve (USA)
DeSouza, Aldir Mendes
DeVita, Ernesto, Jr.
DiLeonardo, David J. (USA)
Elenbaas, J.A. (USA)
Eschbach, Darel D., Jr. (USA)
Evans, David
Fetter, William A. (USA)
France, Alan M. (England)
Franco, Meneguzzo
Franke, Herbert W.
(Germany)
Fujino, Koji (Japan)
Gaines, Stockton
Garrison, David R. (USA)
Geurts, Leo (Holland)
Giorgini, Aldo

Computer Graphics **Designers**

CGA

Hertlein, Grace C. (USA)
Harmon, Leon D. (USA)
Hashimoto, Sozo (Japan)
Hedden, Ed
Hendricks, Leigh (USA)
Huston, Thomas J. (USA)
Jenkins, Larry (USA)
Jenner, Ed (USA)
Kawano, Hiroshi (Japan)
Kilian, Leonard (USA)
Knowlton, Kenneth C.
(USA)
Komura, Masao (Japan)
Kreis, Peter
Kulczynski, Campion (USA)
Laposky, Ben
Lipscomb, James S. (USA)
Lecci, AuroMaloney, S.J. (USA)
Martini, Alessandro
Masom, Maughan S. (USA)
Mattox, Charles (USA)
McHaren, J.W. (USA)
Meertens, Lambert (Holland)
Messinger, C.K. (USA)

Mezei, Leslel (Canada)
Milojevic, Peter (Canada)
Minuskin, Harold (USA)
Mohr, Manfred (France)
Moles, Abraham, A.
Moon, Jane (USA)
Morellet, Francois
Nake, Frieder (Germany)
Nash, Katherine (USA)
Nees, Georg (Germany)
Noll, A. Michael (USA)
Parini, Pino
Payne, David (Canada)
Pass, E.M. (USA)
Peterson, H Philip (USA)
Picelj, Ivan
Radovic, Zoran
Rieniets, Judith Ann
Robbins, Donald K. (USA)
Roberto, S. R.
Roberts, Elaine, A. (USA)
Robertson, Don (USA)
Robertson, Sidney (USA)
Rosebush, Judson

Computer Graphics **Designers**
▦▦▦
CGA

▦ Introduction

▦ Timeline

▦ Biography

▦ Quotes

▦ Designs

Rosendohl, Carl
Salecker, Anton G. (USA)
Scanlon, Derby (USA)
Schmitt, Sam
Schultz, Bob (USA)
Schwartz, Lillian (USA)
Schweder, Manfred R.
Scott, Bill (USA)
Sempere, Eusebio
Sevilla, Soledad
Sheffer, James (USA)
Shiver, Ronnie (USA)
Shoup, Richard
Smith, Alvy Ray (USA)
Sobel, Paul H. (USA)
Stephens, Thomas, M. (USA)
Strand, Kerry (USA)
Struycken, Van P. (Holland)
Sullivan, Craig (USA)
Sumner, Lloyd (USA)
Sundquist, Goren (Sweden)
Sutherland, Ivan (USA)
Taylor, Richard

Vanderbeek, Stan (USA)
Venn, Robert (USA)
Walker, Evan Harris
Williams, R. H.
Yamanaka, Kunio (Japan)
Yturralde, Jose Ma.
Zajec, Edward
Zdenek, Sykora (Czechoslavakia)
Ziegler, Joseph (USA)

Glossary
Print
Help
Quit

Computer Graphics **Designers**
▦▦▦
CGA

▦ Introduction

▦ Timeline

▦ Biography

▦ Quotes

▦ Designs

Rosendohl, Carl
Salecker, Anton G. (USA)
Scanlon, Derby (USA)
Schmitt, Sam
Schultz, Bob (USA)
Schwartz, Lillian (USA)
Schweder, Manfred R.
Scott, Bill (USA)
Sempere, Eusebio

Vanderbeek, Stan (USA)
Venn, Robert (USA)
Walker, Evan Harris
Williams, R. H.
Yamanaka, Kunio (Japan)
Yturralde, Jose Ma.
Zajec, Edward
Zdenek, Sykora (Czechoslavakia)
Ziegler, Joseph (USA)

Select where you would like to go.
1. **Introduction**- takes you to the the introduction stack.
2. **Timeline**- takes you to the timeline stack.
3. **Biography**- if you select this button you must then select the designer you wish to know about.
4. **Quotes**- if you select this button you must then

select the designer you wish to know about.
5. **Designs**- if you select this button you must then
select the designer whose work you wish to see
6. **Compass icon**- Will take you to the map of the

Glossary
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This is the field script that allows you to select a name of a designer in this stack:

```
on mousedown
  repeat until the mouse is up
    get item 2 of the mouseloc - top of me + textHeight of me / 2
    put trunc ( .5 + it / the textHeight of me ) into linenumber
    select line linenumber of me
  end repeat
end mousedown


on mouseUp
  global lastName, stackName
  get item 1 of the selection
  put it into lastName
  if stackName is not empty then
    go to cd lastName of stack stackName
    put empty into stackName
    put empty into lastName
  else
    answer "Choose a category." with "Continue"
  end if
end mouseUp
```

Script for the navigation button:
```
on mouseUp
  go to card id 2997 of stack "navigation control"
end mouseUp
```

Script for the back arrow:
```
on mouseUp
  go back
end mouseUp
```

Script for the forward arrow:
```
on mouseUp
  go to next cd
end mouseUp
```

Computer Graphics **Biographies**

CGA

Artist: **Abel, Robert**   Date:
Source:

Robert Abel was one of the first nonmilitary, nonscientific users of the Evans & Sutherland Picture II, an outgrowth of the flight simulator. His associates wrote specialized software to allow the system to produce a broader range of effects than those used in CAD or flight simulation. "We're in a technological age," explains Abel. "What better way to describe technology than with technology?" This has been the case for client after client since the company, Abel and Associates was founded in 1971.
It was Abel, who in 1972, developed a prototype of a computer control system for camera that was eventually adopted by George Lucas for the movie "Star Wars". He is also responsible for both 7-Up "Bubbles" campaign and the equally famous "Brand Name" and "Working Man" spots for Levi's.

Computer Graphics **Biographies**

CGA

Artist: **Adrian, Marc**   Date: 1971
Source: **Computer Graphics-Computer Art**

Marc Adrien was born in 1930; since 1951 has studied at the akedémie der Bildenden Künste, Vienna, Académie de la grande Chaumié, Paris, and at the Accademia Brera, Milan. He has worked with graphics and photography since 1956, in Austria, Holland, and France. From 1967 onward he has been experimenting with optical and linguistic dispersions at the institute fur hohere Studien, Vienna. Exhibited in Rome, Paris, Vienna, Graz and Buenos Aires.
Marc Adrien is best known, in the field of computer graphics, for his use of the computer to design type. He also in collaboration with Gottfried Schlemmer and programmer Horst Wegscheider produced a theatrical piece *SYSPOT* with a digital computer. The "semantic raw material" came from three periodicals (Elern, Jasmine, & Spiegel) and characterizations of the actors from the advertisement section of the newspaper. The computer function was essentially that of the storing, collecting and mixing phrases. SYSPOT was programmed in SNOBOL.

Computer Graphics Biographies

CGA

Quotes
Designs

Artist: **Alexanco, L.J.** Date: 1965
Source: **(Spain)**
Arteonica

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One man Shows
1965- Madrid, Galeria Circulo 2.
1966- London, Drian Galleries.
 - Madrid, Galeria el Bosco.
 - Panama, Instituto Panameño

 de arte.
1967- Buenos Aires, Galeria Lirolay
 Las Palmas.
 - Canary Islands, Galeria Wiot.
 - IX São Paulo Biennial (Special
 Room).
1968- London, Drian Galleries.
1969- Madrid, Galeria Biosca.
1970- Cracow, Poland, Galeria
 Pryzmat.

International Shows
1966- International Biennial of
 Cracow, Poland.
1967- VII Ljubljana Biennial,
 Yugoslavia.
 - V Paris Biennial.
 - IX São Paulo Biennial,
 Contemporary Spanish
 Painters.
1968 - I Triennale India, New Delhi.
 - II Cracow Biennial.
 VI Tokio Biennial.
 - I Paris Graphic Biennial.
1969 - VIII Ljubljana Biennial.
 VI Paris Biennial.

more

Computer Graphics Biographies

CGA

Quotes
Designs

Artist: **Alexanco, L.J.** Date: 1965
Source: **(Spain)**
Arteonica

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Prizes
 - National Engraving 1965.
 - Prize from the "International Biennial
 of Graphic Art" Cracow, Poland.
 - "March Foundation Scholarship".
 First prize in sculpture in the "March
 Exhibition", Valencia 1969.

Museums
 - Victoria and Albert Museum, London.
 - National Museum of Warsaw.
 - Museum of Contemporary Art,
 Madrid.
 - Museum of Contemporary Art,
 Skopje, Yugoslavia.
 - Instituto Panameño de Arte,
 Panama.

-Museum of Modern Art of Espíritu
 Santo, Brasil.
 - Museum of Contemporary Art,
 Lodz, Poland.
 - Spanish National Library.

Computer Graphics **Biographies**

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⬛⬛⬛
CGA

▦ Quotes
▦ Designs

Artist: **Bonacic, Vladimir**   Date: 1971
Source: **Arteonica**

Vladimir Bonacic was born in
Yugoslavia, in 1938.
Wrote a paper *"Art as Function of
Subjec, Cognition, and Time"*.

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Computer Graphics **Biographies**

⬛⬛⬛
⬛⬛⬛
⬛⬛⬛
CGA

▦ Quotes
▦ Designs

Artist: **Carpenter, Loren**   Date:
Source:

In the late 1970's, before the Lucasfilms people discovered and recruited him to San Rafael, Loren Carpenter was at Boeing Aviation programming the flight simulator. The idea was to feed data gathered by satellites and other remote sensors into the flight-simulator computer, which would then present pilot trainees with an accurate picture of the landscape of any region of the earth.

By night, Carpenter's artistic personality emerged, and he made a stunning computer-graphics movie, Vol Libre, using many of the same techniques as the Boeing simulator. In the film, Carpenter treats viewers to an aerial journey through an imaginary landscape of snow-capped mountains and lush valleys, shot from the point of view of a person seated at the controls of a magnificently responsive glider plane.

Glossary
Print
Help
Quit

This script allows the user to go to quotes of the designer they are reading about when the "Quotes" button is selected:

```
on mouseUp
  global lastName3
  get item 1 of background fld artist
  put it into lastName3
  go to card lastName3 of stack "*CGA Quotes"
end mouseUp
```

This script allows the user to go to the designs of the designer they are reading about when the "Design" button is selected:
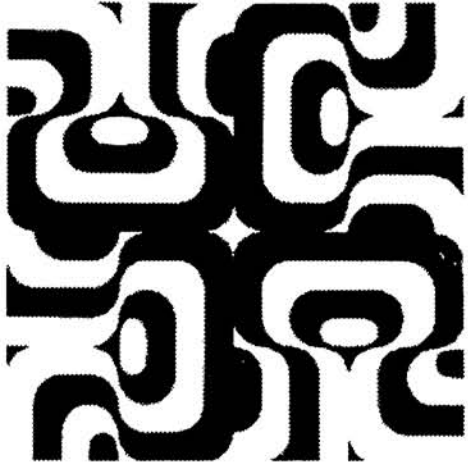
```
on mouseUp
  global lastName2
  get item 1 of background fld artist
  put it into lastName2
  go to card lastName2 of stack "CGA Designs"
end mouseUp
```

Computer Graphics **Designers**

CGA

Biography
Quotes

Glossary
Print
Quit

Barbadillo, Manuel:
Aneua 1974

Computer Graphics **Designers**

CGA

Biography
Quotes

Glossary
Print
Quit

Csuri, Charles: Sine
Curve Man 1968

Computer Graphics **Designers**

Biography
Quotes

Glossary
Print
Quit

Fetter, William Allan:
Untitled 1960

Computer Graphics **Designers**

Biography
Quotes

Glossary
Print
Quit
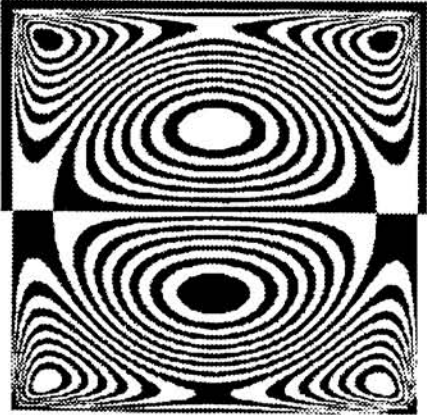
Garrison, David :

Computer Graphics **Designers**

CGA

Giorgini, Aldo :
Negative Reflection

Computer Graphics **Designers**

CGA

KolomyjecWilliam J.:
Birds

Computer Graphics **Designers**
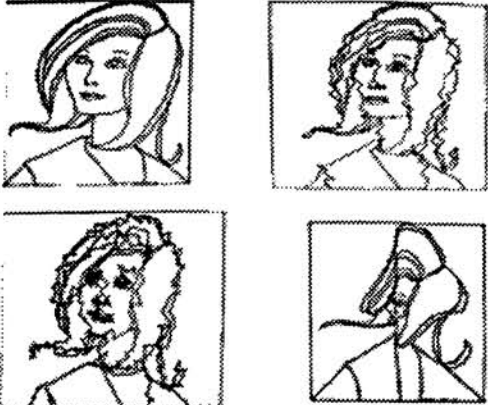
Biography
Quotes

Glossary
Print
Quit

Meizei, Leslie : *Bikini Shifted*

Computer Graphics **Designers**

Biography
Quotes

Glossary
Print
Quit

Mezei, Leslie :

This script allows the user to read the biography of the designer when the "Biographies" button is selected:

```
on mouseUp
  global lastName3
  get item 1 of bg fld artist
  put it into lastName3
  go to card lastName3 of stack "CGA biographies"
end mouseUp
```

This script allows the user to read quotes of the designer when the "Quotes" button is selected:

```
on mouseUp
  global lastName3
  get item 1 of bg fld artist
  put it into lastName3
  go to card lastName3 of stack "*CGA Quotes"
end mouseUp
```

CGA Quotes

CGA

Biography
Designs

Artist: **Alexanco, L.J.**   Date: **1969**
Source: **Arteonica**

" On analysing my work from 1965, it is observed a progressive synthesis of form that led me to consider the need to submit the elements, which are the objects of my work, to more advanced treatments of rationalizations and to the possibility of enlarging their evolution with automatic methods. The task began in 1968 departing from the last phase of evolution of the form, being this the point of my work up to that moment. In the beginning the aim was to continue this evolution as well as trying to establish a law for the formation of groupings, departing from those phases in which special characteristics were given. As I fed data I took 20 level curves from the mentioned form which define it as a cubic matrix made of 0 and 1 (mass and space).

The program, with a high degree of interaction between man and machine (it has been thought for an IBM 2250 display unit) intends to obtain (by transformations and consecutive distortions means of quasi-mathmatical type) evolutions of the said form, under the artist control. The samples are materializations of the images that will gradually appear on the cathodic ray screen.(IBM-2250)"

Glossary
Print
Help
Quit

CGA Quotes

CGA

Biography
Designs

Artist: **Barbadillo, Manuel**   Date: **1976**
Source: **Computers and People**

"I am not so interested in making pictures with the computer as in using the computer to understand better what I produce by traditional, intuitive means."

"My aim is to confirm my belief that underneath an aesthetic phenomenon there is always a reason that could be represented in terms of mathematical relationships or rhythms, which in my view are the true language of Art."

Glossary
Print
Help
Quit

CGA Quotes

```
███
███
███
CGA
```

Biography
Designs

Artist: **Csuri, Charles**   Date. 1976
Source.   **Computer Graphcis
           and Art.**

"Real-time computer art objects are an intellectual concept which can be visually experienced rather than as a finalized material object. This kind of computer art exists for the time, the participant and the computer with the CRT display are interacting as a process. The art object is not the computer or the display, but the activity of both interacting with the participant. In addition to its artistic parameters, the content of this art form is dependent upon the dynamics of a real-time process which gives vitality and life to the visual display through animation and user interaction."

Glossary
Print
Help
Quit

CGA Quotes

```
███
███
███
CGA
```

Biography
Designs

Artist: **Franke, Herbert**   Date:
Source:

"Manipulation or artistic playing with computer images, is becoming a very common practice. Twenty of some 150 works in a large international computer art showing were on industrial paper, from plotters. The remaining 130 works had been taken back into fine art; paintings, silk-screened editions, lithography, textiles, rugs, etc. . ."

Glossary
Print
Help
Quit

CGA Quotes

■■■
■■■
■■■
CGA

Biography
Designs

Artist: **Garrison, David**   Date:
Source:

"To simply draw a visible shape is to conceive of little more than its external morphology. Whether the shape is two, three dimensional, or something beyond or inbetween, we cannot penetrate the surface until we understand the internal mathematical relationship."

Glossary
Print
Help
Quit

CGA Quotes

■■■
■■■
■■■
CGA

Biography
Designs

Artist: **Giorgini, Aldo**   Date: **1976**
Source: **Computer and Artist**

"I think that both conventional and computer artists may be found spanning the chole continuum, albeit (non-interactive) computer artists may find themselves closer to CeMO (purely Cerebral Modus Operandi) than to MeMO (Memoriless Modus Operandi). In my particualr case, when I am operating in the computer mode, I tend to fully prefabricate the images mentally and then to render them by computer."

Glossary
Print
Help
Quit

This script allows the user to go to the biographies of the designer they are reading about when the "Biography" button is selected:

```
on mouseUp
  global lastName3
  get item 1 of background fld artist
  put it into lastName3
  go to cd lastName3 of stack "CGA biographies"
  --if "CGA biographies" ≠ lastName3
  --then
  --answer "Information not yet available" with "OK"
  -- end if
end mouseUp
```

This script allows the user to go to the designs of the designer they are reading about when the "Designs" button is selected:

```
on mouseUp
  global lastName2
  get item 1 of background fld artist
  put it into lastName2
  go to card lastName2 of stack "CGA Designs"
end mouseUp
```

Glossary

The "Glossary" is an integral part of the Archive. It's a stack that contains terms and phrases that relate to the field of computer graphics, and is available throughout the Archive.

The glossary is a very simple stack to use. If the user comes across a term or phrase that they are unable to understand they simply select the "Glossary" button in the lower left hand corner. After accessing the glossary the viewer selects the letter of the alphabet that the term or phrase begins with. This brings up a field with a list of terms that begin with that same letter. Finally, the word must be selected to view the definition. At this point the user can go back to the previous stack to continue their research, browse through the alphabet and select other terms of interest to find their definition, or go to the navigational map to begin to research from another stack.

Computer Graphics **Glossary**

■■■
■■■
■■■
CGA

How to use this stack.

To look up a word you must select the first letter of
the word from the alphabet above.

This will take you to a screen with a list of words all
beginning with the chosen letter. Find your word.

Next you must select your word, and the definition will
appear.

From here you may go to a different word on that list,
or you may choose a different letter.

Click anywhere to begin.

Print
Help
Quit

Computer Graphics **Glossary**

■■■
■■■
■■■
CGA

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

Address
Activate
Active window
Adobe
Align
Aliasing
Alphanumeric
Ambient
Analog Input
Analog Output
Anti-aliasing
Apple menu
Application
Arc tool
ASCII
Assembler
Assembly Language
Attributes

Print
Help
Quit

Computer Graphics **Glossary**
CGA

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

Activate

To bring a window to the front by clicking on it (on a macintosh). Also, to choose the selection pointer from the palette.

Address
Activate
Active window
Adobe
Align
Aliasing
Alphanumeric
Ambient
Analog Input
Analog Output
Anti-aliasing
Apple menu
Application
Arc tool
ASCII
Assembler
Assembly Language
Attributes

Print
Help
Quit

Computer Graphics **Glossary**
CGA

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

RAM

Random Access Memory. This is the main memory of any computer. Information and programs are stored in RAM, and may be changed any time during processing. In most microcomputers, anything stored in RAM will be lost when the power is turned off.
See ROM.

RAM
Random Access
Raster
Resolution
ROM

Print
Help
Quit

This script selects the word the user wishes to find and places the definition of the word to the left of the list:

```
on mouseUp
  global theLineClicked
  --get the clickline
  put word 2 of it into countLine
  select line countLine of cd fld P
  put the value of the clickLine into theLineClicked
  put empty into lineNumber2
  put the value of clickLine into lineNumber2
  --put the value of clickLine into the msg
  repeat with x = 2 to number of bg flds
    if bg fld x ≠ lineNumber2 then
      hide  bg fld x
    end if
  end repeat
  show bg fld theLineClicked
  select line countLine of cd fld P
end mouseUp


on mousedown
  repeat until the mouse is up
    get item 2 of the mouseloc - top of me + textHeight of me / 2
    put trunc ( .5 + it / the textHeight of me ) into linenumber
    select line lineNumber of me
  end repeat
end mousedown
```

This script brings up a list of words that are in the glossary stack, it will vary from letter to letter (this is for "M"):

```
on mouseDown
  hide cd fld "A"
  hide cd fld "B"
  hide cd fld "C"
  hide cd fld "D"
  hide cd fld "E"
  hide cd fld "G"
  hide cd fld "H"
  hide cd fld "I"
```

```
hide cd fld "J"
hide cd fld "K"
hide cd fld "L"
hide cd fld "F"
hide cd fld "N"
hide cd fld "O"
hide cd fld "P"
hide cd fld "Q"
hide cd fld "R"
hide cd fld "S"
hide cd fld "T"
hide cd fld "U"
hide cd fld "V"
hide cd fld "W"
hide cd fld "X"
hide cd fld "Y"
hide cd fld "Z"
end mouseDown
on mouseUp
  show cd fld "M"
end mouseUp
```

Timeline Stack

This section is an overall comparative history of computing and computers in relation to communication and media in timeline form. The timeline begins in B.C., explores the earliest forms of computing, and goes to today's super and micro computers.

To use the timeline the user selects a time period to research, and that will appear in the box below the dates. The information is available in a scrolling field, to allow growth within each of these sections. If there are any questions about how to use this stack there are two help resources. The first is the help button located in the lower left hand corner, and the second is the "Instructions" button positioned above the dates on the timeline.

The "Timeline" stack is by far the most interesting stack available in the Archive. The comparison of communication and media gives the viewer an idea of what is going on in the world, so they can see the history of computing and computers in a different light. This lets the viewer see the whole picture, not just the sum of its parts.

Computer Graphics **Timeline**

CGA

Introduction
Designers

Glossary
Print
Help
Quit

Instructio
| BC-1799 | 1800-1899 | 1900-1939 | 1940-1959 | 1960-1969 | 1970-1979 | 1980-1989 |

Instructions

To use the Timeline click one of the time periods above.

Important events relating to computers, computing, communication and media during that time period will be shown in this area.

You can scroll vertically thorugh the time period using any of the following methods:

1) Drag the scroll box up and down.
2) Click the scroll bar above or below the scroll box.
3) Press the mouse button down on either the up or down arrows.

Click any time period to begin.

Computer Graphics **Timeline**

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Instructio
| BC-1799 | 1800-1899 | 1900-1939 | 1940-1959 | 1960-1969 | 1970-1979 | 1980-1989 |

	Computing and Computers	**Communication**
BC		
3500	Earliest known numerals in Egypt.	
3000	Dust abacus of Southwest Asia.	
2000	Egyptians use knotted rope triangle with Pythagorean numerals.	
2000	Decimal system in Crete.	
500		Stonehenge astronomical calandar.
200	Hipparchus of Nices invents trigonometry.	
AD		

Computer Graphics Timeline

::::: CGA

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Instructio

| BC-1799 | 1800-1899 | 1900-1939 | 1940-1959 | 1960-1969 | 1970-1979 | 1980-1989 |

	Computing and Computers	Communication
1800	Volts produces electricity from a battery.	
1820		Paris invents first animation device the Thaumatrope.
1827		Joseph Niepce produces photographs on metal plates; the age of photography is born.
1829		The first patent on a typewriter is issued to William Burt of Detroit, Michigan.
1833	Babbage invents Analytical Engine, incorporating similar concepts to the modern computer.	
1837	Schultz builds tabulating machine based on Babbage's work.	
1840	Ada Lovelace, considered the	

Computer Graphics Timeline

::::: CGA

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Instructio

| BC-1799 | 1800-1899 | 1900-1939 | 1940-1959 | 1960-1969 | 1970-1979 | 1980-1989 |

	Computing and Computers	Communication
1900	Following a 'century of steam' the 'century of electricity' begins.	
1904		First telegraphic transmission of photographs; Arthur Korn, from Munich to Nurenburg.
1907		Louis Lumiere develops a process for color photography using a three-color screen.
1921		Encoding and transmission of digital pictures, via a transatlantic cable using a digital system and teletype machines simulating halftones.
1925		Phototypesetting begins to appear.
1925		First Leica camera built by Oskar Barneck.

Computer Graphics Timeline

CGA

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Instructio

BC-1799	1800-1899	1900-1939	1940-1959	1960-1969	1970-1979	1980-1989

Integrated Computing, Computers, Communication and

1960 J.C.R Licklder, psychologist at MIT, sets forth the concepts of interactive processing; also originates the concept of time sharing and interactive processing with a large computer, a step from batch processing to personal computing.

1960 Zajec and Knowlton develop the first computer animations at Bell Labs.

1960 New York Institute of Technology establishes one of the first computer graphics laboratories; develops first computer painting program; possesses one of the most extensive computer graphics environments in the world.

1960 $2.48. cost for large systems to perform a fixed amount of data processing.

1960 MAC, acronym for Machine-Aided Cognition, or Multi-Access Computing, or Maniacs and Clowns, the first temple of hackers-- brilliant, unorthodox, young, and addicted programmers-- at MIT; established by Licklider and at different times administered by the famous including Marvin Minsky (early explorer of artificial

---

Computer Graphics Timeline

CGA

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Instructio

BC-1799	1800-1899	1900-1939	1940-1959	1960-1969	1970-1979	1980-1989

Computing and Computers   Communication

1970 Xerox's Palo Alto Reasearch Center begins research on the visual interface using the mouse, icons, and pull-down menus.

1971 Intel develops the 6008 microprocessor.

1972 Nolan Bushnell invents PONG, the first video game, marketed by Atari.

1972 Early turnkey CAD/CAM minicomputer-based systems appear.

1974 Intel develops the 8080 microprocessor, destined to be the CPU for many micros.

1974 Xerox releases the Alto, the first computer to use graphic interface, icons, windows, mouse; predecessor of the Apple Lisa and Macintosh of a decade later.

1975 20 cents: cost for large systems to perform a fixed amount of data processing.

1975 Gates of Microsoft writes BASIC for an early microcomputer, the Atari.

Computer Graphics **Timeline**

CGA

Instructio

BC-1799	1800-1899	1900-1939	1940-1959	1960-1969	1970-1979	1980-1989

Computing and Computers	**Communication**

1981	dBase II introduced by Ashton-Tate; to become leading database for micros.
1981	First portable computer introduced by Adam Osborne.
1981	There are over one half million microcomputer owners.
1982	IBM announces its personal computer.
1983	7 cents: cost for a large system to perform a fixed amount of data processing.
1983	Apple announces the Lisa.
1983	There are nearly 3 million microcomputer owners, close to 150 microcomputer manufatures, and close to 70 computer periodicals.
1983	Mitch Kapor, founder of Lotus Corporation, announces Lotus 1-2-3, first integrated software package.
1983	High capacity silicon chip technology introduced by IBM.

Introduction
Designers

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Help
Quit

Script to go directly to a certain time period:

```
on mouseUp
  go to card "bc"
end mouseUp
```

Script to control scrolling information field:

```
on openCard
  --sets the scrollbar
  put the number of this card into record
end opencard
```

```
on setit
  --

  -- Compute the Minimum X and Difference X values from the Scrollbar.
  -- Grab the maximum numeric value from the field.
  --
  put left of bg button "Scrollbar" into MinX
  put right of bg button "Scrollbar" - left of bg button "Scrollbar" - 12 into DiffX
  put number of cards into MaxVal
  --
  -- Compute the correct setting for the displayed value
  --
  put round ((the mouseH - MinX)/DiffX*MaxVal) into holder
  if holder ≤ 1 then put 1 into holder
  if holder ≥ MaxVal then put MaxVal into holder
  put holder into line 1 of bg field "slider"
end setit
```

The design of the screen was constantly changing until the last weeks before the thesis show. Although there were modifications of minor elements on the screen, the basic design of the screen remained constant. The overall look of the screen is very simple because the information in some of the stacks tends to be fairly complicated. I am very happy with the decision to keep the design elements simple, because I feel that it leads the user to the information without the interference of complicated screen designs. In the long run the information and its availability is what I was trying to achieve in the CGA.

The basic construction of the screen is as follows. The left side of the screen is designated for buttons, navigation tool, and help. The top left hand side shows the user what stacks are available at that point in the Archive. Down the screen there is a compass icon, to take the user to the navigation control center, and arrows that allow the viewer to browse through the stacks. On the bottom of the screen there are several buttons that remain constant. These are as follows:

Glossary: This takes you to a stack to look up
           any words or terms that are unfamiliar.

Print: This allows the user to print the
        information seen on the screen.

Help: This button has a pop-up card that tells
       the viewer throughout the stack what his/her
       options are at that point in the Archive.

Quit: The quit button exits the Archive.

The right hand side of the screen is allocated for information, there may be buttons on this side, but it is basically where all research information will appear.

There is a final detail that is of importance in the design of the screen, the use of color in the Archive. The incorporation of color had not been possible in HyperCard© until the introduction of HyperCard© 2.0 in the fall of 1990, so, with this new possibility available to me I decided to take advantage of it. I not only used color for the CGA logo, and the buttons, but I used gray-scale images to show the work of designers. Color became a very important part of the archive, not only for aesthetic reasons, but it allows the archive to remain on a single unit (Macintosh cx) rather than having to load a videodisc to view the designer work. Although the images may not be as clear as the videodisc, I see it as a big step for interactive design.
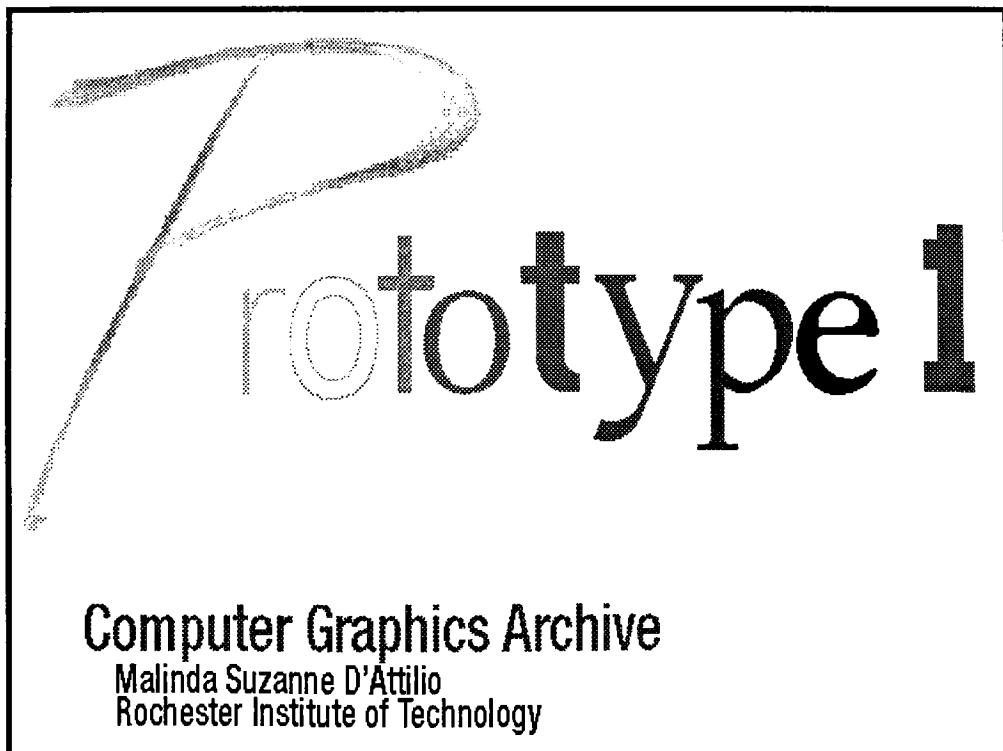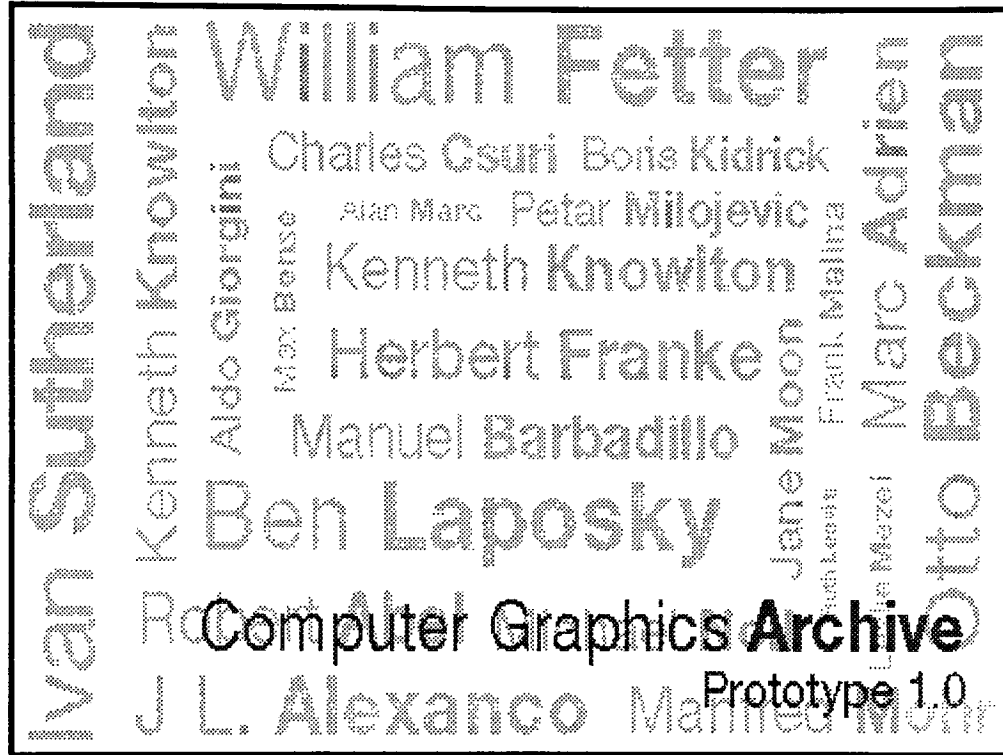
The poster design went through many different changes, as any design does. The first roughs that were developed used designs created by pioneer computer graphics designers as a background pattern with type announcing the Computer Graphics Archive. Although I found these first ideas interesting, I was not completely satisfied and decided to pursue other ideas.

I began exploring other design possibilities, such as simplifying my designs, and trying to work with only type. To begin working on design this second time I took a step back and thought about exactly what I believed to be important to convey in the poster. After writing down several things three main messages were important.

> 1. This was Prototype 1 of the Computer Graphics Archive.
> 2. It explored work of computer graphics designers
> 3. It gives the viewer a history of the progression of computer graphics design throughout the ages.

After understanding what I wanted to convey I began designing with these thoughts in mind, and not just "haphazardly" putting things together. I became very happy with the results.

After a few days of creating and adjusting roughs I decided upon two designs. The first poster was names of important pioneers in computer graphics arranged as a background pattern with information about the Archive and the thesis show in red on the lower right hand corner   (poster 1). The next design was a design that was very complicated. It was a poster that shows a progression of type through the word "Prototype 1." The word started out with a very rough letter, and continues along becoming more and more refined. Both of the posters were equally effective, and I had planned on putting both of the posters in the thesis show, but because of output complications only the first poster made it.

Computer Graphics Archive
Prototype 1.0

Computer Graphics Archive
Malinda Suzanne D'Attilio
Rochester Institute of Technology

Conclusion

Creating the first Computer Graphics Archive has been not only exciting but quite a challenge. I was ready for a lot of work, but as well prepared as I was to have an overload of work to do, I either underestimated the work involved, or took on more than I could handle. The problems came as I began adding on. In the very beginning the designers, their work and histories as well as a short timeline were all I was going to concern myself with, but as time went on I decided to add sections like the navigational control, the glossary, and many other little sections that didn't take little amounts of time to create. The ground work has been developed, and the Archive will now get a chance to be evaluated, reevaluated and changed. In a few years from now I will probably not recognize the Archive, but I know that the ideas that I have contributed to the CGA are solid ones and have given the CGA a steady base to work from.

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Computer Equipment and Software

Macintosh IIcx

HyperCard 2.0© 1990
Adobe Photoshop 1.0.7© 1991
Adobe Illustrator 2.0© 1991
QuarkXPress 3.0 © 1991