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The Influence of Format on Accessibility

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Contents

Appendices

Introduction

The initial idea for this thesis project stems from an interest in artists' books. Of particular interest is the way in which the physical format of the book can be an integral part of the artistic concept. Artists' books are books *as* art rather than books *about* artists or their work. As such, they exceed the boundaries of conventional expectations. They are about themselves, not simply passive vehicles for carrying information. The "reader" experiences an artist's book in much the same way the viewer experiences a painting, a sculpture, or a ceramic vase. The format for carrying information is as important in conveying the information as the text or images.

This thesis project deals with the significance of format in a design investigation. Its primary goal is to understand how a change in format may influence the accessibility of information. In this project format is defined as the physical vehicle in which information is carried, page size and configuration, as opposed to composition.

The following hypothesis states the assumption underlying this thesis project:

> *A format in conventional print media is as important in successfully conveying a message as are the text or images.*

The original intent of the project was to compile and synthesize existing research related to the thesis topic. The expected outcome was a reference guide for designers to aid in the understanding of the influence of format on the accessibility of information. It became clear as the literature search progressed that very little research exists in support of the above hypothesis. Consequently, the direction of the project changed, and it became necessary to conduct primary research in order to support and extend this study.

The investigation focused on the comparison of four different formats. The four formats were: a poster, a sequence of single pages, a barrel fold, and a multi-directional fold. A series of exercises were selected to explore a range of visual variables, including size, weight, and orientation, as applied to each of the four formats. The sections that follow describe and present the results of this research.

Project Development

The first Thesis Committee meeting was on December 10, 1993. At this meeting a dialogue was initiated to further explain and define the project at hand. Deborah Beardslee, Barbara Polowy, and Audrey Sumberg were present. Bruce Meader was unable to attend this initial meeting, but there was a follow up meeting on December 14, 1993 between Bruce Meader and Audrey Sumberg.

Prior to the meeting, a preliminary Thesis Plan (Appendix 2) was distributed to each committee member. R. Roger Remington assisted in the development of the plan during Fall Quarter 1993. Included in the plan are: a situation analysis, problem statement, mission statement, project goals, objectives, processes and strategies, pragmatic considerations, time/implementation plan, dissemination, evaluation plan, bibliography, glossary of terms, and appendix. It provided an outline for the proposed project. The proposal was used at the initial meeting to introduce and discuss project goals, and to determine possible areas to research. It also gave each of the committee members a general idea of the direction of the project and allowed them to determine how their individual expertise could best be utilized.

Deborah Beardslee and Barbara Polowy made several suggestions about possible areas to research. Since the main interest of the thesis is to determine the influence of format on the accessibility of information, they suggested reviewing and assessing existing methods for presenting information. Possible sources included William Owen's *Modern Magazine Design*, Edward Tufte's *Envisioning Information* and *The Visual Display of Quantitative Information*, and Richard Saul Wurman's *Information Anxiety*. They also recommended investigating exhibit and display design, specifically concentrating on the physical passage and viewing experiences one encounters within an exhibit. Other possible areas to investigate were the similarities between children's books and artists' books, and western versus non-western presentations of information.

Deborah Beardslee provided several other useful documents, including a manual on papermaking and printing, a book by Aldren A. Watson entitled *Hand Bookbinding: A Manual of Instruction,* and another book entitled *Sequence (con)Sequence: (sub)Versions of Photography in the 80s* edited by Julia Ballerini.

On December 14, 1993, Bruce Meader and Audrey Sumberg met to discuss what had taken place at the previous meeting. Bruce Meader gave further input on the project. He recommended looking into the work of Michael Twyman of the University of Reading in England. He also suggested looking at *Information Design Journal* and a book by Allison Black entitled *Typefaces For Desktop Publishing, A User's Guide.*

At the conclusion of these two meetings research for the thesis project commenced with a literature search. The objectives of this phase of the project were:

- To identify different approaches toward formatting and sequencing information and the theories underlying these approaches.
- To chronicle major breakthroughs in the presentation of information and the individuals responsible for them.
- To organize and synthesize existing relevant research.

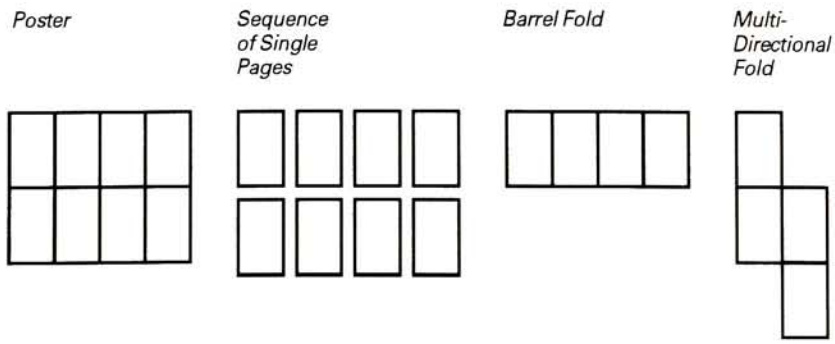
Preliminary Research

Preliminary research focused on identifying existing formats for presenting information. Initially, artists' books were the main focus. Time was spent examining artists' books at the Visual Studies Workshop of Rochester, Writers and Books, and in the archives of the Wallace Library. Individual book artists, such as Claire Van Vliet, were studied. In addition, articles and books on the creation of artists' books and the particular artists who create them were consulted. A collection of books which supported the hypothesis of the thesis was started. Included in this collection were several artists' books produced at the Visual Studies Workshop, the trilogy of *Griffin and Sabine* by Nick Bantock, pop-up books for children, a reproduction of a book from the Janus Press, and several books dealing specifically with the creation of artists' books. While the actual artists' books demonstrated the influence of format on accessing information, no information on the theory underlying this approach was found.

The next step in the research process involved investigating different aspects of book design. Included in this research was an investigation of pre-existing and experimental physical formats, paper, and binding styles.

The Significance of Format:

Physical formats were investigated. Existing formats were studied as well as new, experimental formats. Prototype models were created. These models represented formats ranging from existing formats, such as a gate fold, to unique formats investigating a variety of different shapes, sizes, folds, and cuts.



The Significance of Paper Selection:

Research focused on the function of paper in design, qualities and characteristics of paper, and how to choose an appropriate paper. The research sought to answer the following question: Is paper just a vehicle for the message or can the stock itself become part of the message? The following conclusions about the relevance of paper to message making are outcomes of the research:

- The use of recycled paper can signify support for conserving the natural materials in our environment.
- Paper physically carries the printed message, and it must relate appropriately to the content. It can also contribute to the mood of a particular piece of visual communication. It is capable of overwhelming or seducing the viewer. Paper can be warm and inviting, cold, bright, or subdued. It has the ability to enchant or excite the viewer. It must evoke a positive response and appeal to the hand and the eye of the viewer.

The Significance of Binding Style:

Different binding options were studied. Among the bindings investigated were mechanical binding, perfect binding, saddle stitching, and smyth sewing.

Mechanical binding involves using plastic binding, wire binding, clasps, prongs, screw posts or rings to hold pages together. Plastic binding, also called comb binding, is the best option when pages need to lie flat when the book is open. Mechanical binding is a quick and inexpensive way to bind a small quantity of booklets.

The perfect binding was developed to answer the need for high-volume, multi-sectioned work. It is primarily used for magazines and catalogues. In this process, pre-folded sections are collated and gathered on top of one another, the folded edges are milled off to form a straight edge, and a hinged pre-formed board cover is glued on to form a spine. Paperback books are a good example of perfect bound books.

Saddle stitching is a process of stitching signatures together with wire that, when attached, appears as small staples which bind the cover with all the pages. This method of binding is appropriate for smaller publications and quick turnaround projects.

Smyth sewing involves sewing the pages of each signature together. Then all the signatures are sewn together to form a book. This binding is very strong and allows the book to open and lie fairly flat.

The following are conclusions from the study of bindings:

- Bindings that enable reading materials to lie flat when opened make it easier to access the information.
- Saddle stitching and perfect bindings are prone to deteriorate with use. Deterioration may result in the pages becoming detached from the rest of the book which could destroy the sequence of pages.

At the conclusion of the preliminary research, the committee decided to change the focus of the thesis project. The limited information available to support the thesis hypothesis led to the conclusion that original research was required. The remaining 6 weeks of Spring Quarter 1994 focused on developing a project that would break new ground and directly test the hypothesis of the thesis. With the assistance of Deborah Beardslee and Bruce Meader a thorough and detailed plan which outlined the premise of the project and its implementation was developed (Appendix 3).

Primary Research

The first step in setting up the primary research for this project was to establish appropriate parameters. The key decisions involved:

- Selecting an overall topic to be communicated.
- Identifying potential physical formats.
- Selecting relevant text and imagery.
- Determining a *constant* set of formal attributes to apply to the *variable* physical formats.
- Developing a series of ideation exercises.
- Selecting an audience to evaluate the results.

Vocabulary:

A vocabulary was developed to discuss the project. Several words were defined, including format, accessibility, affordance, constraint, variable, and constant.

- *Format:* the physical vehicle for carrying information.
- *Accessibility:* the ease with which information can be received.
- *Affordance:* what is being offered or provided by a particular format.
- *Constraint:* a limitation or set of parameters.
- *Variable:* an element which can change, such as size, weight, shape, color, tone, position, and orientation.
- *Constant:* an element which stays the same.

Format:

The primary focus for this thesis study became the investigation of format. In order to enable clear comparisons, it was decided that the format itself would vary, while the content, text and images, and other design decisions, such as typeface, would remain constant.

Initially, the investigation focused on the comparison of five different physical formats. These five formats would be compared with respect to their ability to facilitate the access of information. These formats, ranging from simple to complex, were: a poster, a sequence of single pages, a barrel fold, a multi-directional fold, and an on-screen interactive Hypercard stack. One format, the interactive Hypercard stack, was dropped from consideration as the project progressed, because the computer format was incongruous with the other four formats. The simplest format, a poster, requires virtually no hands-on interaction by the viewer. As the formats become more complex, they demand more physical contact. The number of folds in the format as well as the direction of the folds influence the complexity of physical handling. The most complex format explored in this study is a multi-directional fold.

Content:

The content selected for the thesis application specifically deals with facts and descriptions related to the sun. Two factors influenced the content decision: a lifelong interest in astronomy and a desire to develop a format that might stimulate children to learn more easily than traditional learning formats.

Basic facts, processes and images related to the sun were chosen: its place in the universe, composition, structure, sunspots, solar prominences, and solar eclipses (Appendix 4 & 5). These facts about the sun were chosen, because they are part of a child's first introduction to the sun in elementary school.

Formal Attributes:

A constant set of formal attributes (Appendix 6) were identified that would be applied to each format. The formal attributes are:

- A constant panel size.
- A typographic unit grid with two columns and six grid fields. The needs of the content determined the attributes of the grid.
- The text set in the typeface Univers, 10 point with 11 points leading (linespacing).

Audience:

Sixth grade students became the target audience for this material. Astronomy is first introduced to elementary school students at this grade level. Members of this age group present a challenge to designers and educators, because two-dimensional printed materials compete with the electronic media with which children are so often involved.

Ideation Exercises:

A series of exercises (Appendix 7) were selected to explore a range of visual variables, including size, weight, and orientation, as they apply to the four formats. Each exercise was applied to each of the four formats. The exercise examining size as a variable approached the text and imagery elements in three ways: text dominance, image dominance, and an equal emphasis between text and images. The exercises examining type weight as a variable applied a bolder stroke weight to headings, sub-headings, and key words. The exercise examining orientation as a variable changed the panel orientation from a vertical to a horizontal orientation.

There were three other exercises in the original outline: the effect of color, the relative positioning of text and images, and the tonal manipulation of text and images. As the research progressed, it was decided to narrow the scope to three variables: size, weight and orientation.

Evaluation:

It was decided that an evaluation of the project (Appendix 9) would take place in a sixth grade classroom. Sixth grade students with no formal education on the sun would be introduced to this topic through the use of each of the four different formats. The intended outcomes of this exercise were:

- To identify the format most successful in enabling students to access information about the sun.
- To test the outcomes of the ideation exercises applied to the four formats.

Implementation

The implementation of the applied project began Winter Quarter 1994-1995. The project outline developed the previous spring was reviewed by the committee for thoroughness and clarity. The text was reviewed with Doris Sherman, a retired elementary school teacher, to determine if the reading level was appropriate to the target audience of sixth grade students. She confirmed that the reading level and the information covered were appropriate to this age group. After these details were established, the exercises were started.

Exercise 1: Size as a Variable

Exercise 1 examines *size* as a variable. The point sizes of the text and the overall dimensions of the images are manipulated in three variations: text dominant, image dominant, and equal emphasis between text and image. When text is the dominant element, it plays the primary role in carrying the message. By increasing the space between lines of type, it occupies more space than images in the format. The importance of imagery diminishes. The reverse occurs when an image is the dominant element. It delivers the message, relegating text to a less important role. The third variation of this exercise balances the emphasis between text and image. When text and images balance each other, both play an equal role in delivering the message.

Exercise 2: Weight as a Variable

Exercise 2 examines *weight* as a variable. By applying a bolder stroke weight, the reader's attention may be drawn to particular text elements. Headlines in bold type indicate the beginning of a new section. Bold type may also indicate important key words or concepts to the reader. Finally, bold captions draw attention to information outside the main text.

Exercise 3: Orientation as a Variable

Exercise 3 examines *orientation* as a variable. In this exercise the panels change direction from a vertical to a horizontal orientation. The purpose of this exercise is to determine if changing the orientation will affect the reader's ability to access the information. Does a change in orientation make the format easier or more difficult to read, hold, or fold out?

Research Summary

Upon completion, the results of each exercise were summarized through a comparison of the formats. The objectives of the comparison were:

- To identify the advantages and disadvantages of:
  Text dominant compositions
  - Image dominant compositions
  - Compositions which include an equal emphasis on text and image
  - Changes in orientation
  - Changes in stroke weight of type
- To determine the format or formats most successful in allowing the viewer to access the information about the sun.
- To assess the validity of the thesis hypothesis: *A format in conventional print media is as important in successfully conveying a message as are the text or images.*

Text Dominant Solutions

When text is emphasized over image elements, the accessibility of the information in all four formats is lessened.

Disadvantages:

In the poster, text potentially constrains the way space can be used. A large amount of text competes for space within a fixed format. This can cause the space to become static, because it limits the interaction between the images and text. Images do not receive enough emphasis, and the perceived amount of text becomes somewhat overwhelming to the viewer.

In the second format, a sequence of single unbound pages, the text flows from one page to another. When this happens, the functionality of the format and the sequence of the information is diminished. The format is designed so each page can stand alone to deliver a specific message, and as a group the pages may work together to deliver a collective message. When information is distributed over a sequence of pages, each page can no longer stand alone. Once this happens,

the sequence of the individual pages becomes an issue. If the pages get out of order, or if one page is lost, the ability to access the information becomes more difficult.

When text is the dominant element in the barrel fold and the multi-directional fold, the images lose their power to support the text, and the space becomes static. This limits the interaction between images and text. Additionally, the perceived amount of text may overwhelm the viewer.

Advantages:
There are some limited advantages to emphasizing text in the formats. When text is the dominant element in the poster, it identifies the subject matter. Text dominance focuses the viewer's attention on the content, emphasizing its importance. This is also true in the sequence of single pages. In the barrel fold and the multi-directional fold, the text easily flows from one page to another and the sequence of the information remains clear.

Image Dominant Solutions
When images dominate, all of the formats present the information more effectively than when text dominates. This is particularly true for the sequence of single pages.

Disadvantages:
Images have the potential to compete with one another in the poster, barrel fold and multi-directional fold. De-emphasizing text in these formats places the burden of delivering the message on the images, which by themselves are incomplete. The user could become confused. The organization of the material may be unclear, leaving the viewer uncertain about where to look first. In an effort to avoid this problem, a hierarchy of emphasis is needed. This can be accomplished by controlling the size of the images, clustering them, or varying their style.

Advantages:

There are several advantages to placing the main emphasis on the imagery. The images are large enough to activate the edges of the space, creating a dynamic use of it. The interaction between the images and the text also contributes to the dynamic use of space. In addition, the images attract the viewer's attention, deliver an overall message, and project their importance.

Equal Emphasis Solutions

When equal emphasis is give to text and images, all four formats work most effectively to present the information.

Advantages:

Text and images work together to:

- Deliver an integrated message
- Attract the viewer's attention
- Use the maximum potential of the format

The use of space is dynamic. Images activate the space by bleeding off the page. They promote a sense of looking in on a small view of something much larger. The sequence of information is clear. The importance of each element, text and images, is maximized. Despite these advantages, there is a downside to equal emphasis. The designer relinquishes some control to the viewers by giving them the opportunity to choose which element to focus on first, text or imagery.

A comparison of the formats where the size of the text and images are varied led to a conclusion that the selected formats are most successful in presenting text and images when equal emphasis is given to both.

Solutions Involving a Change in Stroke Weight

Additional stroke weight was added to the same key words in all four formats. The information is more accessible with weight than without it. Adding weight guides the viewer to key words within the main text. It divides the subject matter into sections, and draws attention to information outside of the main text such as image captions. One drawback of additional stroke weight may be the tendency of the viewer to concentrate on the emphasized words and overlook the other text components.

Solutions Involving a Change in Orientation

Changing the orientation of the panel from vertical to horizontal resulted in the conclusion that the four formats are most successful in presenting the information when the panel orientation is horizontal. The text and images interact with one another more cohesively in the available space. The shapes and proportions of the text and imagery, in this study, lent themselves more naturally to a horizontal orientation.

The horizontal orientation facilitates better access to the information. In all formats, the text is easy to read and the images activate the space, by bleeding off the page and creating a dynamic use of space. For the sequence of single pages and the multi-directional fold, the information on the back cover is easy to access. In the barrel fold, the sequence of the information is clear. There is a continuity of text and an effective interaction between images.

A matrix summarizing the research findings can be found in Appendix 8.

Thesis Exhibition

The thesis application was exhibited in the first of three thesis shows in the spring of 1995. The show ran from March 13-29, with the opening reception on Friday, March 17.

The exhibition of this thesis project included a project summary, a matrix, and an example of each of the four formats the project investigates (Appendix 10).

The project summary detailed the project. It explained to the general public where the initial interest for the project originated, the goal of the project, what it examined, and what it hoped to discover. The concept of format was introduced and defined. Finally, the summary explained the development and purpose of the set of exercises used to determine the influence of format on the accessibility of information.

The matrix compared the exercises. It showed the advantages and disadvantages of each unique format without the addition of text and imagery; and then the advantages and disadvantages of each format when each exercise is applied. The matrix facilitated understanding of all the exercises.

Due to limited gallery space, only the most successful outcomes from the ideation exercise process went on display. The formats on display incorporated:

- Horizontal panel orientation.
- Equal emphasis between text and images.
- Bold stroke weight, emphasizing headings, sub-headings, and key words.

Evaluation Procedures

The evaluation for this project was implemented to identify the format that most successfully enables students to access information about the sun. The evaluation was conducted as a focus group. A focus group allows for an exchange of ideas among participants in the group. Instead of having the group as a whole evaluate the formats, participants were organized in smaller groups to evaluate the formats. This modification was intended to prevent a "group think" phenomenon likely to occur among youngsters who worry about what their friends may think of them.

Initial contact was made with Kelly Fallon, an art teacher at The Harley School, on March 27, 1995. She was very receptive to the idea and thought it would be a good experience for her students to be exposed to someone with a formal education in graphic design. She felt the students would be able to offer thoughtful feedback on the project. A second meeting with Mrs. Fallon took place on April 24, 1995. At this meeting, the thesis project was further explained and the evaluation procedure was discussed. She made several recommendations, including defining words such as *format, accessibility, text,* and *images,* as well as ways to handle the students if they seemed to be getting out of control. The actual evaluation took place with the sixth grade art students on April 26 and 27, 1995.

There were a total of fourteen students in the art class. At the recommendation of Mrs. Fallon they were divided into two groups of seven students each. She thought more well-rounded responses would be achieved if they were divided. At this age, one dominant personality in the group can influence other student opinions. Each group met for forty-five minutes.

A moderator's guide was developed for use during the discussion among the students (Appendix 9.1). The students were given a brief introduction to graphic design, introduced to the concept of format, and shown several applied examples of formats. Each of the four formats developed for the thesis project was presented and briefly

explained. The term *accessibility* was introduced and defined. Students were told that they would help determine which of the formats made the information about the sun most accessible.

In each group there were three teams, two teams of two students, and one team of three. Each team was given a copy of each format and a series of questions to answer (Appendix 9.2). They were instructed to carefully examine each of the four formats before answering any of the questions.

After each team completed the questionnaire a discussion took place. They were asked, team by team, which format they selected as their favorite, and what they liked about that format. They also were asked which format they thought made the information most accessible, and why that might be so. Finally, they were asked which format they didn't like, and what they didn't like about it.

The experience of the evaluation process was very positive. The first group was very thoughtful and articulate. They were able to express their opinions very clearly and made several suggestions. The second group was not as outspoken as the first. They had difficulty verbalizing what they liked and disliked, but with a little bit of encouragement they were able to participate effectively in the evaluation.

The two most preferred formats were the sequence of single pages and the poster. All the students in one group chose the sequence of single pages as the format they would most like to use to learn about the sun. All but one student in the second group ranked the poster as their number one choice for learning about the sun. While they disagreed about which format to rank number one, they did agree that both these formats were easiest to use, most comfortable to use, and most effective in accessing the information about the sun.

A summary of the evaluations completed by the students can be found in Appendix 9.3.

When asked to explain the reason behind their opinions, the students said the following about the sequence of single pages:

"Flexible."

"Can choose which order to read in."

"Can see the relationship between them because you can put them all out in front of you at once."

"Easy to read."

"Can concentrate on one thing at a time."

"Can look at certain parts without being distracted by other things."

Comments about the poster included:

"Easy to read."

"Can see it at long distances."

"Catches your eye."

"Don't have to flip the pages. It's all in front of you."

"Has lots of pictures which makes you want to find out what it's about."

"Don't have to unfold or turn things around."

"Know immediately what it's about."

"Can see all the information at once. You know how to use a poster."

The least preferred formats were the barrel fold and the multi-directional fold. A majority in both groups agreed that these were hardest to use, least comfortable to use, and the least effective in accessing the information about the sun. The following comments about the barrel fold explain the students attitudes toward this format.

"Can't get all the information in front of you."

"Have to flip it over too much to find the information."

"Hard to hold, awkward to use."

They had the following to say about the multi-directional fold.

"Cool, but confusing. It can take away from the information, because you get too involved with unfolding it."

"Too solid paragraphs when you open it up. That's overwhelming."

"Confusing which way it opened."

"No clear order on how to read it."

"All over the place."

"Too confusing if you want to take notes about it for a project."

"Hard to hold."

"Format becomes more important than the information."

"Gives you an escape, but could end up being distracting if you have a short attention span."

The results of the students' evaluations clearly suggest that format plays a role in accessing information. They also suggest that simplicity and ease of use are desirable attributes of particular formats. Students emphasized flexibility in their comments about the sequence of single pages. This format's flexibility seems to facilitate its use. Familiarity with a format is another contributor to accessing information. Students recognized this in the poster. While barrel folds and multi-directional folds may be interesting formats, they fail to aid in accessing information. The user has to expend too much effort figuring out how to unfold the format to uncover the content.

Conclusion

This investigation of the influence of format on the accessibility of information suggests that the hypothesis posed at the beginning of the thesis project can be supported. Clearly, more research involving other print media formats would be the next step in the process to prove conclusively that a format in conventional print media is as important in successfully conveying a message as are the text or images.

However, findings from the ideation exercises combined with the external evaluation of the formats by students in the elementary school system point to several preliminary conclusions:

- Format should facilitate access to information. Complicated formats are barriers to understanding.
- Simplicity is a key factor in ease of use. The students' selection of and comments regarding the poster and the sequence of single pages support this conclusion.
- Flexibility can be an advantage in accessing information. With the sequence of single pages, the possibility of being able to focus on distinct sections of the information may be increased.
- Familiarity attracts the user. Students most frequently selected the poster as the most comfortable to use. They knew immediately how to access the information using this format.

Glossary

Accessibility	the ease with which information can be received or obtained.
Affordance	what is being offered or provided.
Articulate	to express in words; the ability to express one's ideas clearly.
Constant	an element which stays the same.
Constraints	a limitation or parameter.
Dynamic	producing or involving change or action.
Effective	producing the intended or expected results; efficient.
Evaluate	to find or determine the amount, worth, value; to assess.
Font	all the characters and punctuation marks of one size and style in one typeface design.
Format	the physical vehicle for carrying information.

Grid	a network of horizontal and vertical guidelines used as underlying structure for solving visual problems.
Hypercard	authoring software for the Macintosh platform by Apple®, which is used to create interactive media documents.
Image	a likeness or representation of a physical object, such as a person, animal, or thing; photographed, painted, or otherwise made visible.
Matrix	a horizontal and vertical plotting field for comparing two or more variants.
Objective	something one is trying to achieve or reach; a goal.
Process	a systematic series of actions directed to some defined end.
Prototype	a scale model assembled for the purpose of study and testing.
Sequence	the following of one thing after another in an ordered or continuous way.
Success	a favorable or desired outcome of something attempted.

Text	the wording of something written or printed; the main body in a manuscript.
Variable	an element which can change.
Weight	the comparative thickness of the strokes of letters.

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Thesis Proposal for the Master of Fine Arts

College of Imaging Arts and Sciences
Rochester Institute of Technology

The Effect of Format and Sequence on the Interpretation of Information

Audrey Sumberg
September 21, 1993

Thesis Committee:
Chief Advisor: Deborah Beardslee
Associate Advisor: Bruce Meader
Barbara Polowy

Department Approval:
Date: 9/23/93

Approval, Special Assistant to the
Dean of Graduate Affairs:
Date:

Computer needs other than word processing: Yes__X__
Explain need of equipment:
May need use of the IEPL lab for printing outputs of the thesis application.

Committee Approval:

Thesis Proposal for the Master of Fine Arts

College of Imaging Arts and Sciences
Rochester Institute of Technology

This thesis, and its associated work, is intended to investigate different methods of formatting and sequencing information. It will focus on these methods as they relate to the interpretation of information.

The application of this thesis may include an interactive media program, book design or other printed materials to compare and illustrate the effectiveness of these different methods.

Rochester Institute of Technology

Thesis Plan for the Master of Fine Arts Degree

The Effect of Format and Sequence on the Interpretation of Information

Audrey Sumberg
489 Claybourne Road
Rochester, New York 14618

November 11, 1993

Table of Contents

Situation Analysis

In today's society there are many different methods of presenting information. These methods range from printed materials such as books, newspapers, and magazines to electronic media such as television, radio, and computers. They have become simply a vehicle through which information travels. These conventional methods add very little to the interpretation of the information. There is a need to develop new methods, or enhance already existing methods, so they can interact and contribute to the meaning of the contents.

Problem Statement

I plan to investigate different methods of formatting and sequencing information. I intend to determine how these methods effect, positively or negatively, the interpretation of the given information. The audience for my thesis will consist primarily of design professionals and design educators.

Mission Statement

This thesis, an educational and informational tool, will present the result of a critical examination of relevant design theory to enable designers to communicate more effectively.

Goals	Objectives	Processes and Strategies
To *define* the different methods of formatting and sequencing information, and the theories behind them.	•Given a list of different methods of formatting and sequencing information, the user will be able to explain the different theories behind them.	•Gather fundamental information. •Review psychological theories. •Review philosophical theories. •Review aesthetic theories. •Show the differences between the different theories.
	•Given examples of different methods of formatting and sequencing information, the user will be able to identify the theory behind the method.	•Find examples that apply each of the theories. •Illustrate the differences between the different methods.
To do *research* into the effect of format and sequence on the interpretation of information.	•Given a list of factors leading to significant design history events, the user will be able to chronicle the major breakthroughs in presenting information.	•Gather fundamental information. •Create a timeline. •Highlight important breakthroughs. •Highlight important contributors.
	•Given different methods of formatting and sequencing information, the user will be able to explain how they might change the meaning of the information.	•Find examples of how ideas can take on a different meaning as a result of changing the format and/or sequence of the information. •Compare and contrast the different methods.

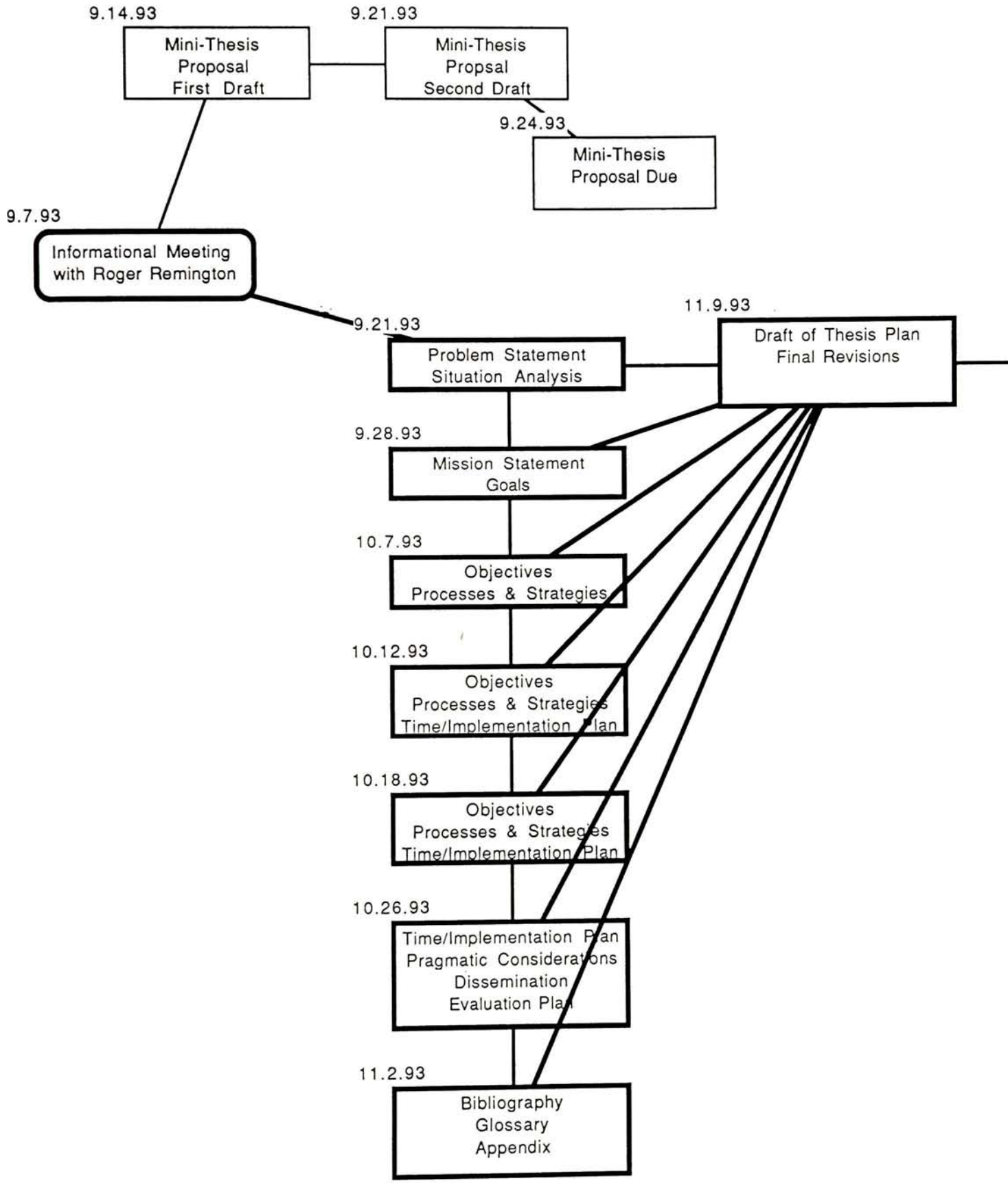
Goals	Objectives	Processes and Strategies
To *analyze, organize and synthesize* this research.	•Given a list of methods and theories behind formatting and sequencing information, the user will be able to breakdown each method and theory into its key components.	•Set up a grid for comparing key components of each method. •Highlight differences/similarities. •List methods in rank order relative to their success.
To *create* a format to interpret findings to an intended audience.	•Given the research, the user will be be able to use the information as a reference tool.	•Compile research into a book, or a series of posters.
	•Given the application of the project, the user will be able to examine the effect of different methods of formatting and sequencing, and how they can interact and contribute to the meaning of the contents.	•Develop new methods of formatting and sequencing information. •Enhance already existing methods of formatting and sequencing information. •Compare and contrast the different effects of the different methods.

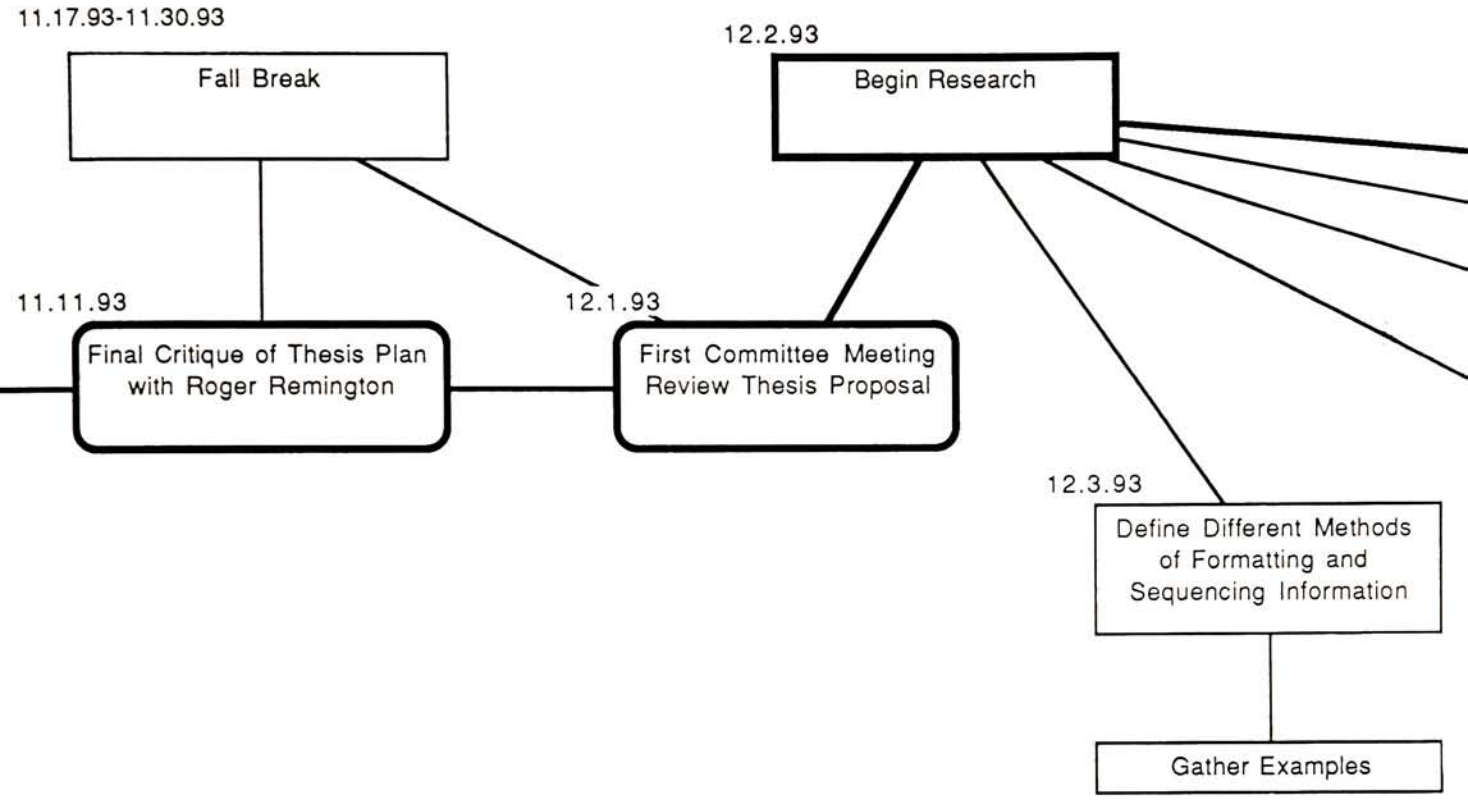
Goals	Objectives	Processes and Strategies
To *evaluate* this project and modify accordingly.	•Given the project, the user will be able to measure attitudes toward the project.	•Conduct in depth personal interviews with graphic design professionals.
	•Given new methods of formatting and sequencing information, the user will be able to measure the effectiveness of these new methods.	•Ask intended audience to rate effectiveness of new methods on various criteria.
	•Given the project, the user will be able to predict the success of the implemented approach.	•Survey intended audience to determine interest level.

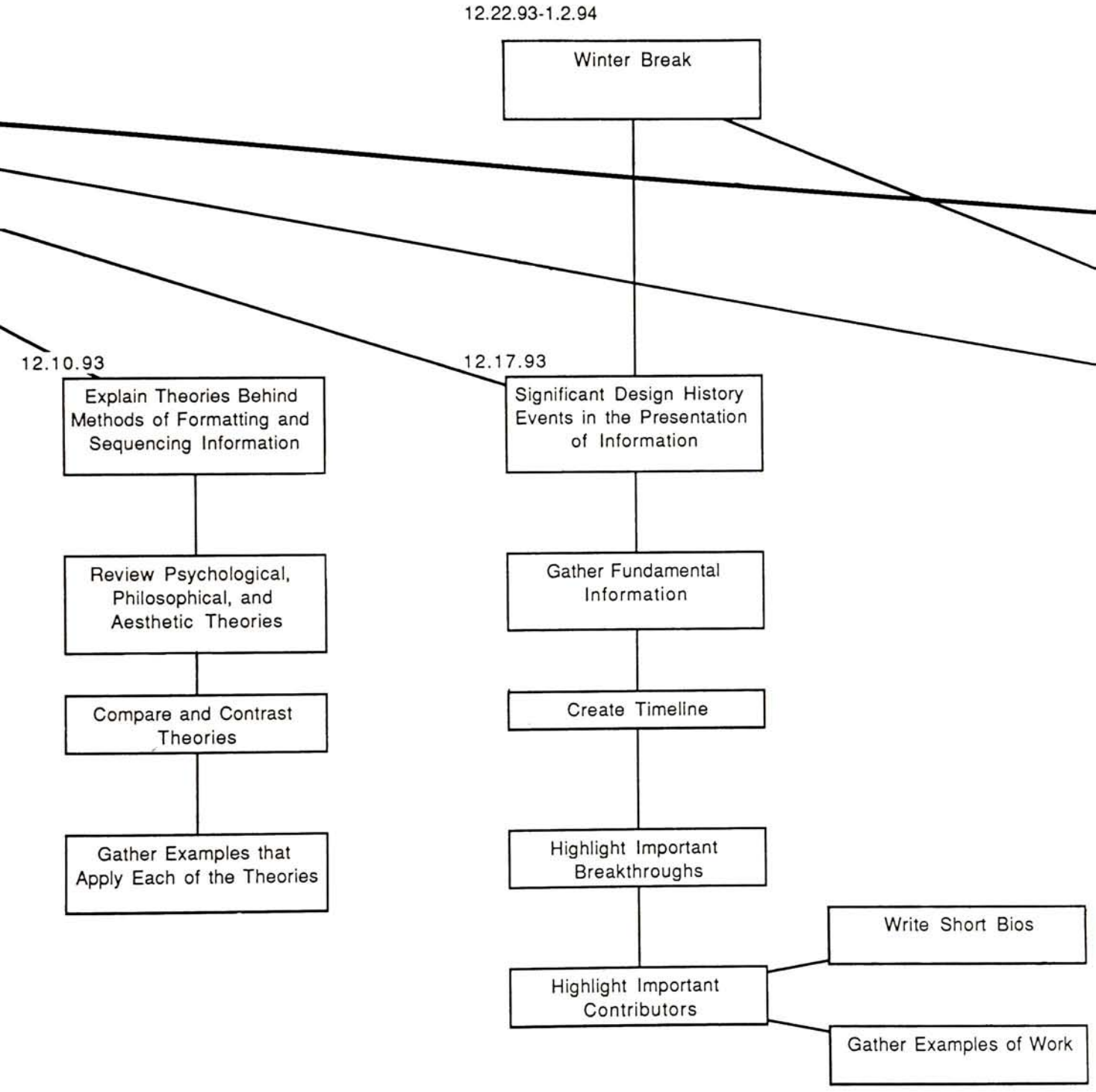
Pragmatic Considerations

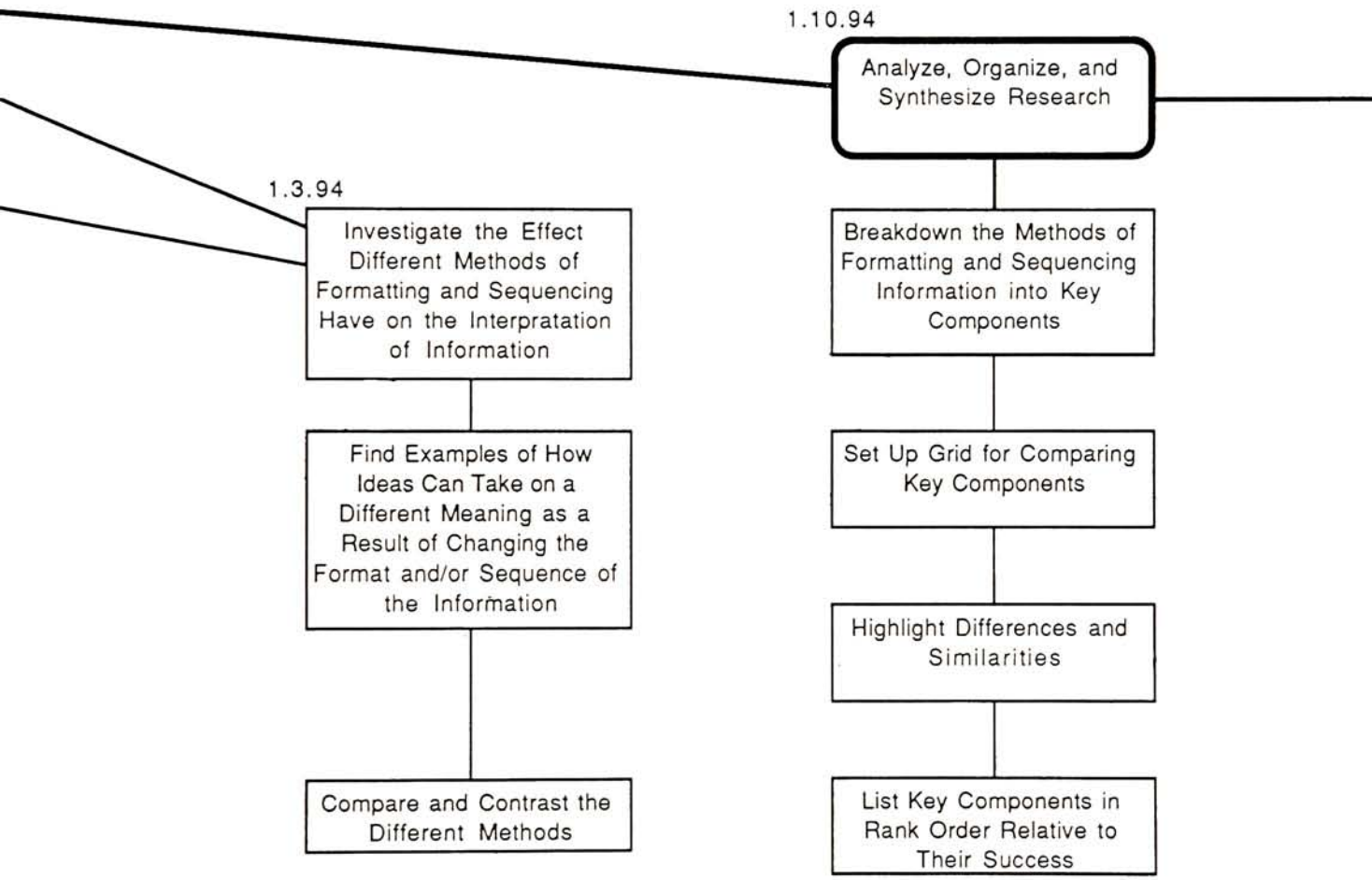
Budget (estimated)

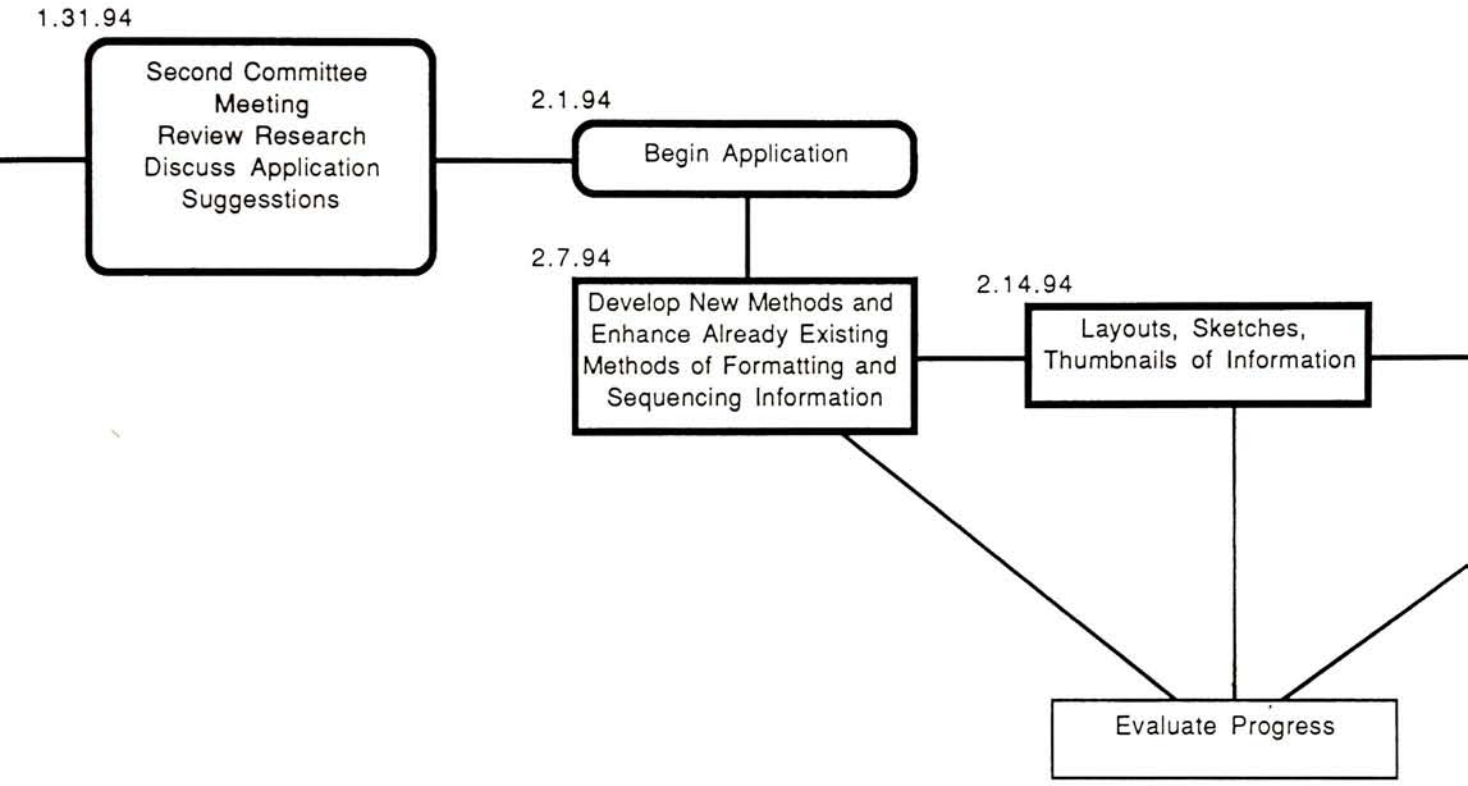
copying	50.00
high quality output	125.00
paper	30.00
miscellaneous supplies	100.00
travel	300.00

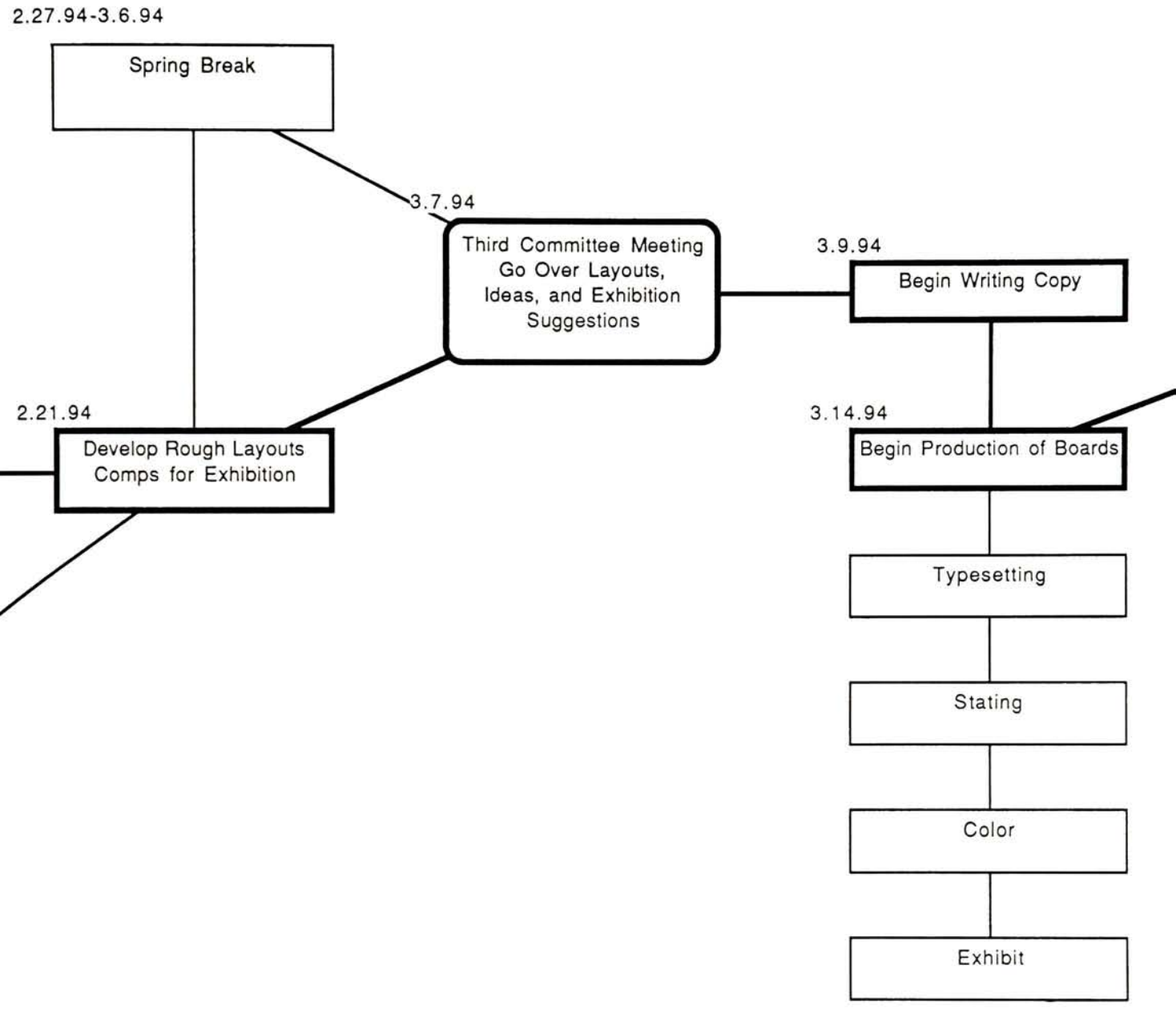

9.14.93
Mini-Thesis Proposal First Draft
9.21.93
Mini-Thesis Propsal Second Draft
9.24.93
Mini-Thesis Proposal Due
9.7.93
Informational Meeting with Roger Remington
9.21.93
Problem Statement Situation Analysis
11.9.93
Draft of Thesis Plan Final Revisions
9.28.93
Mission Statement Goals
10.7.93
Objectives Processes & Strategies
10.12.93
Objectives Processes & Strategies Time/Implementation Plan
10.18.93
Objectives Processes & Strategies Time/Implementation Plan
10.26.93
Time/Implementation Plan Pragmatic Considerations Dissemination Evaluation Plan
11.2.93
Bibliography Glossary Appendix

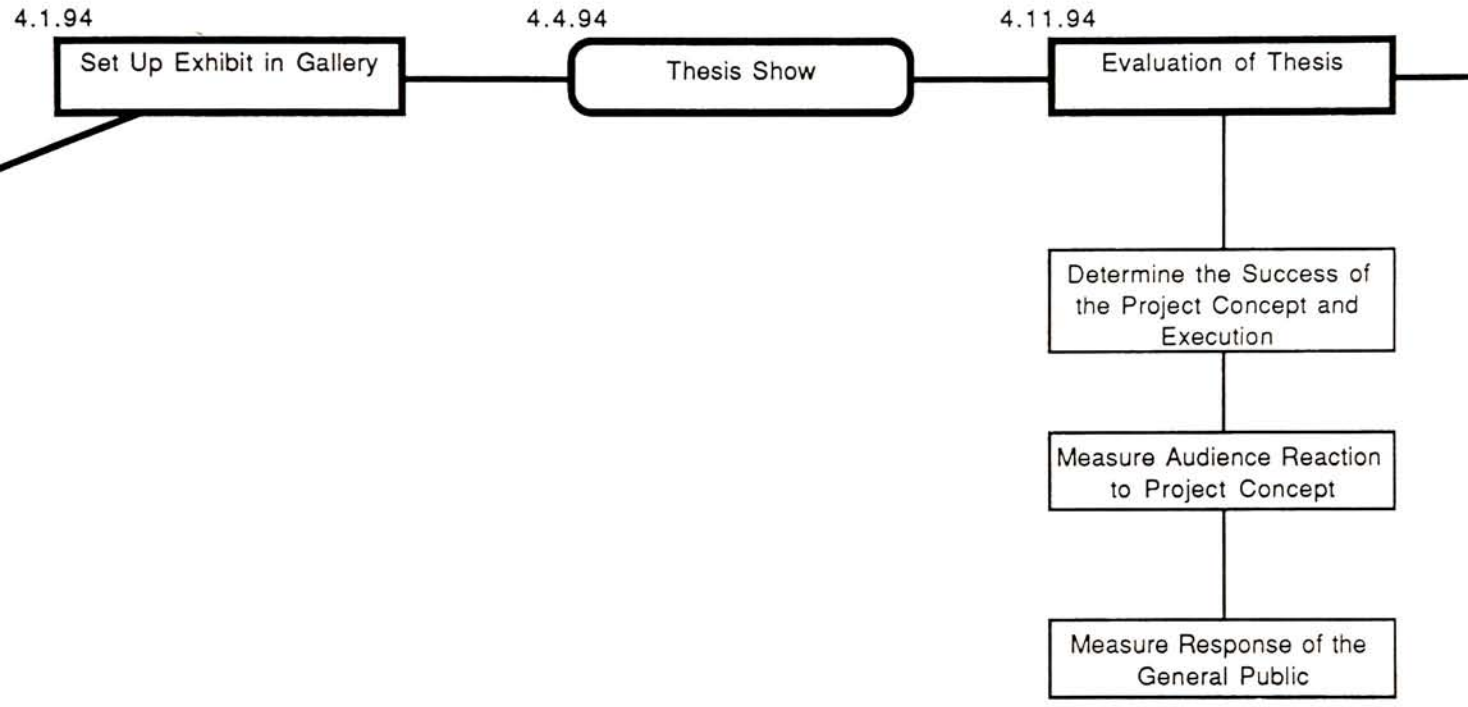

11.17.93-11.30.93
Fall Break
12.2.93
Begin Research
11.11.93
Final Critique of Thesis Plan with Roger Remington
12.1.93
First Committee Meeting Review Thesis Proposal
12.3.93
Define Different Methods of Formatting and Sequencing Information
Gather Examples

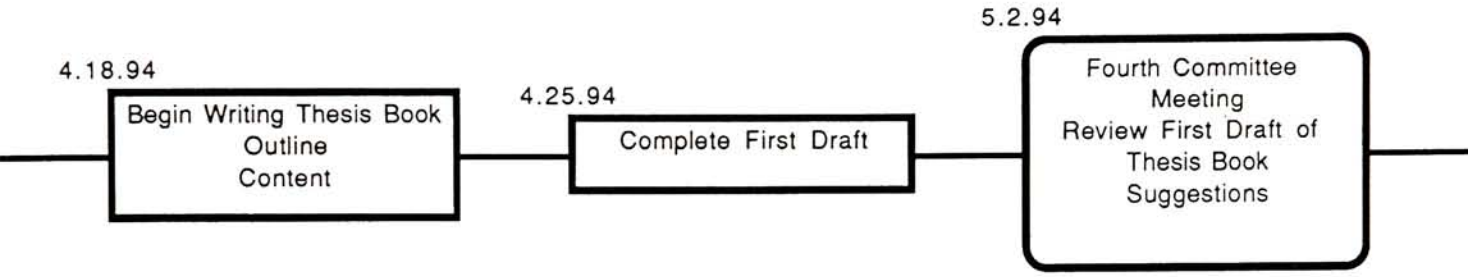

12.22.93-1.2.94
Winter Break
12.10.93
Explain Theories Behind Methods of Formatting and Sequencing Information
Review Psychological, Philosophical, and Aesthetic Theories
Compare and Contrast Theories
Gather Examples that Apply Each of the Theories
12.17.93
Significant Design History Events in the Presentation of Information
Gather Fundamental Information
Create Timeline
Highlight Important Breakthroughs
Highlight Important Contributors
Write Short Bios
Gather Examples of Work

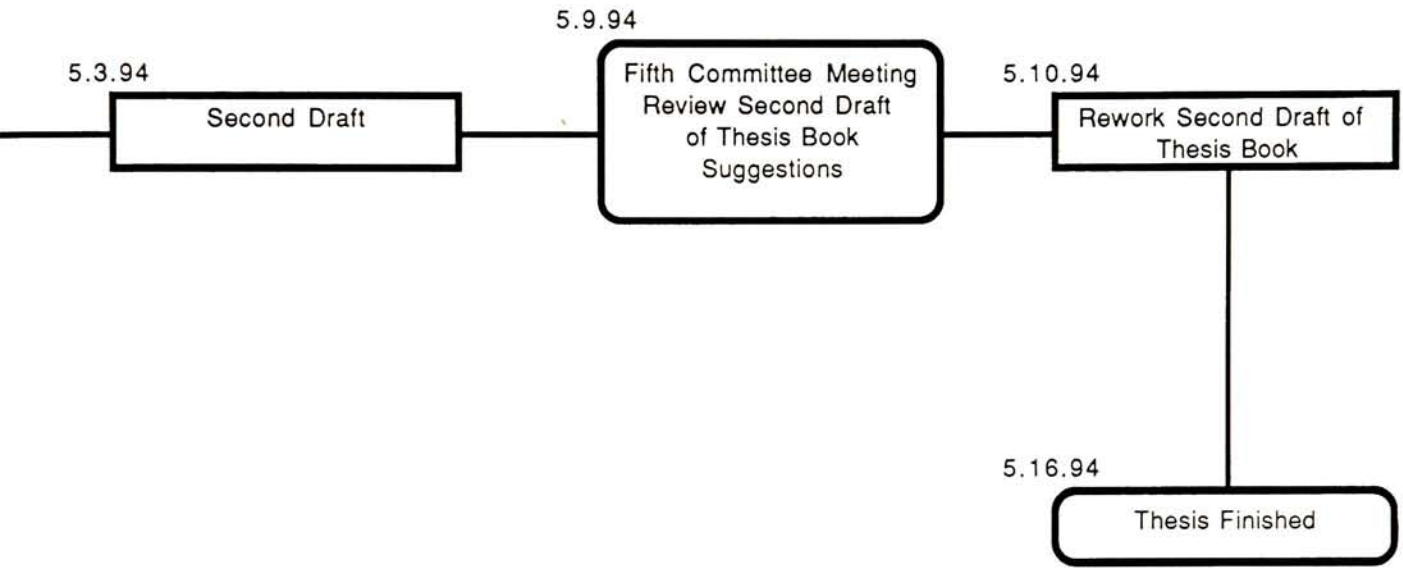

1.10.94
Analyze, Organize, and Synthesize Research
1.3.94
Investigate the Effect Different Methods of Formatting and Sequencing Have on the Interpratation of Information
Find Examples of How Ideas Can Take on a Different Meaning as a Result of Changing the Format and/or Sequence of the Information
Compare and Contrast the Different Methods
Breakdown the Methods of Formatting and Sequencing Information into Key Components
Set Up Grid for Comparing Key Components
Highlight Differences and Similarities
List Key Components in Rank Order Relative to Their Success


1.31.94
Second Committee Meeting
Review Research
Discuss Application
Suggesstions
2.1.94
Begin Application
2.7.94
Develop New Methods and Enhance Already Existing Methods of Formatting and Sequencing Information
2.14.94
Layouts, Sketches, Thumbnails of Information
Evaluate Progress


2.27.94-3.6.94
Spring Break
3.7.94
Third Committee Meeting
Go Over Layouts,
Ideas, and Exhibition
Suggestions
3.9.94
Begin Writing Copy
2.21.94
Develop Rough Layouts
Comps for Exhibition
3.14.94
Begin Production of Boards
Typesetting
Stating
Color
Exhibit


4.1.94
Set Up Exhibit in Gallery
4.4.94
Thesis Show
4.11.94
Evaluation of Thesis
Determine the Success of the Project Concept and Execution
Measure Audience Reaction to Project Concept
Measure Response of the General Public


4.18.94
Begin Writing Thesis Book
Outline
Content
4.25.94
Complete First Draft
5.2.94
Fourth Committee
Meeting
Review First Draft of
Thesis Book
Suggestions


5.3.94
Second Draft
5.9.94
Fifth Committee Meeting
Review Second Draft
of Thesis Book
Suggestions
5.10.94
Rework Second Draft of
Thesis Book
5.16.94
Thesis Finished

Dissemination

The application of this project will be displayed in the Bevier Gallery at RIT. The thesis notebook is intended for educational use. It will be on file in the archives at Wallace Memorial Library. At this time, there is no intent of reproducing or distributing this project.

Evaluation Plan

•Determine the success of the project concept and execution.	•Develop a research instrument to collect feedback on the success of the project. •Identify design professionals to be interviewed. •Setup and conduct interviews relative to the project. •Summarize the findings of the interviews.
•Measure audience reaction to project concept.	•Develop a mail survey and letter of intent. •Identify design professional in major metropolitan areas, such as New York, Chicago, and L.A. •Mail survey to selected design professionals. •Summarize and quantify data.
•Measure response of the general public.	•Develop a short survey for viewers of the project to fill out. •Place the survey in the Bevier Gallery along with the project. •Collect surveys. •Summarize and quantify data.

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Smith, Keith A. Structure of the Visual Book. Fairport, NY: The Sigma Foundation, Inc., 1984.

Smith, Keith A. Text in the Book Format. Fairport, NY: The Sigma Foundation, Inc., 1989.

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Glossary

Context	The circumstances in which an event occurs.
Evaluation	A method of assessing the value of a given project
Execution	The production of a piece of art work.
Format	The physical dimensions of display; a particular arrangement or order.
Grid	A pattern of horizontal and vertical guidelines for making layouts or dummies.
Layout	A diagram or plan, drawing, or sketch used as a guide in arranging elements for final production.
Pragmatics	Pertaining to the needs of graphic design such as printing, budget, resources, etc.
Sequence	The following of one thing after another in an orderly or continuous way.

Appendix

Timeline

Fall: Thesis Proposal

Weekly meetings

9.7.93	**Informational Meeting**
9.14.93	First Draft of Mini-Proposal
9.21.93	Second Draft of Mini-Proposal **Problem Statement** **Situation Analysis**
9.24.93	**Mini Thesis Proposal Due**
9.28.93	Problem Statement Situation Analysis **Mission Statement** **Goals**
10.7.93	Problem Statement Situation Analysis Mission Statement Goals **Objectives** **Processes and Strategies**
10.12.93	Problem Statement Situation Analysis Mission Statement Goals Objectives Processes and Strategies **Time/Implementation Plan**

Appendix

Timeline

10.19.93

Problem Statement
Situation Analysis
Mission Statement
Goals
Objectives
Processes and Strategies
Time/Implementation

10.26.93

Problem Statement
Situation Analysis
Mission Statement
Goals
Objectives
Processes and Strategies
Time/Implementation
Pragmatic Considerations
Dissemination
Evaluation Plan

11.2.93

Problem Statement
Situation Analysis
Mission Statement
Goals
Objectives
Processes and Strategies
Time/Implementation
Pragmatic Considerations
Dissemination
Evaluation Plan
Bibliography
Glossary of Terms
Appendix

Appendix

Timeline

11.9.93	**Revisions**
11.11.93	**Final Critique**
11.17.93-11.30.93	Fall Break

Winter: Research of Thesis

Committee Meetings

Meetings

Interviews/Resources

Evaluation

12.1.93	**First Committee Meeting** Review Proposal
12.2.93	Focus Research
12.3.93	Methods of Formatting and Sequencing Information
12.10.93	Theories behind the Methods of Formatting and Sequencing Information
12.17.93	Significant Design History Events in the Presentation of Information
12.22.93-1.2.94	Winter Break
1.3.94	Effect of Format and Sequence on the Interpretation of Information
1.10.94	Gather all Information and Analyze, Organize and Synthesize

Appendix

Timeline

1.31.94 — **Second Committee Meeting.**
Go Over All Information
Talk About Application How & Why
Suggestions From Committee

2.1.94 — Begin Application

2.7.94 — Develop New Methods, and Enhance Already Existing Methods of Formatting and Sequencing Information

2.14.94 — Layout Sketches
Thumbnails of Information

2.21.94 — Develop Rough Layouts
Comps and Exhibition

2.25.94 — **Evaluate**

Loop Around

2.27.94-3.6.94 — Spring Break

Spring: Thesis Show
Final Design
Exhibit
Thesis Book
Writing
Signing

3.7.94 — **Third Committee Meeting**
Go Over Layouts, Ideas, and Exhibition Suggestions

3.9.94 — Begin Writing Copy

Appendix

Timeline

3.14.94	Begin Production of Boards
3.14.94	Typesetting Stating Color Exhibit
4.1.94	Set Up Exhibit in Gallery
4.4.94	**Thesis Show**
4.11.94	Evaluation of Thesis
4.18.94	Begin Writing Thesis Book Outline Writing of Content
4.25.94	First Draft
5.2.94	**Fourth Committee Meeting** Review First Draft of Book Suggestions
5.2.94	Second Draft
5.9.94	**Fifth Committee Meeting** Review Second Draft of Book Suggestions
5.9.94	Rework
5.16.94	Thesis Finished

Appendix

Committee Members

Chief Advisor	Deborah Beardslee
Associate Advisor	Bruce Meader
Associate Advisor	Barbara Polowy

Audrey Sumberg
Thesis Outline
May 13 1994

This thesis will explore the significance of format in a design investigation. It will determine the influence of format on the accessibility of information. A successful format will enable the user to receive the message as it is intended.

Formats:
Five different formats, the medium for carrying information, will be explored. These formats, ranging from simple to complex are: a poster, single pages contained in a folder, a barrel fold, a multi-directional fold, and a computer-interactive Hypercard stack The most simple format, a poster, will require little or no hands-on physical interaction on the part of the viewer. As the formats become more complex, they demand more physical contact. Complexity is determined by the number of folds in the format, as well as the direction of the folds. The most complex format will be an interactive Hypercard stack. The attributes of each format will be evaluated based on the following: what each physically affords, offers, or provides; what is the value, or benefit of each format; what are constraints, limitations, or parameters of each format. Formats will be considered a variable element.

Exercises:
A series of exercises will be developed to test a range of visual variable (size, weight, color, tone, position, and orientation). These exercises will be applied to a constant content, consisting of text and images, within each of the formats. A typographic unit grid will be determined based on the needs of the content.

Analysis and Evaluation:
A matrix will be developed to aid in the comparison of these layouts. This initial analysis will determine the success and limitations of each format. An evaluation process will be implemented to rate strong and weak aspects of the exercises based on the accessibility of the information. Each format will be modified according to feedback from the initial evaluation.

Content:
The content to be included in each layout is of an informative nature. The subject matter will be astronomy, specifically facts and descriptions related to the topic of the Sun. Different aspects of the Sun will be covered, including its place in the Universe, composition, structure, sunspots, solar prominences, and solar eclipses. Astronomy is first taught in school to students in grades 5 or 6, therefore this age group has been selected as the intended audience for this project.

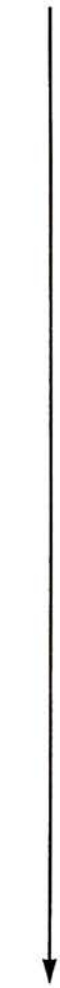
Analyze the effectiveness of a variety of different formats

•Variables

•Format

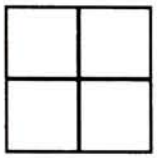
•Choose 5 different formats. The formats will range from simple to complex. The degree of complexity will be determined by the amount of physical interaction required by the viewer. They will be developed in order to maintain a systematic relationship between each format. This systematic approach will establish several constants for each format. These constant elements will include the number of panels within each format and the size of each individual panel.

Simple



Complex

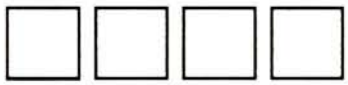
•1) Poster



•This format is normally displayed in a public area, having to compete with its surroundings (which may include other printed materials).

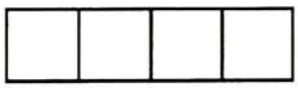
•The physical interaction of the viewer is minimal, the main interaction is visual. Viewing distance will be the most variable in this format, because a close hands on interaction is not required.

•2) Unbound pages contained in a folder



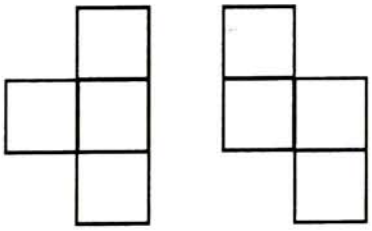
•This format requires the viewer to physically handle the format. In order to view the contents you must remove the pages from the folder. Once removed the viewer can reorder the pages. This piece can be hand held or it can be displayed, as a group, on a wall. Viewing distance will vary depending on how the format is used. It will range from 10-20 inches to several feet.

•3) Barrel fold



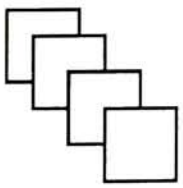
•This format requires the viewer to physically handle the format. The panels unfold in one direction to reveal the information within. This piece would be hand held, therefore the viewing distance would range from 10 to 20 inches.

•4) Multi-directional fold



•This format requires the viewer to physically handle the format. The panels unfold both horizontally and vertically to reveal the information within. This piece would be hand held, therefore the viewing distance would range from 10 to 20 inches.

•5) Interactive computer document (Hypercard stack)



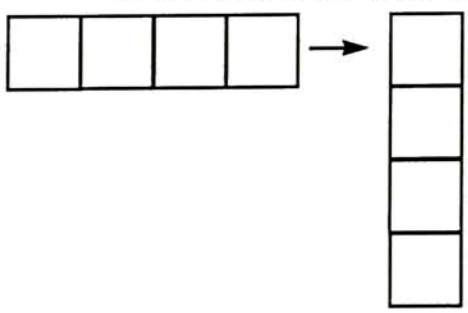
•The nature of this format requires a great deal of interaction. A basic knowledge of the computer is necessary. To access this format the viewer must initiate the process by turning on the computer and opening the document. The document is arranged according to interconnections determined by the designer, a wayfinding system. The wayfinding system allows the format to be more flexible, and gives the viewer several options in perusing the information. The viewing distance for this format would be approximately 20 inches.

- Analyze the attributes of each format
  - Determine what the format physically affords
  - Determine the potential value of each format
  - Determine the constraints of each format

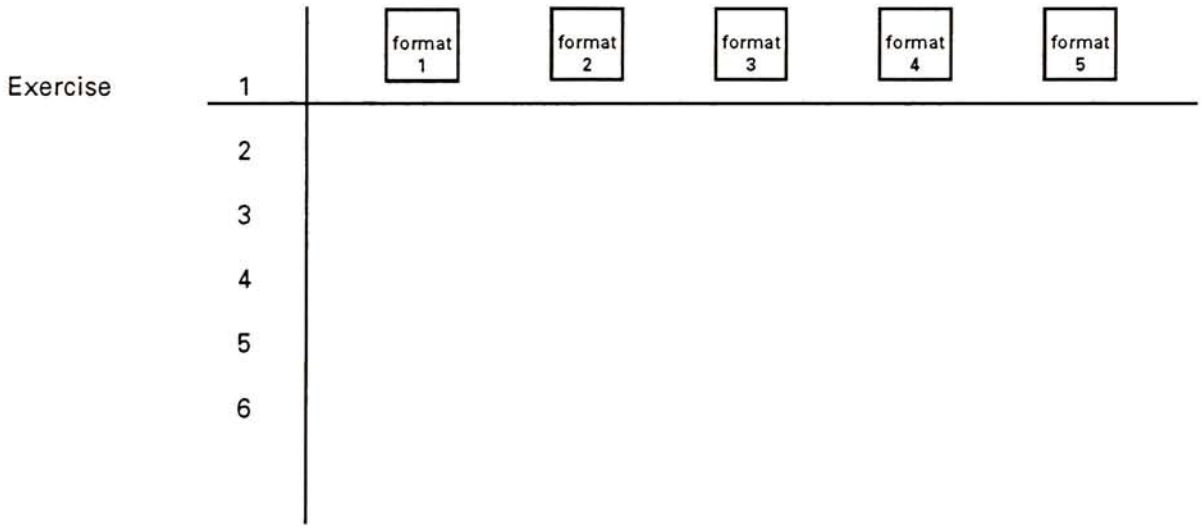
- Constants
  - Establish the content to be used in each of the formats
    - Manuscript-Informative
      - The Sun-Solar System
        - Eclipses
        - Solar prominences
        - Structure of the Sun
        - Sunspots
      - Text
        - Headline
        - Subheads
        - Main text
        - Subsection text
        - Captions
      - Images
        - Photographs
        - Illustrations
        - Diagrams
        - Tables/charts
        - Icons

  - Establish a constant set of formal attributes to use in each of the formats.
    - Typographic unit grid-determined based on the needs of the content
      - Font-Univers
      - Size
      - Styles
      - Leading
      - Column width
      - Bullets-Rules

- Synthesis of Variables & Constants (exercises)
  - Formulate a series of exercises in which to apply the constant elements (outlined above) to the 5 different formats. Each of these exercises will be carried through for each of the five formats
    - Exercise 1:
      - Size: Manipulate size of text and images
        - 1a) Text dominant
        - 1b) Image dominant
        - 1c) Text-image even emphasis
        - 1d) Primary element(s) dominant
        - 1e) Secondary element(s) dominant
    - Exercise 2:
      - Orientation: Change panel orientation



- Exercise 3:
  - Weight: Manipulate weight of text
    - 3a) Headlines
    - 3b) Maintext
    - 3c) Captions
    - 3d) Subheads
    - 3e) Subtext
- Exercise 4:
  - Color: Highlight important information
    - 4a) Headlines
    - 4b) Subheads
    - 4c) Key Words
- Exercise 5:
  - Positioning of text and images
    - 5a) All text first
    - 5b) All images first
    - 5c) Integration of text and image
- Exercise 6:
  - Tone: Manipulate tone of text and images



ANALYSIS & EVALUATION

- Analyze the results of the exercises based on original hypothesis
    - Set up a grid for comparing the results of each exercise
    - Highlight differences/similarities
    - List methods in rank order relative to their success

- Evaluate this project
    - Rate effectiveness of exercises based on the accessibility of the information
        - Identify design professionals to be interviewed
        - Identify intended audience (5th or 6th grade students) to be interviewed
        - Develop research instruments to collect feedback on the success of the project
        - Setup and conduct interviews relative to the project
        - Summarize the findings of the interviews

- Modify project based on feedback from evaluations

- Organize and synthesize the results of the exercises
    - Discover interrelationships and patterns

- Compile results into an appropriate format for thesis application and documentation

- Write thesis document

- Final evaluation of project
    - Measure response of the general public
        - Develop a short survey to accompany application during thesis exhibit
            - Semiotic triad
                - Semantic aspects
                - Syntactic aspects
                - Pragmatic aspects

        - Collect surveys
        - Summarize and quantify data

- Complete thesis document

MANUSCRIPT

Headline:

The Sun: Our Local Star

Main Text:

The Sun is the center of the the Solar System, and by far its most important element. The Solar System began about 4.6 billion years ago, when a cloud of interstellar dust and gas collapsed. The central part of the cloud collapsed to form the Sun, and the planets condensed in orbits around it. The Solar System consists of the Sun, nine planets, over 60 moons, thousands of asteroids, and unknown numbers of icy lumps, which become visible as comets when they approach the Sun. The Sun itself is 750 times as massive as the rest of the system combined. Since it is so massive it has enormous gravitational pull, which keeps the Solar System together and controls the movement of the planets.

The Sun is our local star. It is a relatively typical star among approximately 100 billion stars in our Milky Way galaxy. It is a ball of gas, composed of 90 percent hydrogen, 9 percent helium, and 1 percent of all other elements such as carbon dioxide, nitrogen, oxygen, silicon, and iron. Its energy is produced by nuclear fusion reactions taking place in the hydrogen gas in the Sun's core. A fantastic amount of energy pours out into space, not only as light and heat (infrared rays), but also as many other kinds of radiation, such as gamma rays, X-rays, ultraviolet rays, and radio waves. Every second more than 4 million tons of matter are converted into energy . The Sun has enough fuel to continue to shine for another 5 billion years.

Sub-section

The Structure of the Sun:

There is constant activity inside and on the surface of the Sun. Energy generated in the Sun's core flows out through the radiative zone and into the convective zone. Here, hot gas rises to the surface, gives out energy, then sinks down to be heated again. The part of the Sun that you see is an extremely thin layer called the photosphere. Above this is the Sun's atmosphere, which you cannot see. The outer part of the atmosphere is called the corona and this stretches far into space. The temperature of the Sun ranges from 11,000°F, at the photosphere, to about 27,000,000°F at the core.

Sunspots:

Dark patches on the photosphere are called sunspots. They are areas of intense magnetic activity and look dark because they are about 3500°F cooler than their surroundings. They usually appear in groups of two large and several smaller spots and may be visible for a few hours to several weeks. The number of sunspots on the Sun is not constant, but varies over a cycle of about 11 years. The last period of maximum sunspot activity was 1991, so the next will be 2002.

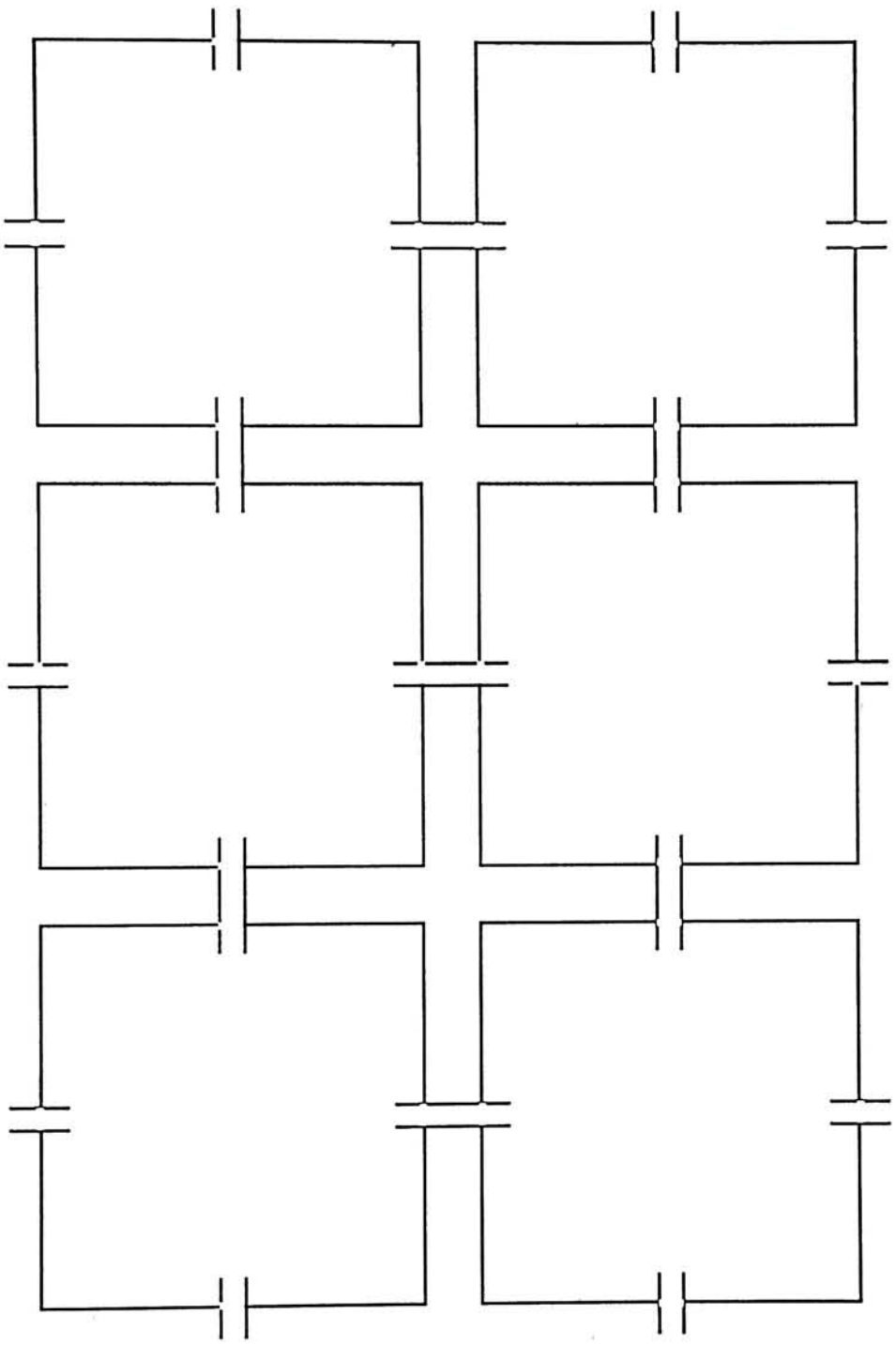
Solar Eclipse:

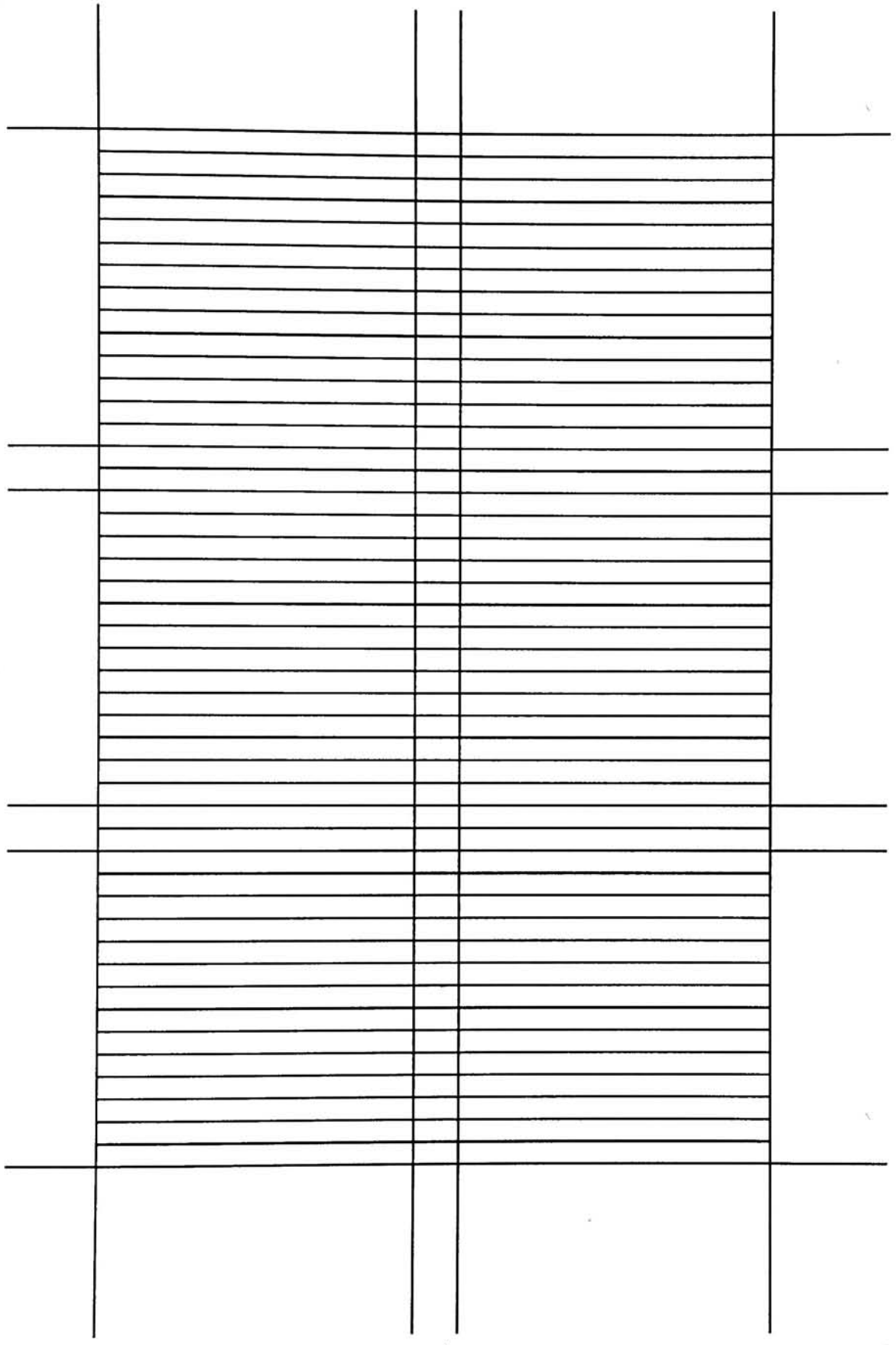
An eclipse of the Sun occurs because of a strange astronomical coincidence. The Sun is four hundred times farther away from the Earth than the Moon, but its diameter is four hundred times greater than that of the Moon. The consequence of this is that both Sun and Moon appear much

the same size in the Earth sky. From time to time, as the Moon travels in orbit around the Earth, it lines up exactly with the Sun and the Earth. When it comes between them, it blots out the Sun's light and casts a shadow on the Earth. Then we have an eclipse of the Sun, or a solar eclipse.

Solar Prominences:

A huge tongue of incandescent gas shoots out from the Sun's surface more than 300,000 miles. It is one of the spectacular solar prominences witnessed in 1973 during the Skylab mission. Solar prominences are surges of glowing gas rising from the surface of the Sun. The largest appear as huge arches that last for several hours before collapsing back. Prominences follow lines of magnetic force.





Headline

The Sun: Our Local Star
Developed and Designed by Audrey Sumberg

Main Text

The Sun is the center of the the Solar System and, by far, its most important element. The Solar System began about 4.6 billion years ago, when a cloud of interstellar dust and gas collapsed. The central part of the cloud collapsed to form the Sun, and the planets condensed in orbits around it. The Solar System consists of the Sun, nine planets, over 60 moons, thousands of asteroids, and unknown numbers of icy lumps, which become visible as comets when they approach the Sun. The Sun itself is 750 times as massive as the rest of the system combined. Since it is so huge, it has enormous gravitational pull, which keeps the Solar System together and controls the movement of the planets. It is the power station for the Earth and the other planets, providing them with their light and heat. The Sun is about 93 million miles away from the Earth, and its light takes eight minutes to reach us. Although the Earth receives barely 1/2000 millionth of the total energy of the Sun, it is enough to warm the planet and provide all the energy for plant and animal life.

The Sun is our local star. It is a relatively typical star among approximately 100 billion stars in our Milky Way galaxy. It is a ball of gas which is nearly 900,000 miles wide. This ball of gas is composed of 90 percent hydrogen, 9 percent helium, and 1 percent of all other elements such as carbon dioxide, nitrogen, oxygen, silicon, and iron. Its energy is produced by nuclear fusion reactions. These reactions are taking place in the hydrogen gas in the Sun's core. The temperature at the core is about 27 million °F. Here, the atoms that make up its main gas, hydrogen, have so much energy that they break apart, coming together again as helium gas. During this reaction a fantastic amount of energy pours out into space. This energy is in the form of light and heat (infrared rays) as well as many other kinds of radiation, such as gamma rays, X-rays, ultraviolet rays,

and radio waves. Every second more than 4 million tons of matter are converted into energy. The Sun has enough fuel to continue to shine for another 5 billion years.

Sub-sections

The Structure of the Sun

Corona: The outer atmosphere of the Sun. It extends for several million miles into space. It is made up of very thin gas, forced into a fan shape or streamers by the Sun's magnetism.

Chromosphere: Lower part of the Sun's atmosphere, about 1,200 miles thick. It is a thin layer of gases where temperatures are about 8000°F.

Photosphere: The light-emitting surface layer of the Sun. Here, the temperature is about 11,000°F.

Convective zone: The outer part of the Sun, in which hot gas rises to the surface, gives out energy, then sinks down to be heated again.

Radiative zone: A radiative zone of hot gases surrounding the core. They transmit radiation part of the way from the core to the surface.

Core: Energy generated by means of nuclear reactions that convert hydrogen into helium. The temperature at the core of the Sun rises to an incredible 27,000,000°F.

Sunspots

Dark patches on the photosphere, the visible surface of the Sun, are called sunspots. They are areas of intense magnetic activity that look dark. They look dark, because they are about 3500°F cooler than the temperature of their surroundings. They usually appear in groups of two large and several smaller spots and may be visible for a few hours to several weeks. The number of sunspots on the Sun does not stay the same, but varies over a cycle of about 11 years. The last period of maximum sunspot activity was 1991, so the next will be 2002.

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From time to time, as the Moon travels in orbit around the Earth, it lines up exactly with the Sun and the Earth. When it comes between them, it blots out the Sun's light and casts a shadow on the Earth. Then we have an eclipse of the Sun, which is called a solar eclipse. The eclipse can only be seen from the places covered by the shadow. The shadow is made up of two parts, a dark inner shadow called the umbra and a fainter outer shadow, the penumbra.

There are three types of solar eclipse, a total eclipse, a partial eclipse, and an annular eclipse. During a total eclipse the moon totally covers the Sun, and it can only be seen from places within the umbra. The diameter of the umbra is usually about 90 miles wide. Beyond this strip a partial eclipse is seen. If the Moon's penumbra crosses Earth, instead of the umbra, only a partial eclipse is seen. An annular eclipse happens when the Moon is at its greatest distance from Earth and appears too small to cover the Sun completely. It cannot quite cover the Sun, even if they line up exactly. A ring of Sun is visible all round the edge of the Moon, so the corona can be seen.

Solar Prominences

A solar prominence is a surge of glowing gas rising from the surface of the Sun up into the corona. The largest appear as huge arches that last for several hours before collapsing back. A huge tongue of incandescent gas can shoot out from the Sun's surface more than 300,000 miles. They can erupt into space at speeds of more than 2 million miles per hour. Sometimes material is thrown up so fast that it escapes from the Sun altogether. A smaller short-lived prominence is called a spicule. The photograph above shows a spectacular solar prominence witnessed in 1973 during the Skylab mission.

Captions

This photograph shows a gigantic prominence. It was photographed by an ultraviolet telescope aboard Skylab as it lifted off the Sun in December of 1973.

This false-color picture shows the Sun's corona, its outer atmosphere of rarified gases that extends for millions of miles in all directions. The Sun is the blacked-out disk in the center. This picture was taken in 1973 during the Skylab project.

Resources

Other Sources

Astronomy: The Cosmic Journey. William K. Hartman. 1982. 2d ed. Belmont: Wadsworth Publishing, Inc.

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A Meeting With the Universe. Bevan M.French, and Stephen P. Maran, eds. 1981. Washington: National Aeronautics and Space Administration.

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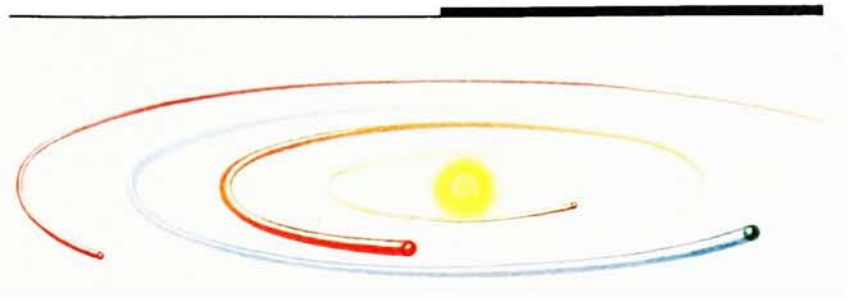
Visual Factfinder: Stars and Planets. James Muirden. 1993. New York: Kingfisher Books.

The Young Astronomer. Sheila Snowden. 1989. Edited by Lynn Myring. Tulsa: EDC Publishing.

Front Cover:

Orbit of the planets around the sun.

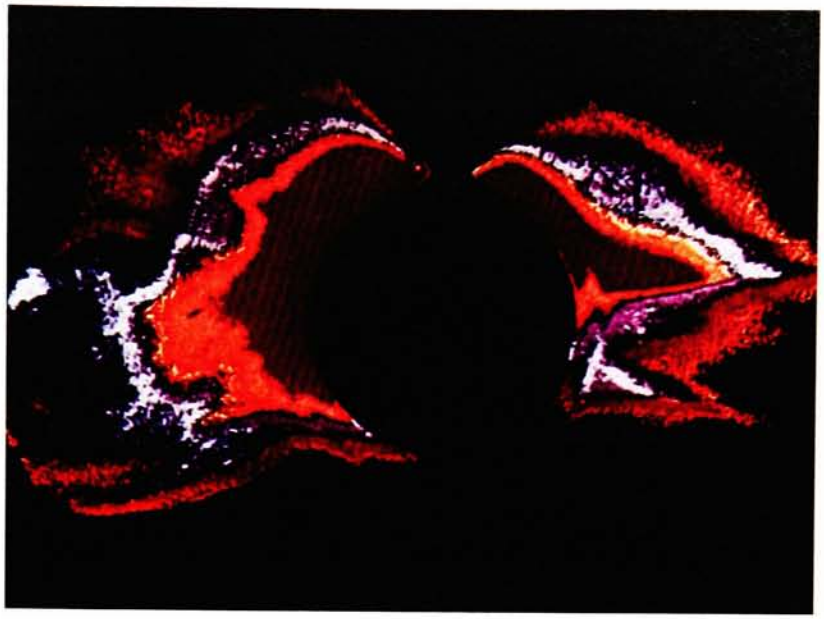


Back Cover:

Graphic of the sun.

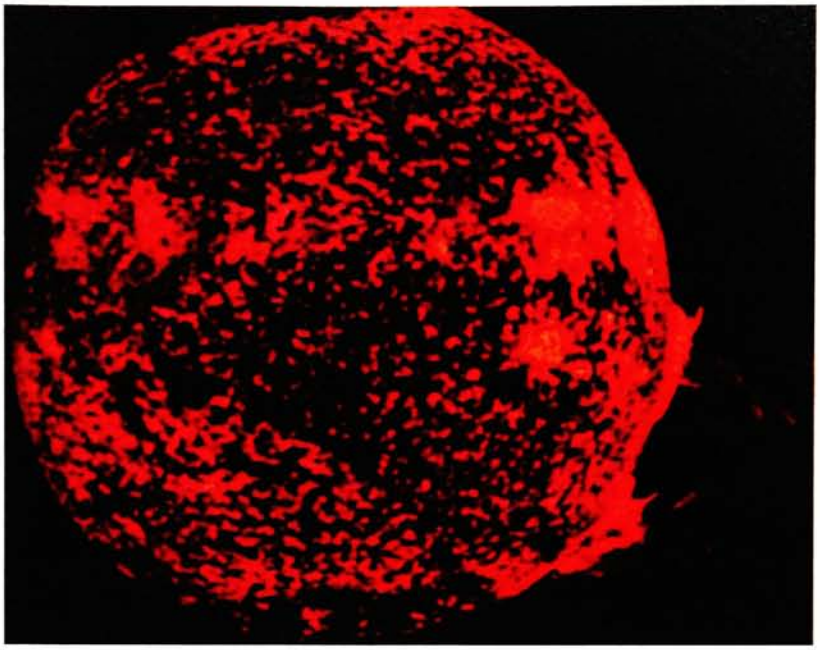
Main Text:

This false-color picture shows the Sun's corona, its outer atmosphere of rarified gases that extends for millions of miles in all directions. The Sun is the blacked-out disk in the center. This pictures was taken in 1973 during the Skylab project.



Main Text:

This photograph shows a gigantic prominence. It was photographed by an ultraviolet telescope aboard Skylab as it lifted off the sun in December of 1973.



Sub-section:

Solar Prominence.

Sub-Section:

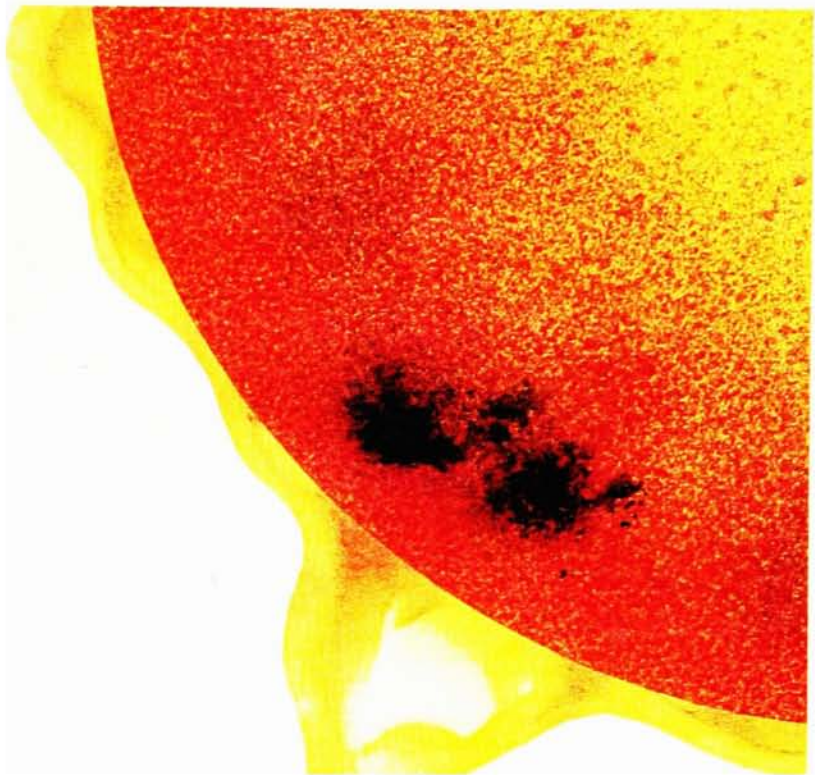
Structure of the sun.

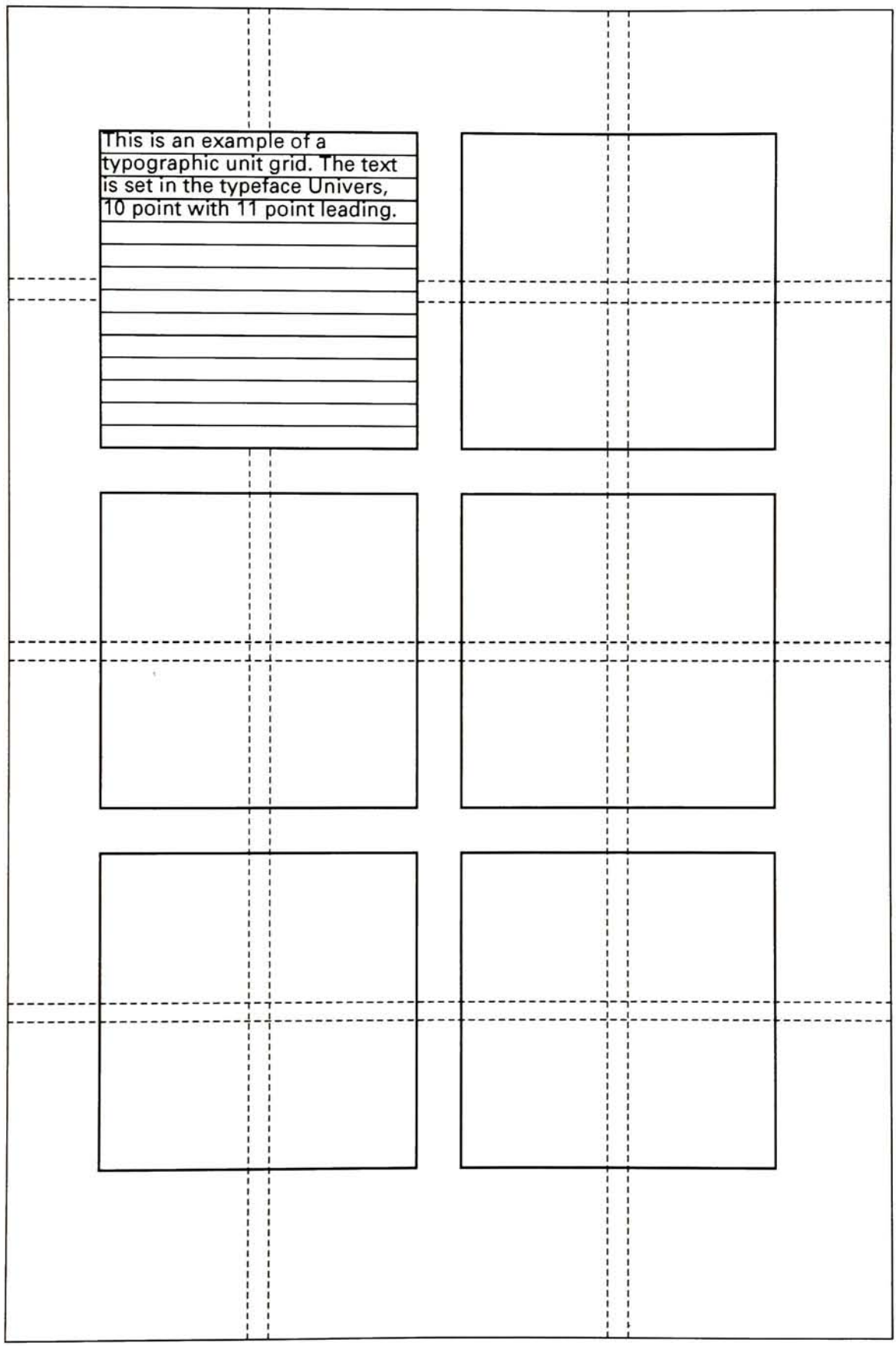
Sub-section:

Solar Eclipse.

Sub-section:

Sunspots.

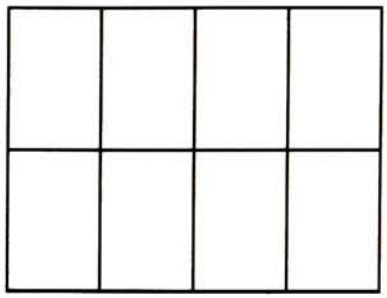



This is an example of a
typographic unit grid. The text
is set in the typeface Univers,
10 point with 11 point leading.

Format 1

Poster:

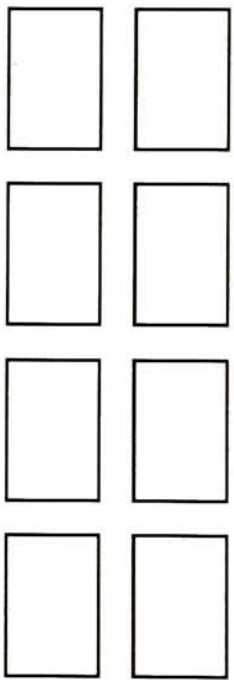
18"x24" (each panel: 9"x6")



Format 2

Sequence of single pages:

9"x6" (each panel)



Format 3

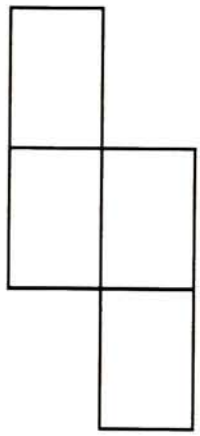
Barrel Fold:

9"x24 (each panel: 9"x6")

Format 4

Multi-Directional Fold:

9"x6" (each panel)



Exercise 1: size

1a- Text Dominant

1b- Image Dominant

1c- Even Emphasis

The Sun

Our Local Star

Developed and Designed By
Audrey Sumberg

Other Sources

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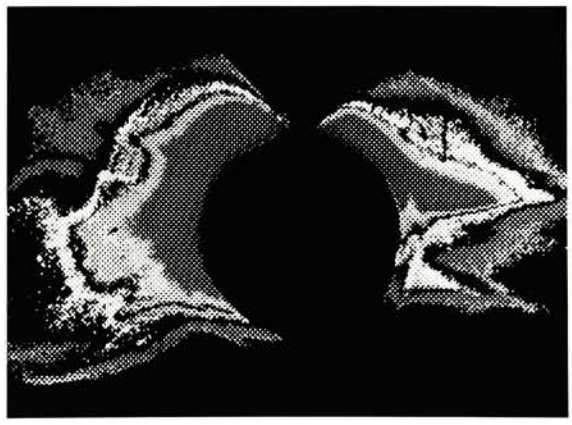
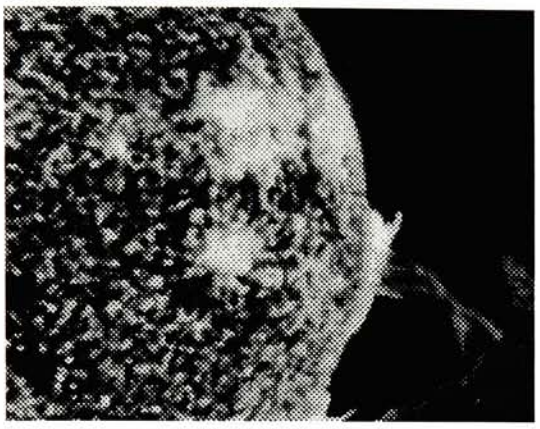
The Sun is the center of the the Solar System, and by far its most important element. The Solar System began about 4.6 billion years ago, when a cloud of interstellar dust and gas collapsed. The central part of the cloud collapsed to form the Sun, and the planets condensed in orbits around it. The Solar System consists of the Sun, nine planets, over 60 moons, thousands of asteroids, and unknown numbers of icy lumps, which become visible as comets when they approach the Sun. The Sun itselfis 750 times as massive as the rest of the system combined. Since it is so huge it has enormous gravitational pull, which keeps the Solar System together and controls the movement of the planets. It is the power station for the Earth and the other planets, providing them with with their light and heat. The Sun is about 93 million miles away from the Earth and its light takes eight minutes to reach us. Although the Earth receives barely 1/2000 millionth of the total energy of the Sun it is enough to warm the planet and provide all the energy for plant and animal life.

Right: This false-color picture shows the Sun's corona, its outer atmosphere of rarified gases that extends for millions of miles in all directions. The Sun is the blacked-out disk in the center. This pictures was taken in 1973 during the Skylab project.

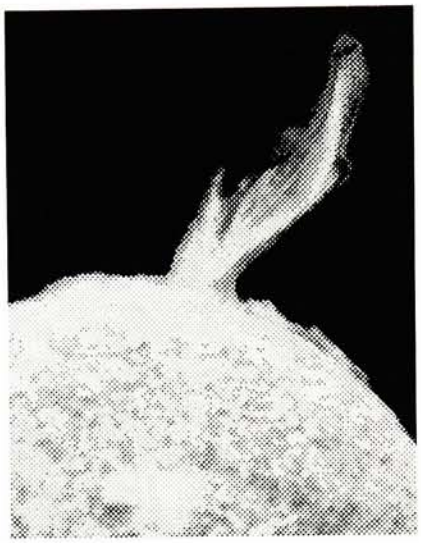




Above: This photograph shows a gigantic prominence. It was photographed by an ultraviolet telescope aboard Skylab as it lifted off the sun in December of 1973.

The Sun is our local star. It is a relatively typical star among approximately 100 billion stars in our Milky Way galaxy. It is a ball of gas which is nearly 900,000 miles wide. This ball of gas is composed of 90 percent hydrogen, 9 percent helium, and 1 percent of all other elements such as carbon dioxide, nitrogen, oxygen, silicon, and iron. Its energy is produced by nuclear fusion reactions. These reactions are taking place in the hydrogen gas in the Sun's core. The temperature at the core is about 27 million °F. Here, the atoms that make up its main gas, hydrogen, have so much energy that they break apart, coming together again as helium gas. During this reaction a fantastic amount of energy pours out into space. This energy is in the form of light and heat (infrared rays), as well as many other kinds of radiation, such as gamma rays, X-rays, ultraviolet rays, and radio waves. Every second more than 4 million tons of matter are converted into energy . The Sun has enough fuel to continue to shine for another 5 billion years.

Solar Prominence



A *solar prominence* is a surge of glowing gas rising from the surface of the Sun up into the corona. The largest appear as huge arches that last several hours before collapsing back. A huge tongue of incandescent gas can shoot out from the Sun's surface more than 300,000 miles. They can erupt into space at speeds of more than 2 million miles per hour. Sometimes material is thrown up so fast that it escapes from the sun altogether. A smaller short-lived prominence is called a *spicule*. The photograph below shows a spectacular solar prominence witnessed in 1973 during the Skylab mission.

The Structure of the Sun

Corona The outer atmosphere of the Sun. It extends for several million miles into space. It is made up of very thin gas, forced into a fan shape or streamers by the Sun's magnetism.

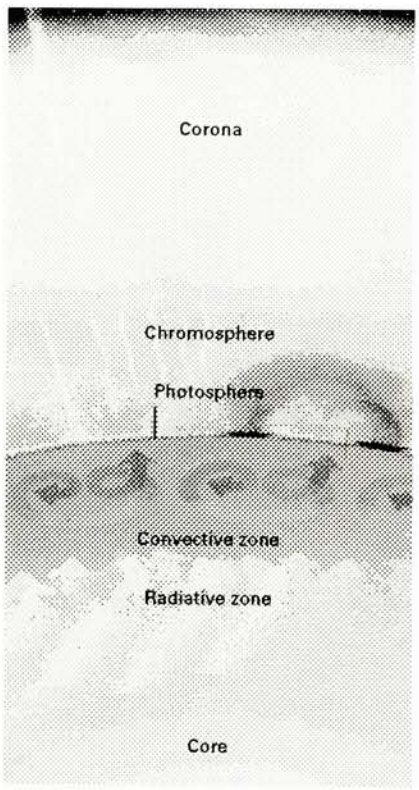
Chromosphere Lower part of the Sun's atmosphere, about 1,200 mi. thick. It is a thin layer of gases where temperatures are about 8000°F.

Photosphere The light-emitting surface layer of the Sun. Here, the temperature is about 11,000°F.

Convective zone The outer part of the Sun, in which hot gas rises to the surface, gives out energy, then sinks down to be heated again.

Radiative zone Surrounding the core is a radiative zone of hot gases. They transmit radiation part of the way from the core to the surface.

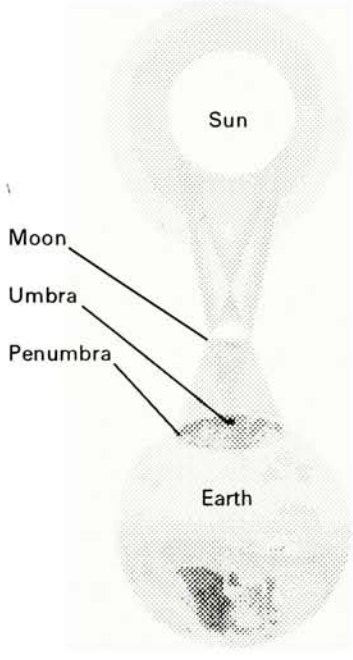
Core Energy is generated in the Sun's core by means of nuclear reactions that convert hydrogen into helium. The temperature at the core of the Sun rises to an incredible 27,000,000°F.



Solar Eclipse

An eclipse of the Sun occurs because of a strange astronomical coincidence. The Sun is four hundred times farther away from the Earth than the Moon, but its diameter is four hundred times greater than that of the Moon. The result of this is that both Sun and Moon appear much the same size in the Earth's sky.

From time to time, as the Moon travels in orbit around the Earth, it lines up exactly with the Sun and the Earth. When it comes between them, it blots out the Sun's light and casts a shadow on the Earth. Then we have an eclipse of the Sun, which is called a solar eclipse. The eclipse can only be seen from the places covered by the shadow. The shadow is made up of two parts, a dark comes between them, it blots out the Sun's light and casts a shadow on the Earth. Then we have an eclipse of the Sun, which is called a solar eclipse. The eclipse can only be seen from the places covered



by the shadow. The shadow is made up of two parts, a dark inner shadow called the *umbra* and a fainter outer shadow, the *penumbra.*

There are three types of solar eclipse, a total eclipse, a partial eclipse, and an annular eclipse. During a *total eclipse* the moon totally covers the Sun, and can only be seen from places within the umbra. The diameter of the umbra is usually about 90 miles wide. Beyond this strip a *partial eclipse* is seen. If the Moon's penumbra crosses Earth, instead of the umbra, only a partial eclipse is seen. An *annular eclipse* happens when the Moon is at its greatest distance from Earth and appears too small to cover the Sun completely. It cannot quite cover the Sun, even if they line up exactly. A ring of Sun is visible all round the edge of the Moon, so the corona cannot be seen.

Sunspots

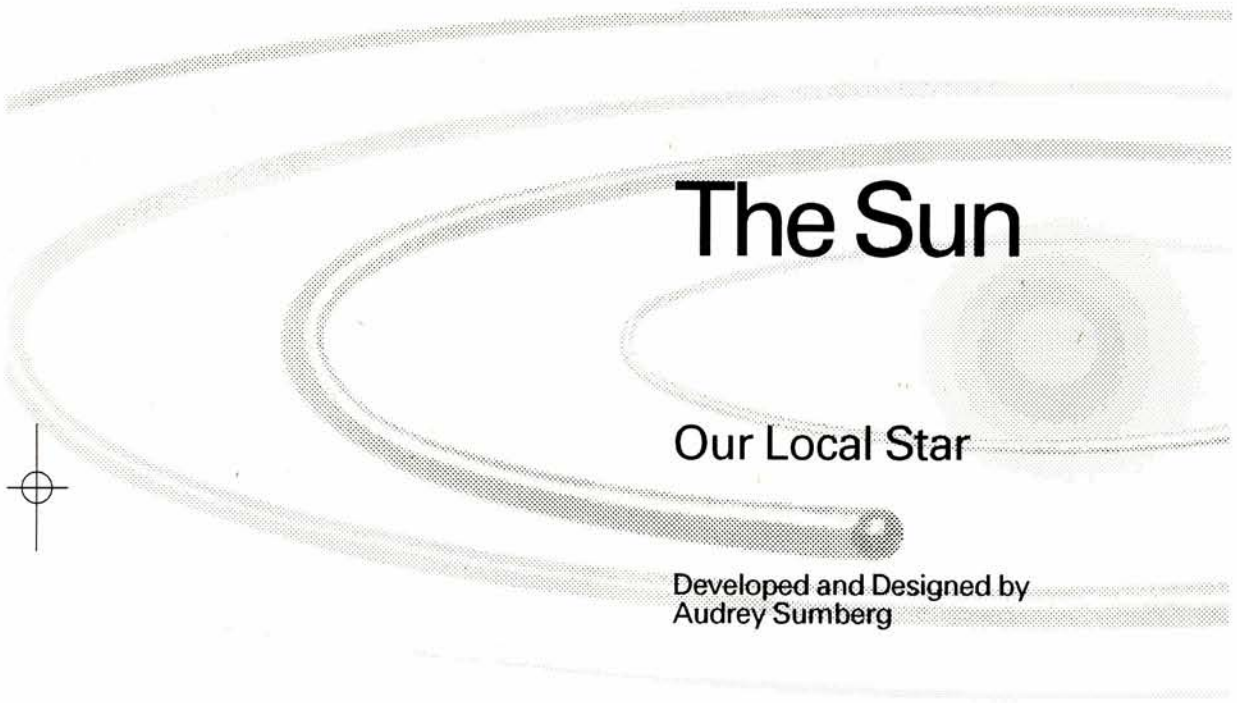
Dark patches on the photosphere, the visible surface of the Sun, are called *sunspots*. They are areas of intense magnetic activity that look dark. They look dark because they are about 3500°F cooler than the temperature of their surroundings. They usually appear in groups of two large and several smaller spots and may be visible for a few hours to several weeks. The number of sunspots on the Sun does not stay the same, but varies over a cycle of about 11 years. The last period of maximum sunspot activity was 1991, so the next will be 2002.

Exercise 1: size

1a- Text Dominant

1b- Image Dominant

1c- Even Emphasis



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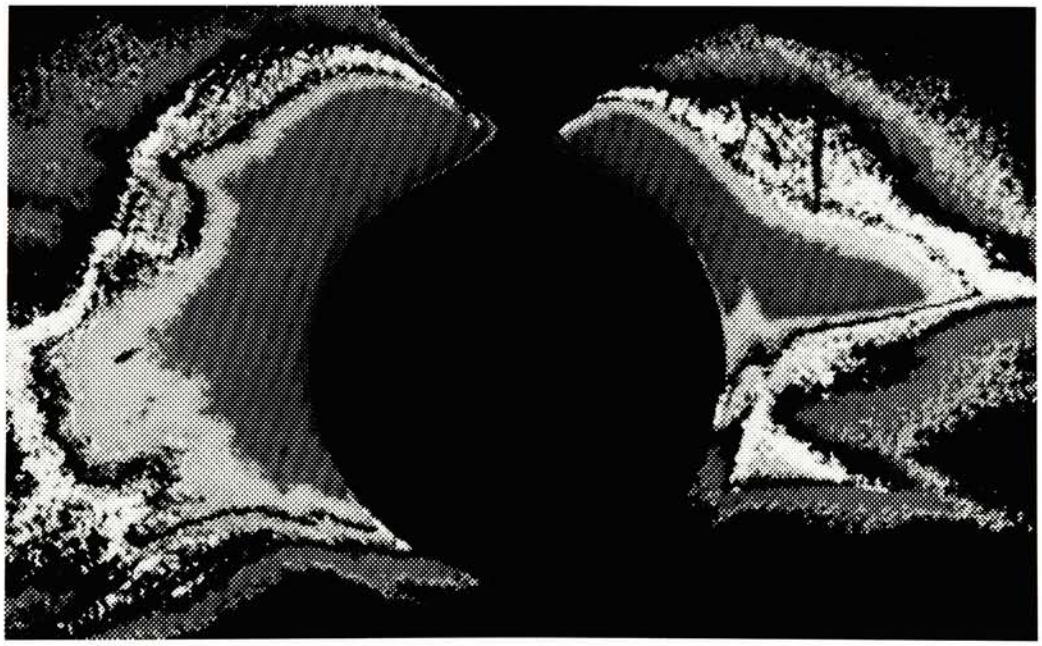
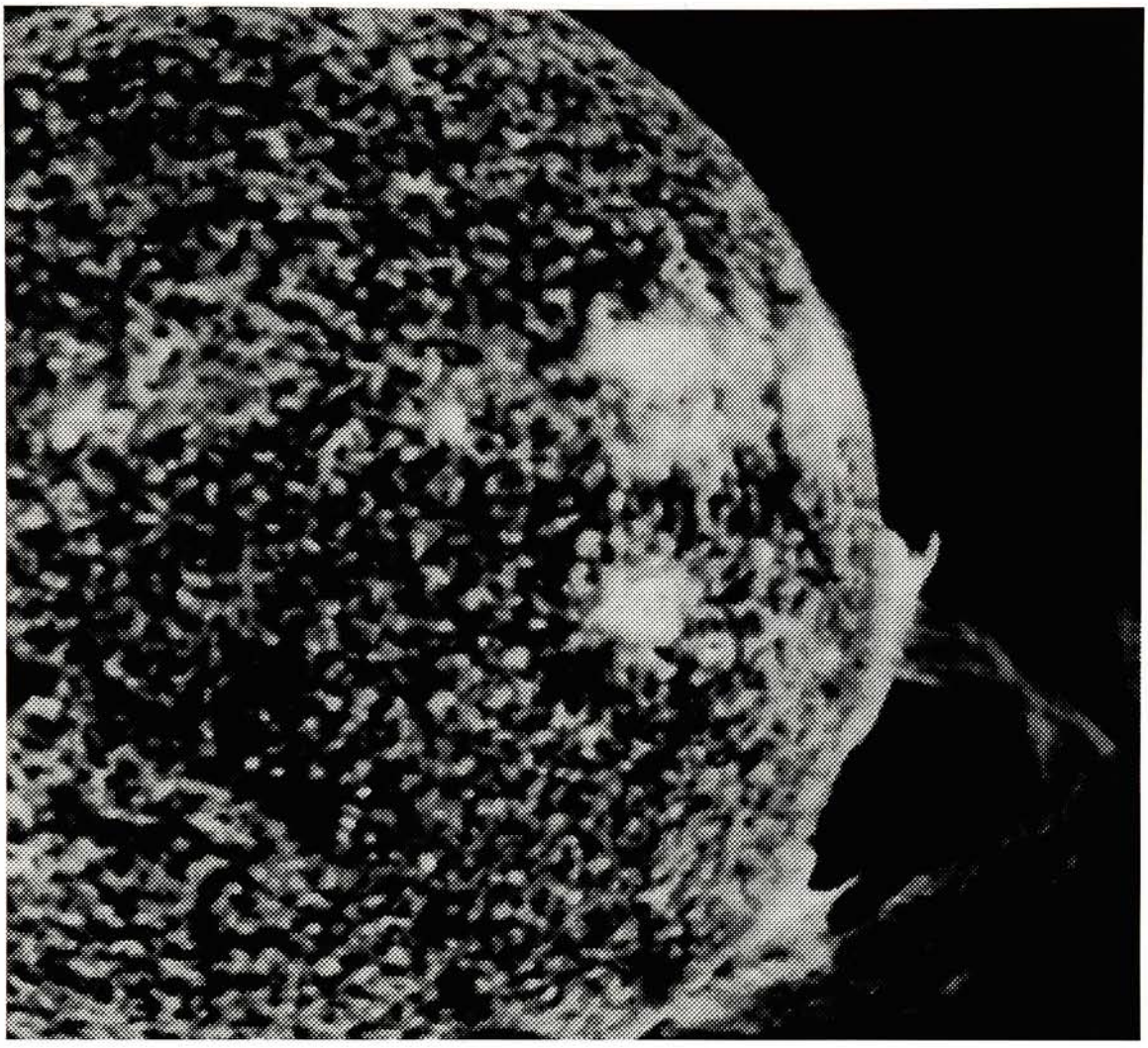
This Page: This false-color picture shows the Sun's corona, its outer atmosphere of rarified gases that extends for millions of miles in all directions. The Sun is the blacked-out disk in the center. This pictures was taken in 1973 during the Skylab project.

Opposite Page: This photograph shows a gigantic prominence. It was photographed by an ultraviolet telescope aboard Skylab as it lifted off the sun in December of 1973.





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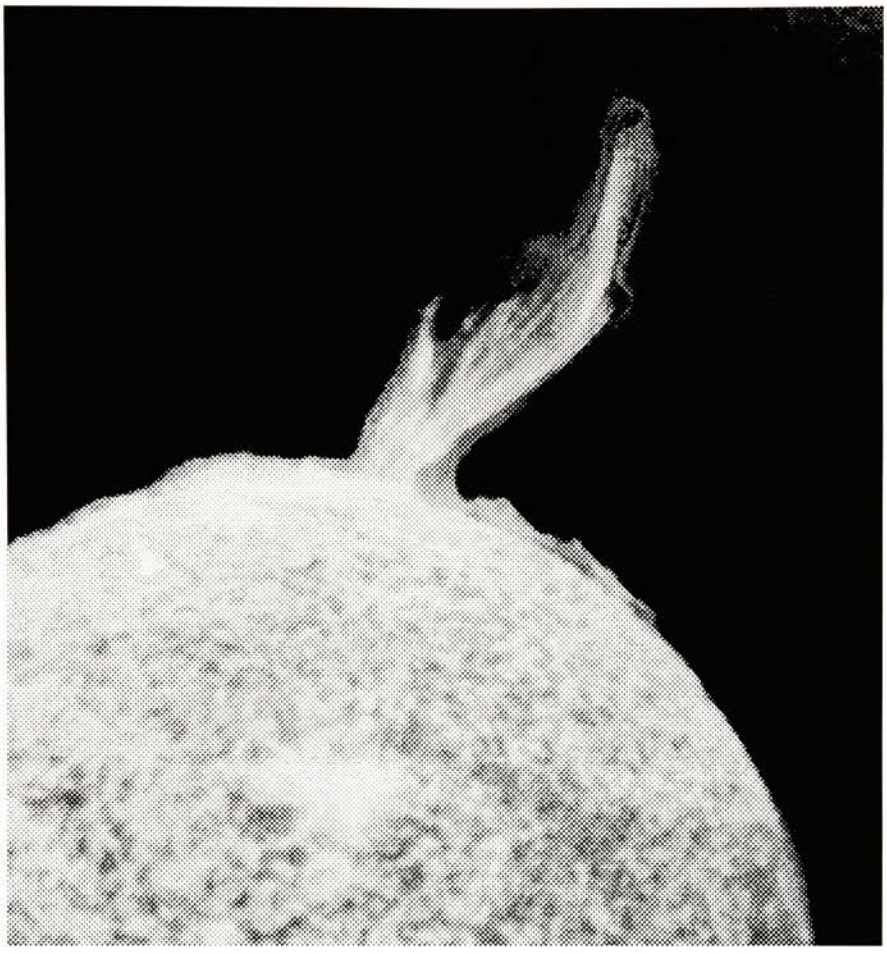

Solar Prominence

A *solar prominence* is a surge of glowing gas rising from the surface of the Sun up into the corona. The largest appear as huge arches that last several hours before collapsing back. A huge tongue of incandescent gas can shoot out from the Sun's surface more than 300,000 miles. They can erupt into space at speeds of more than 2 million miles per hour. Sometimes material is thrown up so fast that it escapes from the sun altogether. A smaller short-lived prominence is called a *spicule*. The photograph above shows a spectacular solar prominence witnessed in 1973 during the Skylab mission.

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Corona The outer atmosphere of the Sun. It extends for several million miles into space. It is made up of very thin gas, forced into a fan shape or streamers by the Sun's magnetism.

Chromosphere Lower part of the Sun's atmosphere, about 1,200 mi. thick. It is a thin layer of gases where temperatures are about 8000°F.

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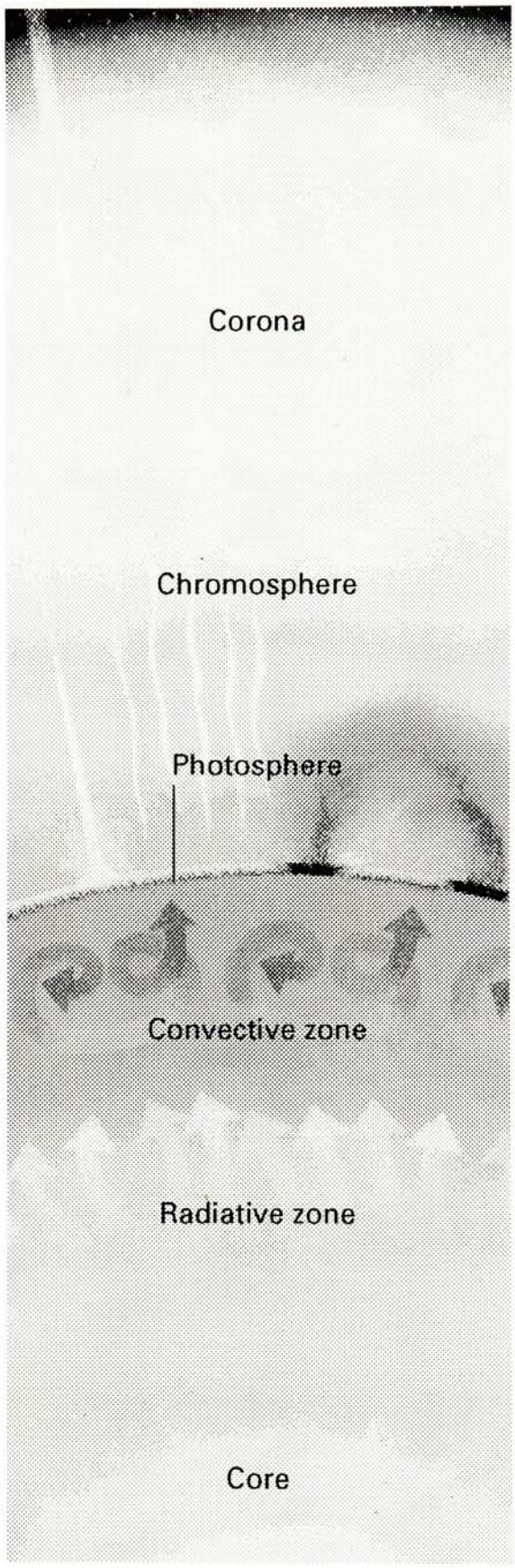

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From time to time, as the Moon travels in orbit around the Earth, it lines up exactly with the Sun and the Earth. When it comes between them, it blots out the Sun's light and casts a shadow on the Earth. Then we have an eclipse of the Sun, which is called a solar eclipse. The eclipse can only be seen from the places covered by the shadow. The shadow is made up of two parts, a dark inner shadow called the *umbra* and a fainter outer shadow, the *penumbra.*

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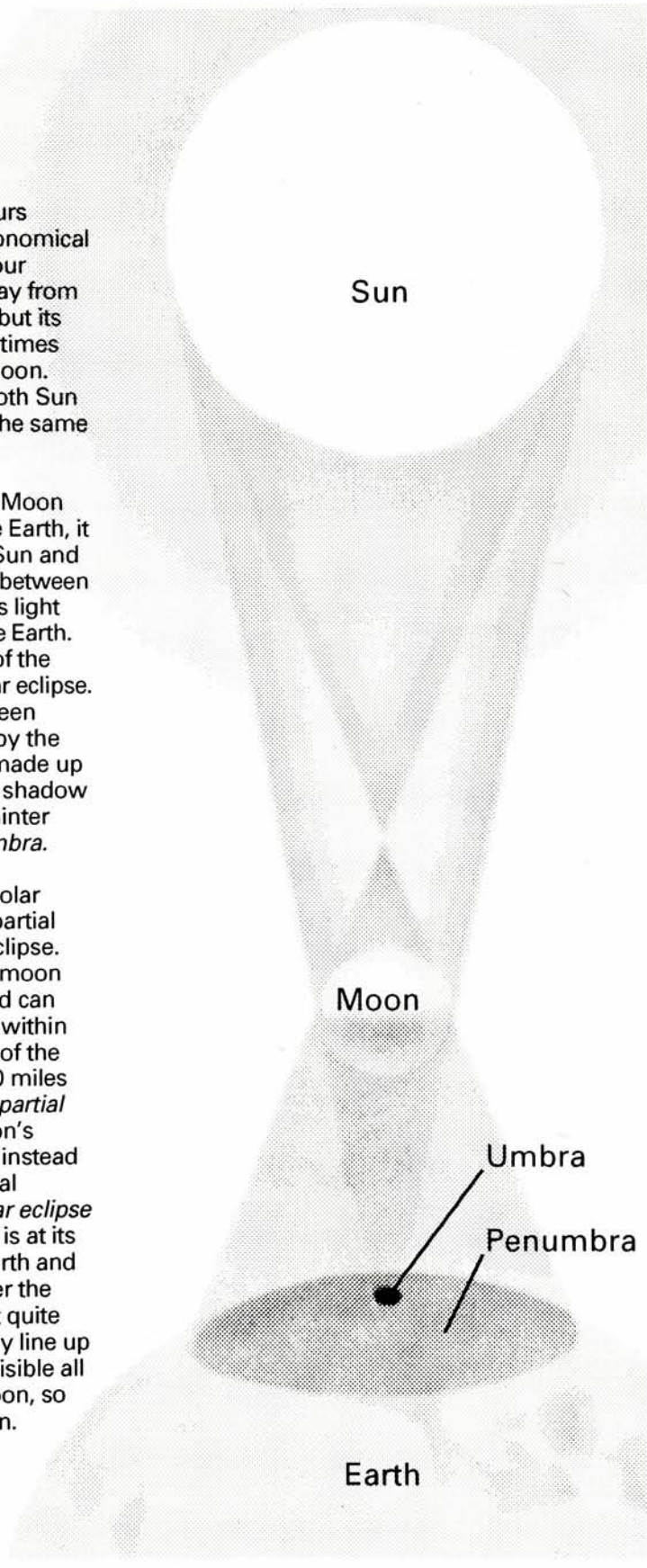

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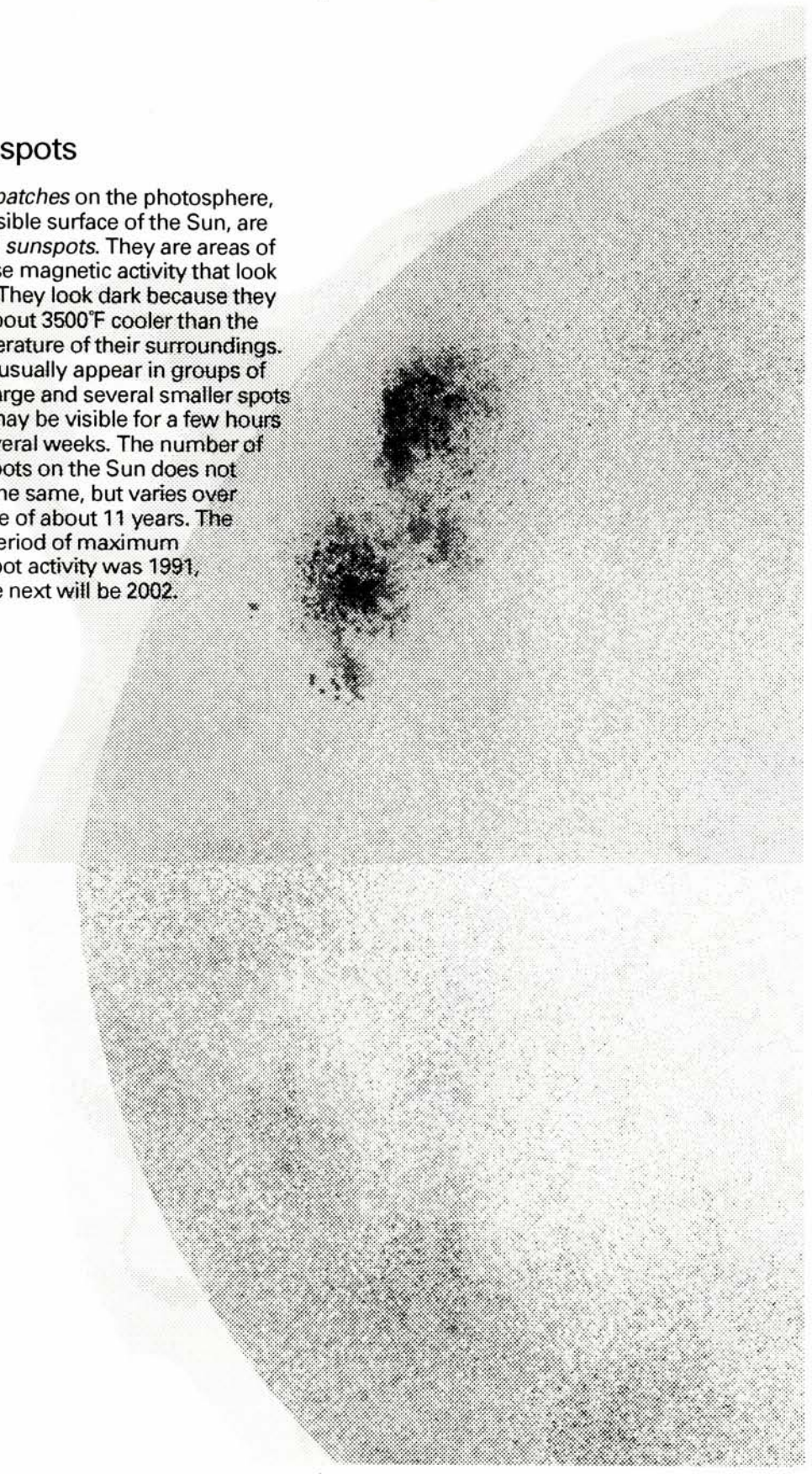


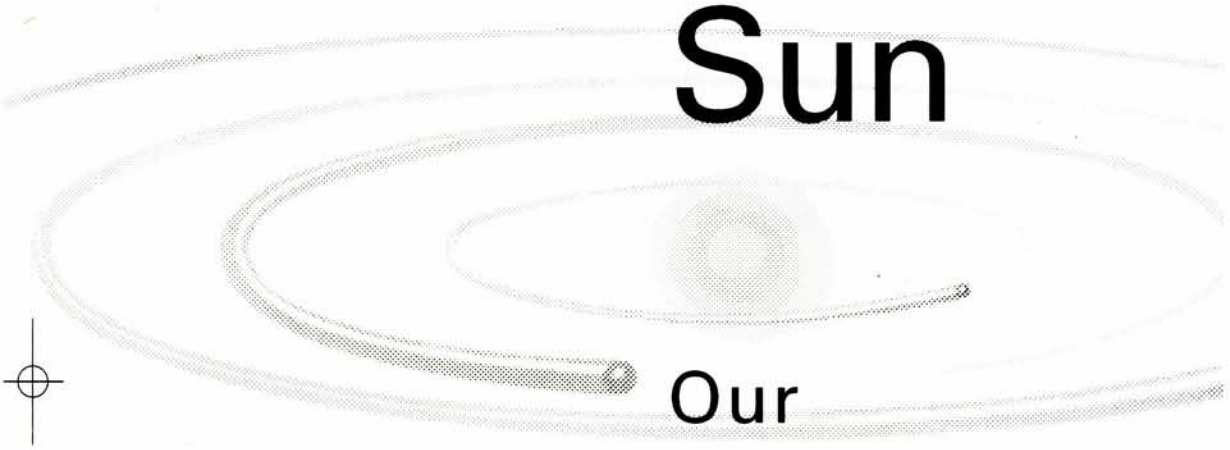
Exercise 1: size

1a- Text Dominant

1b- Image Dominant

1c- Even Emphasis

The Sun



Our Local Star

Written and Designed By
Audrey Sumberg

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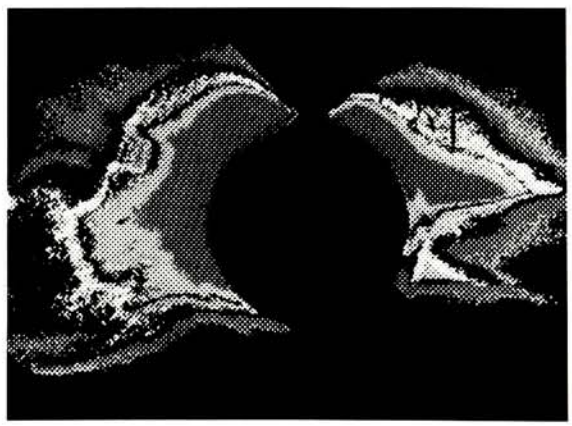

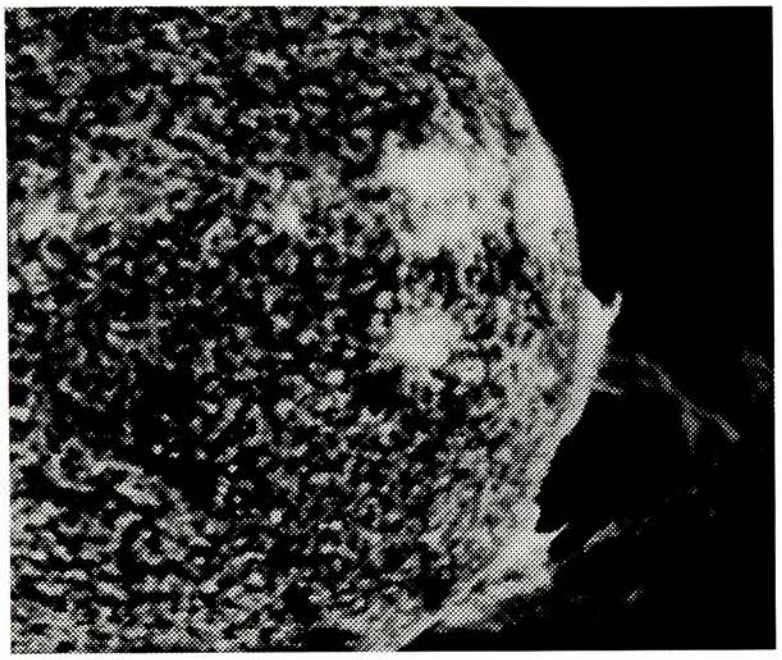

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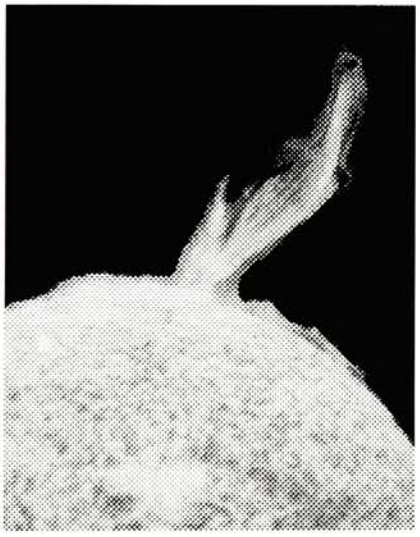

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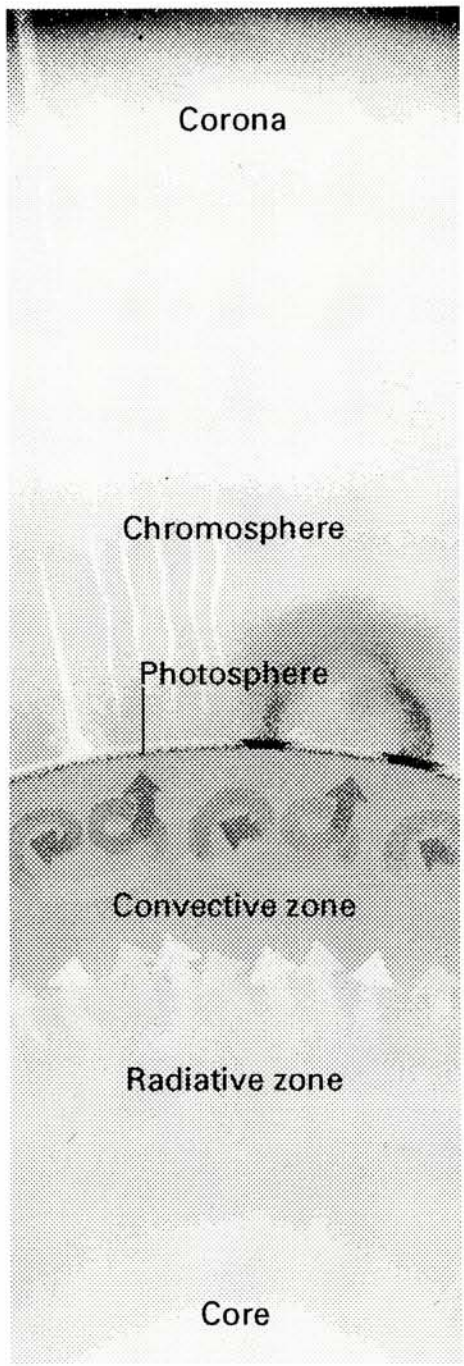

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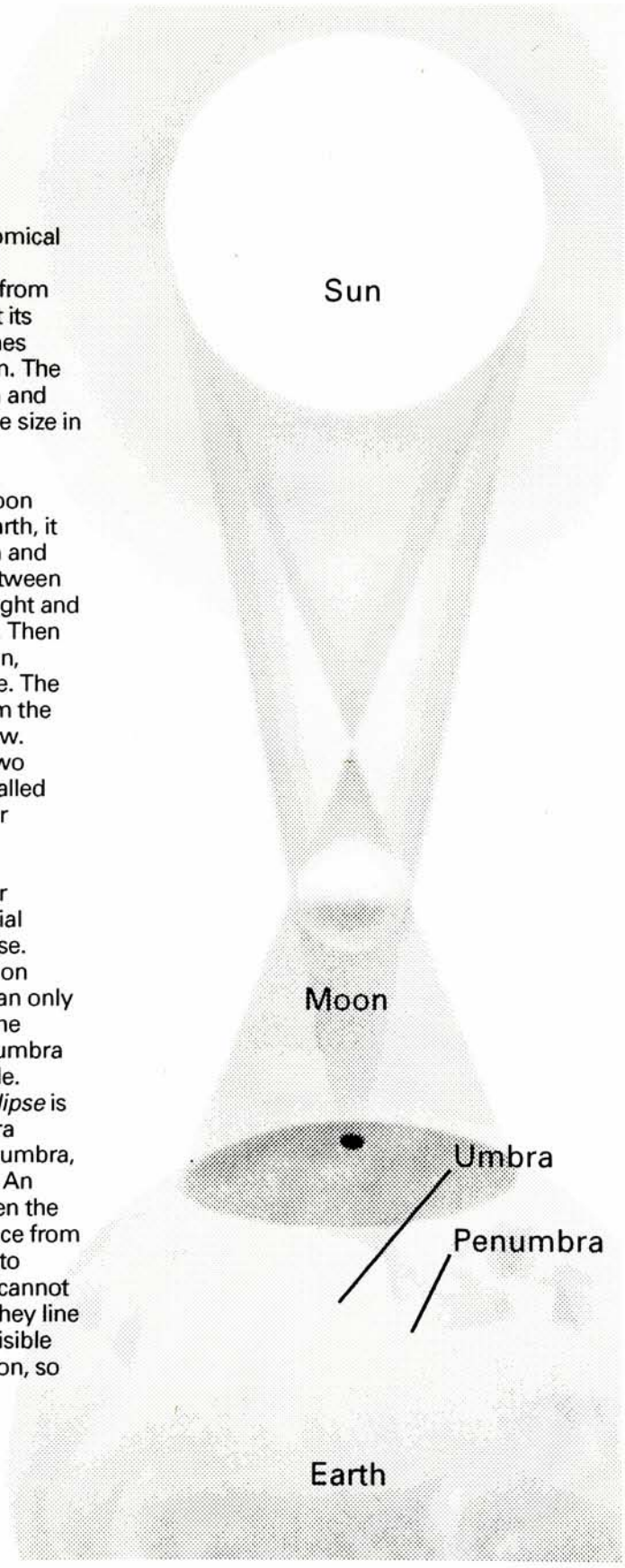

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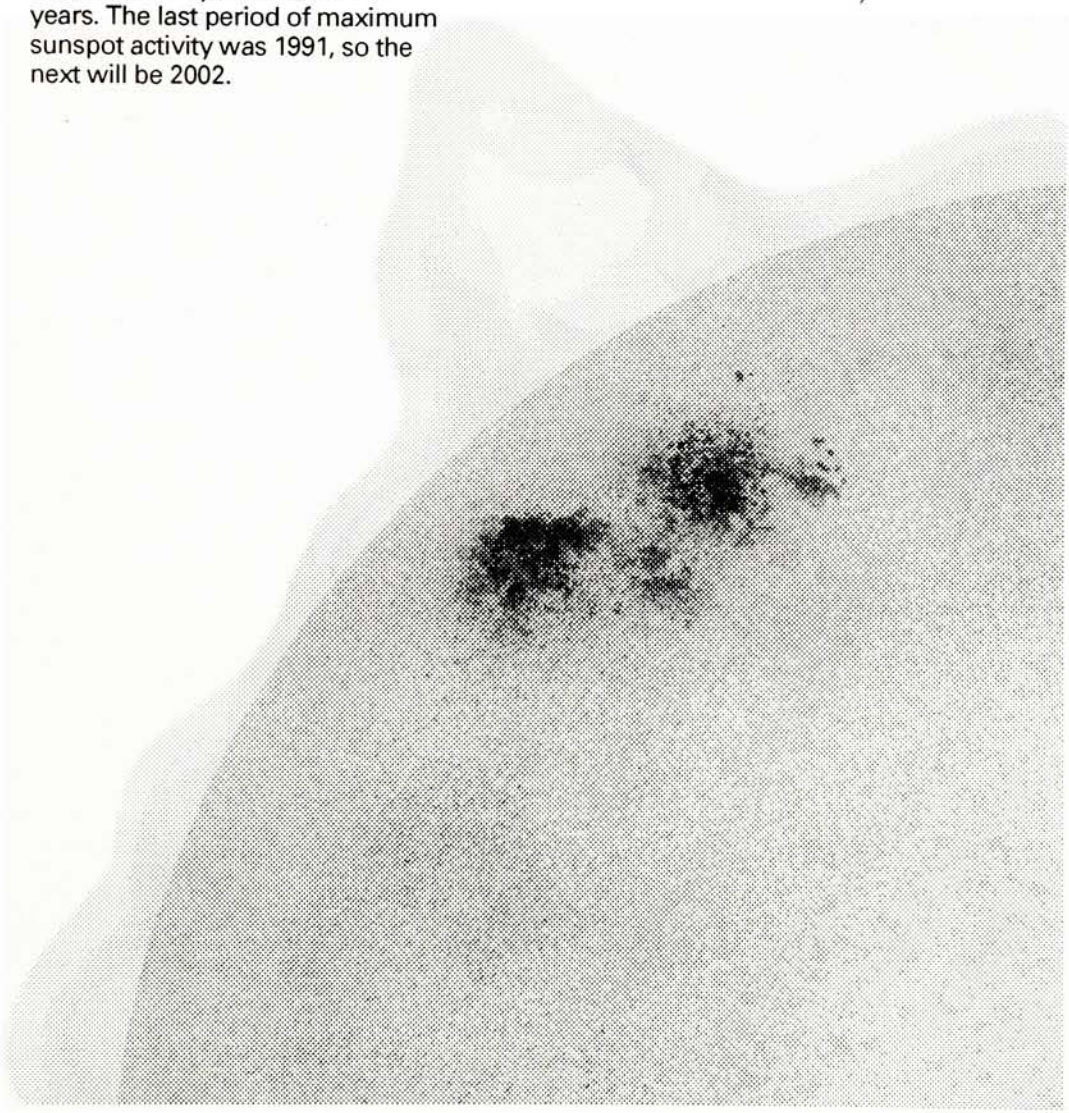

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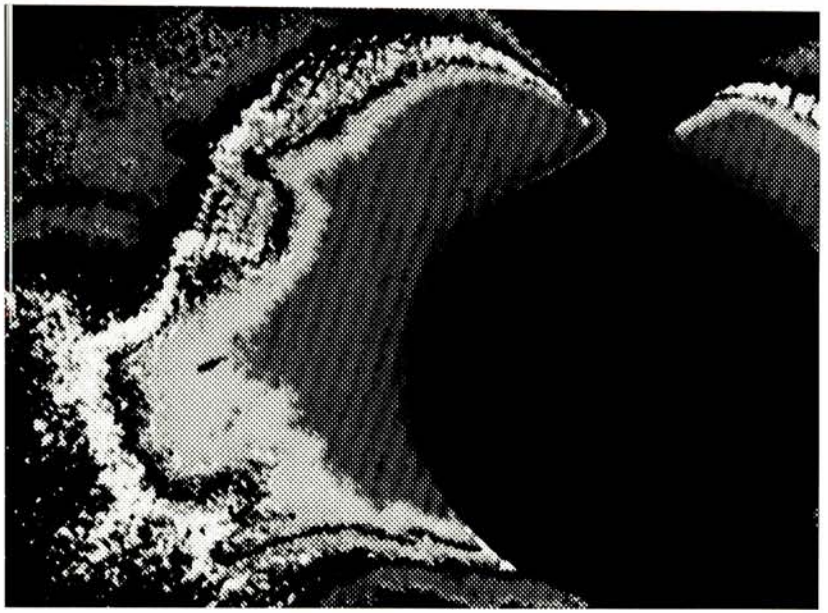

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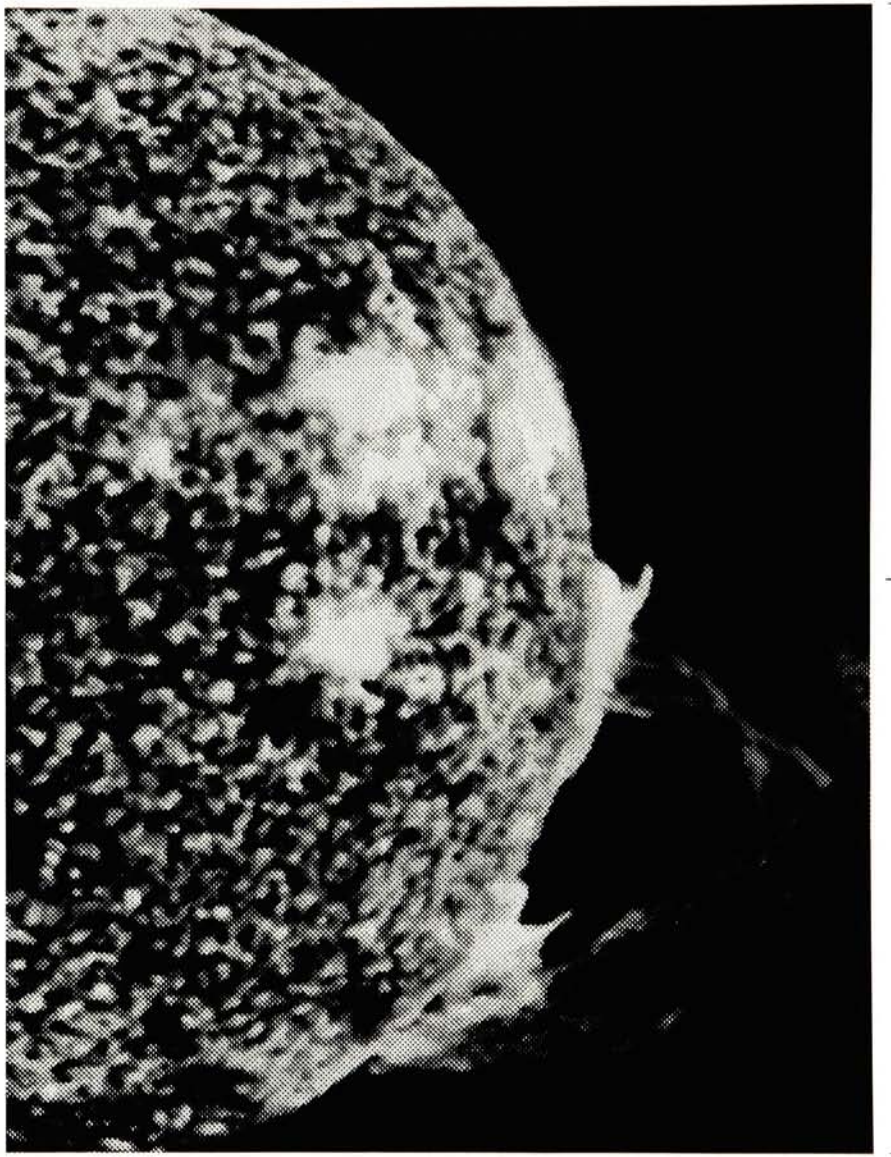

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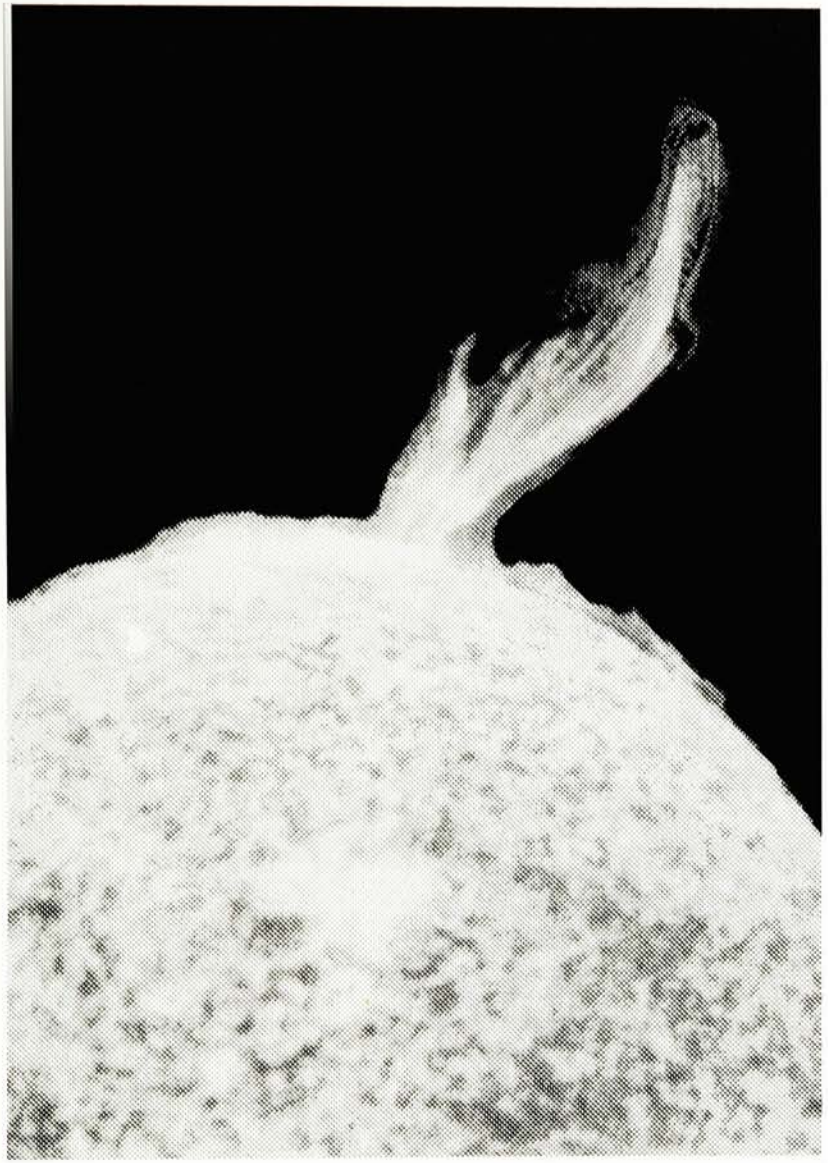

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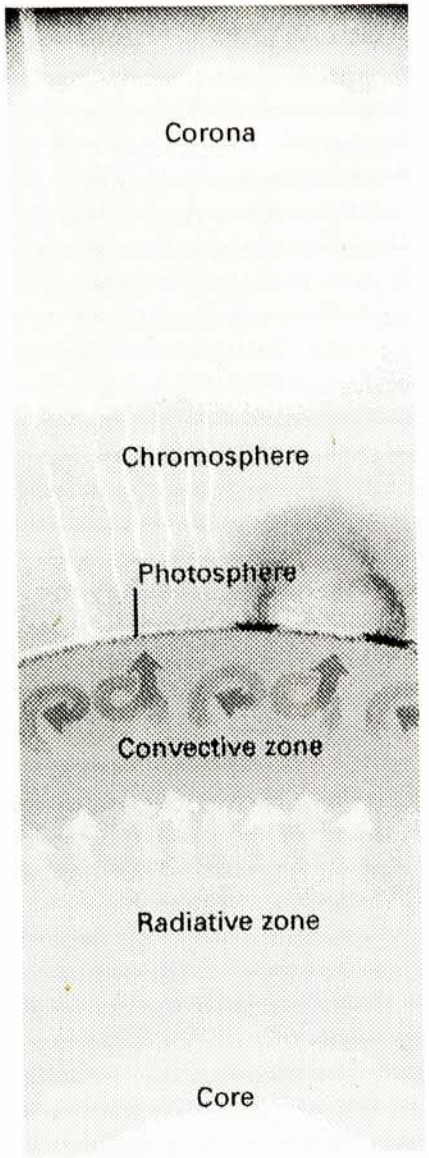

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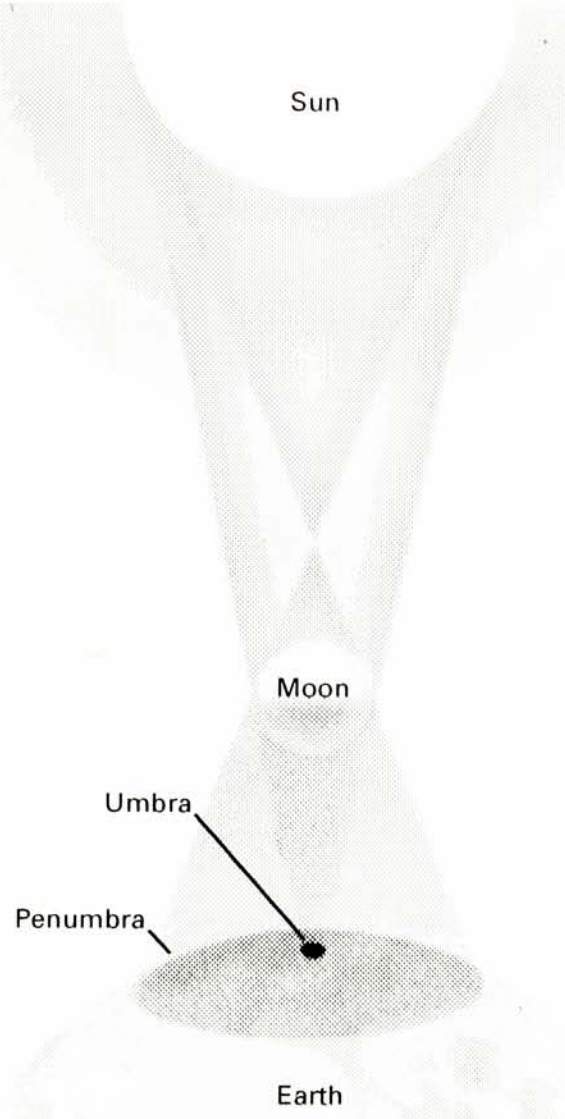

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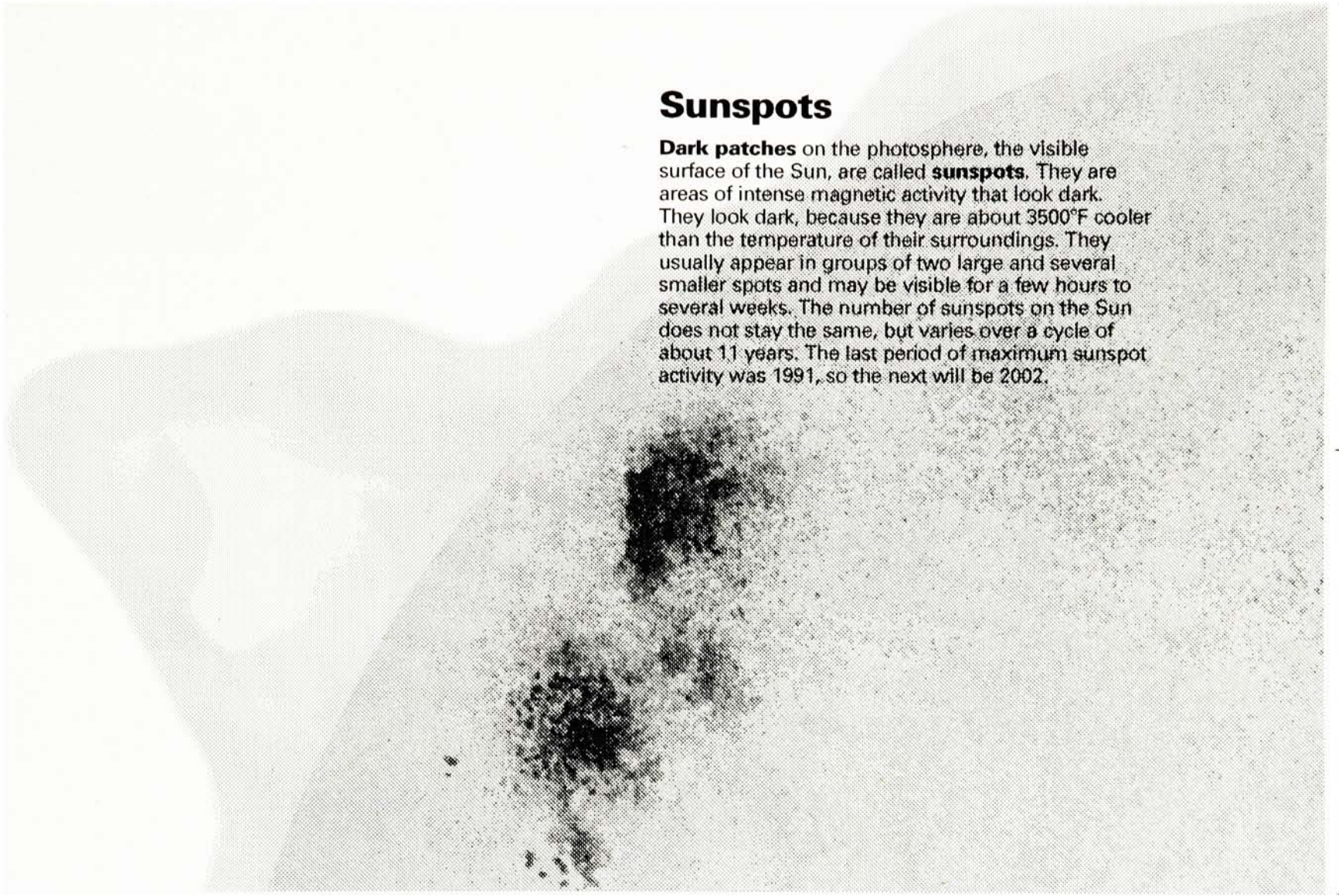

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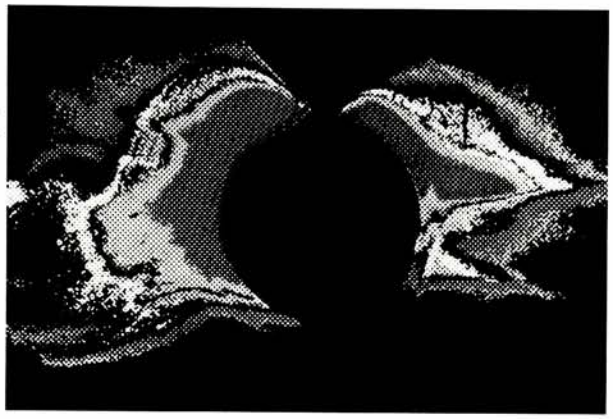

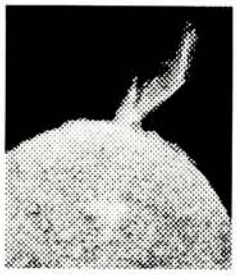

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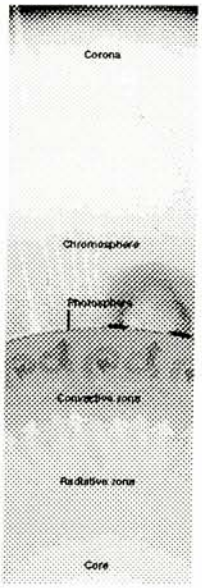

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Other Sources

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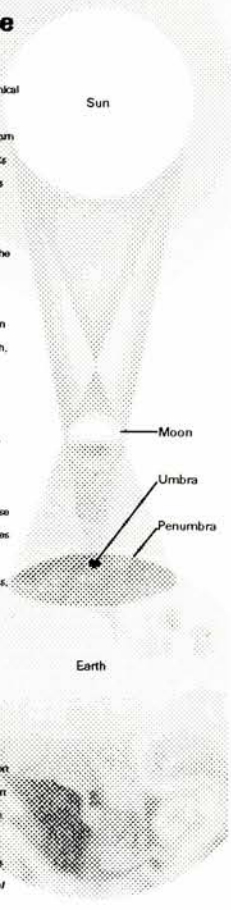
Solar Eclipse

An eclipse of the Sun occurs because of a strange astronomical coincidence. The Sun is four hundred times farther away from the Earth than the Moon, but its diameter is four hundred times greater than that of the Moon. The result of this is that both Sun and Moon appear much the same size in the Earth's sky.

From time to time, as the Moon travels in orbit around the Earth, it lines up exactly with the Sun and the Earth. When it comes between them, it blots out the Sun's light and casts a shadow on the Earth. Then we have an eclipse of the Sun, which is called a solar eclipse. The eclipse can only be seen from the places covered by the shadow. The shadow is made up of two parts, a dark inner shadow called the ***umbra*** and a fainter outer shadow, the ***penumbra***.



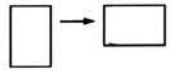
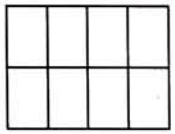
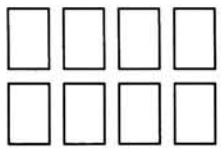
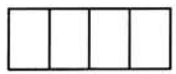
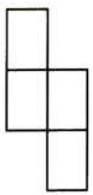
There are three types of solar eclipse, a total eclipse, a partial eclipse, and an annular eclipse. During a ***total eclipse*** the moon totally covers the Sun, and it can only be seen from places within the umbra. The diameter of the umbra is usually about 90 miles wide. Beyond this strip a ***partial eclipse*** is seen. If the Moon's penumbra crosses Earth, instead of the umbra, only a partial eclipse is seen. An ***annular eclipse*** happens when the Moon is at its greatest distance from Earth and appears too small to cover the Sun completely. It cannot quite cover the Sun, even if they line up exactly. A ring of Sun is visible all round the edge of the Moon, so the corona can be seen.

Sunspots

Dark patches on the photosphere, the visible surface of the Sun, are called ***sunspots***. They are areas of intense magnetic activity that look dark. They look dark, because they are about 3500°F cooler than the temperature of their surroundings. They usually appear in groups of two large and several smaller spots and may be visible for a few hours to several weeks. The number of sunspots on the Sun does not stay the same, but varies over a cycle of about 11 years. The last period of maximum sunspot activity was 1991, so that next will be 2001.

Simple

Complex

Format Analysis	Exercises				
	Text Dominant	Image Dominant	Equal Emphasis Text/Image	Orientation 	Weight
Poster 	Advantages • Text identifies subject matter • Focuses attention on verbal content • Importance of text maximized Disadvantages • Text constrains use of space • Static use of space • Limited interaction between images and text • Too little emphasis placed on images • Perceived amount of text may overwhelm viewer	Advantages • Images and text interact • Viewer's attention easily attracted • Dynamic use of space • Importance of images maximized • Images deliver global message Disadvantages • Potential for viewer to ignore text • Images compete with each other • Too little emphasis placed on text	Advantages • Delivers an integrated message • Text and images: -Work together to attract viewer's attention -Utilize the fullest potential of the format • Balanced use of space • Dynamic use of space • Images activate space • Sequence of information is clear • Importance of both text and images maximized Disadvantages • Text and images compete for viewer's attention • Some potential for images to fight with each other	Advantages • Dynamic use of space Disadvantages • Text is sometimes difficult to read • Each sub-section competes for the viewer's attention	Advantages • Guides viewer to key words within main text • Divides subject matter into sections • Draws attention to information outside of main text Disadvantages • Viewer may overlook non-weighted information
Sequence of Single Pages 	Advantages • Text and images work together to deliver information Disadvantages • Text overflows from one page to another destroying: -Functionality of format -Sequence of information • Images lose power to support text • Static use of space	Advantages • Text and images work together to deliver information • Images activate edges of each page • Dynamic use of space • Maximizes the use of images in accessing information Disadvantages • No perceived disadvantages		Advantages • Horizontal orientation facilitates access of information • Text is easy to read • Dynamic use of space • Back cover is easy to access Disadvantages • No perceived disadvantages	
Barrel Fold 	Advantages • Text flows easily from one page to another • Sequence of information is clear Disadvantages • Images lose power to support text • Element of surprise diminished • Static use of space • Perceived amount of text may overwhelm viewer	Advantages • Images identify the subject matter • Sequence of information is clear • Images activate edges of the format Disadvantages • Images compete with each other • Images have potential to overwhelm		Advantages • Vertical opening in combination with horizontal orientation facilitates access of information • Vertical opening is easy to use • Sequence of information is clear • Continuity of text • Effective interaction between images • Dynamic use of space • Text is easy to read Disadvantages • Difficult to access information on back cover	
Multi-directional Fold 	Advantages • Easy to compare information • Unconventional format • Element of surprise, i.e., information uncovered as pages unfold • Relatively long life span Disadvantages • Multi-directional folds may be confusing, i.e., sequence of pages may be unclear • Quantity of information limited • Requires use of both sides of format			Advantages • Horizontal orientation facilitates access of information • Text is easy to read • Dynamic use of space • Back cover is easy to access Disadvantages • Limited interaction between images	

Appendix 9 Evaluation Summary

9.1 Moderators Guide

9.2 Questionnaire

9.3 Summary of Responses

Guide for Evaluation

Introduction

Information about the focus group process

- Group participation
- Share ideas with the group/ ask questions
- When we use the tape recorder, I need to ask you to talk one at a time
- No wrong answers, just tell me what you think. You don't have to all agree.
- Just relax this should be fun

Agenda

- Explain who I am, and what I do. Simple explanation of graphic design.
- Group introductions- please introduce yourselves.
- During this session I would like you to help me figure out if my project works. Since the subject matter I have been working with is written for people your age, I thought it would be helpful to have your opinions on my project.
- I have been investigating format. (Have some real life examples to show as samples). (Define format). I have been looking at four different formats:
  - •The first format is a poster (show).
  - •The second format is a sequence of single pages (show).
  - •The third format is called a barrel fold (show).
  - •The fourth format is a multi-directional fold (show).
  - •What I want to learn is how different formats might influence the accessibility of the information.
  - •Accessibility means how easily you can access, or get to the information.
  - •Since I want to learn if the format makes any difference in how you get to the information, I put the same same information, words and pictures, into each of these four formats.
  - •The subject I have been working with is the Sun. There are facts and descriptions related to the Sun. Different aspects of the Sun are covered: its place in the universe, composition, structure, sunspots, solar prominences, and solar eclipses.
- Directions to teams
  - •I would like to break you into teams of two.
  - •Each team will be given there own copy of each of the formats, except the poster. The poster will be up here.
  - •I want each team to answer the same questions.
  - •You should look at each of the formats carefully before you answer the questions.
  - •Take a few minutes to look at each one, and see how they all work. Make sure you come and look at the poster, because you will need to look at it in order to answer the questions I'm handing out.
  - •Before you begin does any on have any questions?

Discussion

- Ask each team which format they picked as their favorite.
  - •What do you like about it?
- Ask each team which format makes the information most accessible
  - •How does it help make the information accessible?
- Ask each team which format they didn't like.
  - •What don't you like about it?

Thank you for your help.

Appendix 9

Evaluation Summary

9.1 Moderators Guide

9.2 Questionnaire

9.3 Summary of Responses

TEAM #1

PETER + DAN

Harley School Evaluation

1. Which format is the easiest to use? (check one)

- [ ] Poster
- [x] Sequence of Single Pages
- [ ] Barrel Fold
- [ ] Multi-Directional Fold

2. Which format is the hardest to use? (check one)

- [ ] Poster
- [ ] Sequence of Single Pages
- [ ] Barrel Fold
- [x] Multi-Directional Fold

3. Which format do you feel most comfortable using? (check one)

- [x] Poster
- [ ] Sequence of Single Pages
- [ ] Barrel Fold
- [ ] Multi-Directional Fold

4. Which format do you feel least comfortable using? (check one)

- [ ] Poster
- [ ] Sequence of Single Pages
- [ ] Barrel Fold
- [x] Multi-Directional Fold

5. Which format makes the information about the sun most accessible? (check one)

- [ ] Poster
- [x] Sequence of Single Pages
- [ ] Barrel Fold
- [ ] Multi-Directional Fold

6. Which format makes the information about the sun least accessible? (check one)

- [ ] Poster
- [ ] Sequence of Single Pages
- [ ] Barrel Fold
- [x] Multi-Directional Fold

7. Now that you have looked at all four formats I'd like you to rank them. Put a number 1 next to the format you would like to use the most to learn about the sun, a number 2 next to the one you would like to use second most and so forth.

- [2] Poster
- [1] Sequence of Single Pages
- [3] Barrel Fold
- [4] Multi-Directional Fold

TEAM # 2
DAN & WILL

Harley School Evaluation

1. Which format is the easiest to use? (check one)

- [ ] Poster
- [x] Sequence of Single Pages
- [ ] Barrel Fold
- [ ] Multi-Directional Fold

2. Which format is the hardest to use? (check one)

- [ ] Poster
- [ ] Sequence of Single Pages
- [ ] Barrel Fold
- [x] Multi-Directional Fold

It makes you feel like the packet's format is better than the infromation itself.

3. Which format do you feel most comfortable using? (check one)

- [x] Poster
- [ ] Sequence of Single Pages
- [ ] Barrel Fold
- [ ] Multi-Directional Fold

4. Which format do you feel least comfortable using? (check one)

- [ ] Poster
- [ ] Sequence of Single Pages
- [ ] Barrel Fold
- [x] Multi-Directional Fold

5. Which format makes the information about the sun most accessible? (check one)

- [ ] Poster
- [x] Sequence of Single Pages
- [ ] Barrel Fold
- [ ] Multi-Directional Fold

The more organized, the easier people will remember what was said.

6. Which format makes the information about the sun least accessible? (check one)

- [ ] Poster
- [ ] Sequence of Single Pages
- [ ] Barrel Fold
- [x] Multi-Directional Fold

7. Now that you have looked at all four formats I'd like you to rank them. Put a number 1 next to the format you would like to use the most to learn about the sun, a number 2 next to the one you would like to use second most and so forth.

- 2 [x] Poster
- 1 [x] Sequence of Single Pages
- 3 [x] Barrel Fold
- 4 [x] Multi-Directional Fold

Each of the formats are very interesting, but kids in general like the graphic design (which you have) rather than un-orthodox ways of folding out a packet.

Both Dan and I enjoy the simple page sequence.

Great job!

TEAM #3
MEGAN
EMILY
MANULA -

Harley School Evaluation

1. Which format is the easiest to use? (check one)

- [ ] Poster
- [ ] Sequence of Single Pages
- [x] Barrel Fold
- [ ] Multi-Directional Fold

2. Which format is the hardest to use? (check one)

- [x] Poster
- [ ] Sequence of Single Pages
- [ ] Barrel Fold
- [ ] Multi-Directional Fold

3. Which format do you feel most comfortable using? (check one)

- [ ] Poster
- [x] Sequence of Single Pages
- [ ] Barrel Fold
- [ ] Multi-Directional Fold

4. Which format do you feel least comfortable using? (check one)

- [ ] Poster
- [ ] Sequence of Single Pages
- [ ] Barrel Fold
- [x] Multi-Directional Fold

5. Which format makes the information about the sun most accessible? (check one)

- [ ] Poster
- [x] Sequence of Single Pages
- [ ] Barrel Fold
- [ ] Multi-Directional Fold

6. Which format makes the information about the sun least accessible? (check one)

- [x] Poster
- [ ] Sequence of Single Pages
- [ ] Barrel Fold
- [ ] Multi-Directional Fold

7. Now that you have looked at all four formats I'd like you to rank them. Put a number 1 next to the format you would like to use the most to learn about the sun, a number 2 next to the one you would like to use second most and so forth.

- [4] Poster
- [1] Sequence of Single Pages
- [2] Barrel Fold
- [3] Multi-Directional Fold

TEAM #1
BRANDON
PHILIP
BEN.

Harley School Evaluation

1. Which format is the easiest to use? (check one)

- [x] Poster
- [ ] Sequence of Single Pages
- [ ] Barrel Fold
- [ ] Multi-Directional Fold

— Easiest to Read

2. Which format is the hardest to use? (check one)

- [ ] Poster
- [ ] Sequence of Single Pages
- [x] Barrel Fold
- [ ] Multi-Directional Fold

- You have to flip side to side to Read INFO.

3. Which format do you feel most comfortable using? (check one)

- [x] Poster
- [ ] Sequence of Single Pages
- [ ] Barrel Fold
- [ ] Multi-Directional Fold

4. Which format do you feel least comfortable using? (check one)

- [ ] Poster
- [ ] Sequence of Single Pages
- [x] Barrel Fold
- [ ] Multi-Directional Fold

5. Which format makes the information about the sun most accessible? (check one)

- [x] Poster
- [ ] Sequence of Single Pages
- [ ] Barrel Fold
- [ ] Multi-Directional Fold

- Big pictures easy to Read

6. Which format makes the information about the sun least accessible? (check one)

- [ ] Poster
- [ ] Sequence of Single Pages
- [x] Barrel Fold
- [ ] Multi-Directional Fold

7. Now that you have looked at all four formats I'd like you to rank them. Put a number 1 next to the format you would like to use the most to learn about the sun, a number 2 next to the one you would like to use second most and so forth.

- [1] Poster
- [3] Sequence of Single Pages
- [4] Barrel Fold
- [2] Multi-Directional Fold

Harley School Evaluation

1. Which format is the easiest to use? (check one)

- [ ] Poster
- [x] Sequence of Single Pages
- [ ] Barrel Fold
- [ ] Multi-Directional Fold

2. Which format is the hardest to use? (check one)

- [ ] Poster
- [ ] Sequence of Single Pages
- [ ] Barrel Fold
- [x] Multi-Directional Fold

3. Which format do you feel most comfortable using? (check one)

- [ ] Poster
- [ ] Sequence of Single Pages
- [x] Barrel Fold
- [ ] Multi-Directional Fold

4. Which format do you feel least comfortable using? (check one)

- [x] Poster
- [ ] Sequence of Single Pages
- [ ] Barrel Fold
- [ ] Multi-Directional Fold

5. Which format makes the information about the sun most accessible? (check one)

- [x] Poster
- [ ] Sequence of Single Pages
- [ ] Barrel Fold
- [ ] Multi-Directional Fold

6. Which format makes the information about the sun least accessible? (check one)

- [ ] Poster
- [x] Sequence of Single Pages
- [ ] Barrel Fold
- [ ] Multi-Directional Fold

7. Now that you have looked at all four formats I'd like you to rank them. Put a number 1 next to the format you would like to use the most to learn about the sun, a number 2 next to the one you would like to use second most and so forth.

- [1] Poster
- [4] Sequence of Single Pages
- [2] Barrel Fold
- [3] Multi-Directional Fold

✓ Camille
• Amy

Harley School Evaluation

1. Which format is the easiest to use? (check one)

- [x] Poster
- [ ] Sequence of Single Pages
- [x] Barrel Fold
- [ ] Multi-Directional Fold

2. Which format is the hardest to use? (check one)

- [x] Poster
- [x] Sequence of Single Pages
- [ ] Barrel Fold
- [ ] Multi-Directional Fold

3. Which format do you feel most comfortable using? (check one)

- [x] Poster
- [x] Sequence of Single Pages
- [ ] Barrel Fold
- [ ] Multi-Directional Fold

Amy: if the pages were in a folder

4. Which format do you feel least comfortable using? (check one)

- [x] Poster
- [x] Sequence of Single Pages
- [ ] Barrel Fold
- [ ] Multi-Directional Fold

5. Which format makes the information about the sun most accessible? (check one)

- [x] Poster
- [ ] Sequence of Single Pages
- [ ] Barrel Fold
- [ ] Multi-Directional Fold

6. Which format makes the information about the sun least accessible? (check one)

- [ ] Poster
- [x] Sequence of Single Pages
- [ ] Barrel Fold
- [ ] Multi-Directional Fold

7. Now that you have looked at all four formats I'd like you to rank them. Put a number 1 next to the format you would like to use the most to learn about the sun, a number 2 next to the one you would like to use second most and so forth.

- [1] Poster [3]
- [4] Sequence of Single Pages [4]
- [3] Barrel Fold [1]
- [2] Multi-Directional Fold [2]

Camilla: I chose mainly the poster because it was the one I felt was best. This is because it was big (easy to see), had lots of images, and visual has a lot to do with how I chose. Also, it was just plain visually pleasing. The only bad thing is it's easier to take

Amy: I liked the style of the mutiple-fold design. I did not like the poster because its too hard to take home and study from.

Appendix 9 Evaluation Summary

9.1 Moderators Guide

9.2 Questionnaire

9.3 Summary of Responses

Harley School Evaluation

1. Which format is the easiest to use?

	Group 1	Group 2
Poster		4
Sequence of Single Pages	4	2
Barrel Fold	3	1
Multi-Directional Fold		

2. Which format is the hardest to use?

	Group 1	Group 2
Poster	3	1
Sequence of Single Pages		1
Barrel Fold		3
Multi-Directional Fold	4	2

3. Which format do you feel most comfortable using?

	Group 1	Group 2
Poster	4	4
Sequence of Single Pages	3	1
Barrel Fold		2
Multi-Directional Fold		

4. Which format do you feel least comfortable using?

	Group 1	Group 2
Poster		3
Sequence of Single Pages		1
Barrel Fold		3
Multi-Directional Fold	7	

5. Which format makes the information about the sun most accessible?

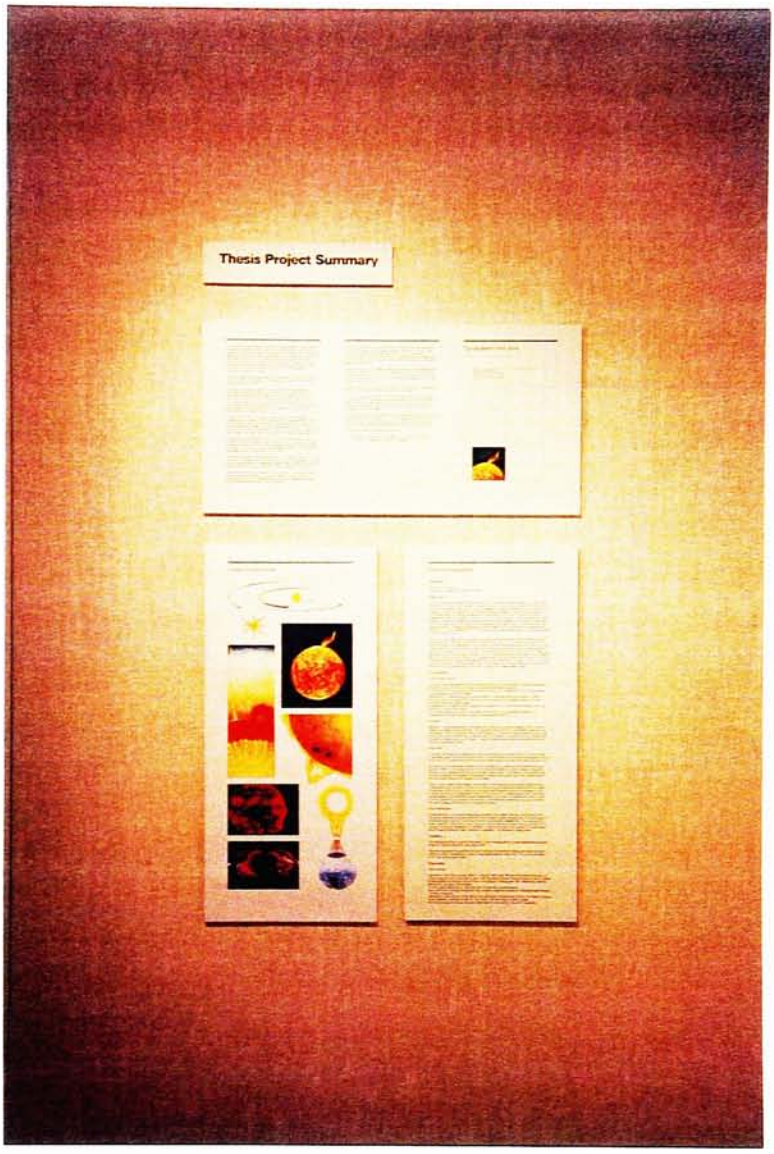
	Group 1	Group 2
Poster		6
Sequence of Single Pages	7	
Barrel Fold		1
Multi-Directional Fold		

6. Which format makes the information about the sun least accessible?

	Group 1	Group 2
Poster	3	1
Sequence of Single Pages		3
Barrel Fold		3
Multi-Directional Fold	4	

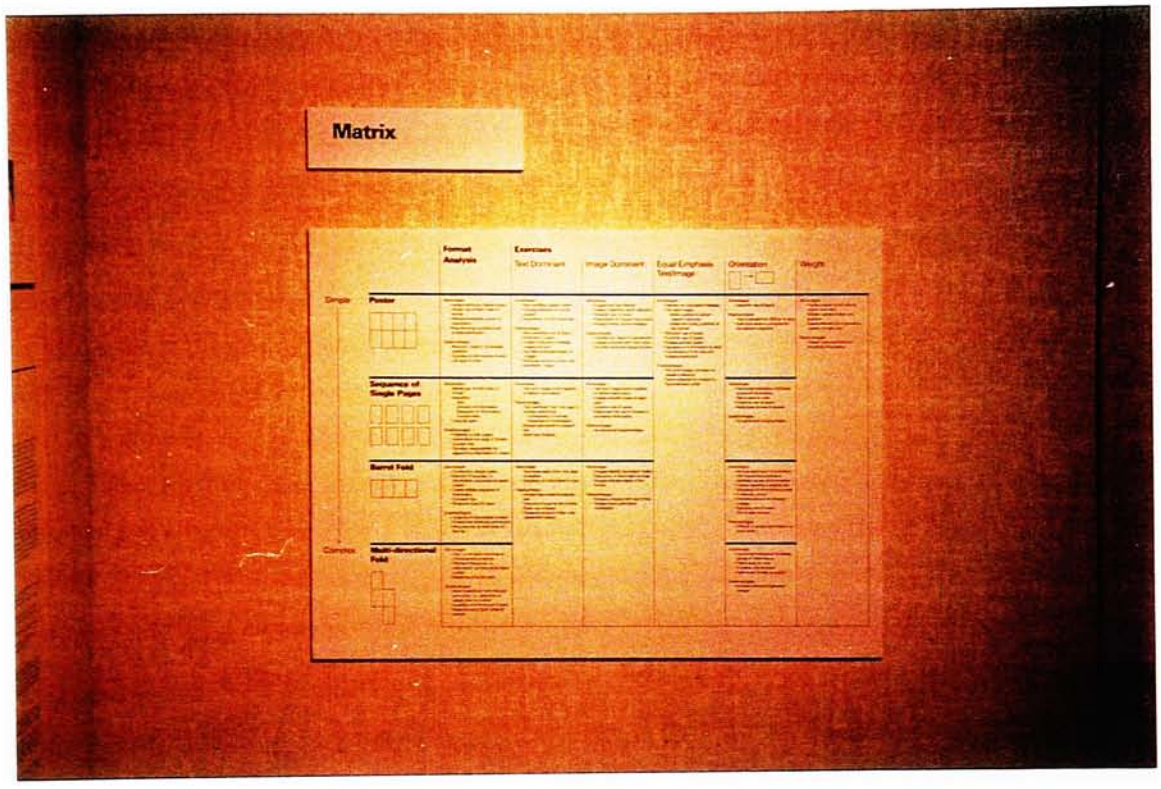
7. Now that you have looked at all four formats I'd like you to rank them. Put a number 1 next to the format you would like to use the most to learn about the sun, a number 2 next to the one you would like to use second most and so forth.

	Group 1		Group 2	
	1st	2nd	1st	2nd
Poster		4	6	
Sequence of Single Pages	7			
Barrel Fold		3	1	2
Multi-Directional Fold				5



Panel 1:

Thesis Project Summary



Panel 2:

Matrix

Panel 3:

Poster

Panel 4:

Sequence of Single Pages

Panel 5:

Barrel Fold

Panel 6:

Multi-Directional Fold

Overview of Gallery Space