Southwest photography workshop guidebook

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A thesis submitted to the Faculty of the
College of Imaging Arts and Sciences
in candidacy for the degree of Master of Fine Arts.

Melissa Lagod
May 20, 1998
Southwest Photography Workshop Guidebook
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Date May 21, 1998
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The Southwest Photography Workshop is a course at Rochester Institute of Technology which takes place in the summer and explores the Four Corners region of the southwestern United States. A guidebook for this course has existed for ten years. This guidebook has evolved into an important part of the workshop and its objectives. A guidebook of two volumes currently exists for the course. This guidebook is an important component of the workshop, but in its current form, information is difficult to locate, read, and understand. The purpose of this thesis project has been to evaluate and redesign the existing guidebooks.

Existing Guidebooks

**Volume A** provides an adequate introduction to the Southwest and its relationship to the history of photography, geology & climate, Native American culture and the Four Corners region. This volume should be read by participants prior to the workshop to familiarize themselves with the Southwest environment. **Volume B** contains maps, travel routes, interest points, and specific information about each area the workshop explores.

The information within **Volume A** is organized by category: history of photography, geology & climate, Native American culture and the Four Corners region. Information from books and magazines is mixed within each category. A clear organizational structure does not exist within each category. In other words, the information is not organized by alphabet, by location, by a continuum, or any other logical method.
The information within Volume B is difficult to locate and read. This volume is organized chronologically by time, following the route of the workshop: New Mexico, Colorado, Utah, Arizona. The second level of information in Volume B is also organized by time (Campsite 1 at Santa Fe National Forest, Campsite 2 at Orilla Verde State Park, etc.). The information is difficult to read because of the poor resolution in the text and maps. More importantly, information is difficult to locate because the information within each campsite is not clustered in an organizational manner. For example, in Campsite 1 (Santa Fe National Forest) the maps, travel routes, and interest points have no organizational structure. It is difficult and time consuming for the reader to locate specific information.

Conclusions About Existing Guidebooks

The workshop would be improved upon if Volumes A and B of the existing guidebook were combined and redesigned. This redesigned guidebook for the workshop could be organized in a clear manner, combining pre-existing information with some additional information to increase the effectiveness of the guidebook and further support the workshop itself.

The information within the redesigned guidebook will be organized in a systematic manner which will prioritize and support its educational objectives. The redesigned guidebook will be a useful, logically organized resource. The reader will be able to access a range of information in an optimal amount of time. The reader will be spending less time searching for information, freeing up more time to focus on photographing and exploring the area.
Research for this thesis study included the investigation of many topics including: travel photography, travel guides, mapping, publication design, typography, organizing methods, and information on Native American culture.

Researching travel guides such as Access, Lonely Planet, Fodor's, etc., was helpful. These travel guides gave examples of guidebook organization and its effectiveness. Observing the beginning of each chapter in these travel guides was important. The beginning of a chapter should be noticeable to the reader, as it signals a change of information. Observing the contents page of each travel guide was also important. Information must be in exact order and the reader should be able to understand how to use the travel guide. A travel guide would be difficult to use if the reader was not first familiar with the organization of the guidebook or the graphic symbols used throughout the publication.

Structural Grids

Research on the subject of publication design is another significant part of the project. Using a structural grid throughout a publication is crucial. A grid can provide order to the elements which exist in a publication. Testing the existing information on a range of different grids became the first step in the experimentation with grid structures. Travel guides such as Access, Lonely Planet, and Fodor's have either a two, or three column grid. The grids with three or more columns seem to offer more potential for the visual variety of each page. In other words, a three column grid can be divided into six columns which allows several places for visual elements.
A two column grid can be divided in four columns, although the places in which visual elements can be positioned is limited. A three or four column grid is more appropriate because it allows several places for visual elements to be positioned. Experimentation with horizontal divisions in the structural grid is also important. A layout is more structured with both vertical and horizontal axes. Horizontal divisions are especially important when using imagery in a publication. There are ten horizontal divisions in the grid chosen for the redesigned guidebook. This particular grid allows for imagery that ranges in size (very small, small, large, very large) and format (rectangular, square). This structural grid can be found in Appendix 1.

**Typography**
Research on typography provided information on the most appropriate typefaces for the project. There are advantages and disadvantages in the use of sans serif and serif typefaces for publication design. Serif is often thought to be easier to read at long lengths, although sans serif is easier to read at a small point size. Sans serif reproduces significantly better on a copy machine. This observation is important because the redesigned guidebook will be reproduced (photocopied) for the workshop participants. The redesigned guidebook uses the Univers typeface throughout the entire publication. This sans serif typeface reproduces well on a copy machine and is easy to read.
Organizing Methods
Preparing a content outline of the existing guidebook material was a helpful approach to understanding the types of material in the project. By looking at the content outline, different ways to organize the existing material were considered for the organization of the redesigned guidebook. A helpful resource was a section from the book *Information Anxiety* by Richard Saul Wurman. This book is particularly helpful because it explains five possible ways of organizing information: by category, by time, by location, by alphabet, or along a continuum.

Border Designs
Research about the Southwest was derived from fiction and non-fiction books. Two non-fiction books about Native Americans, *Indian Blankets & Their Makers* by George Wharton James and *Native American Spiritual Elders* by Steve Wall and Harvey Arden, revealed interesting blanket designs that were an influence when creating possible border designs. Four borders (one for each state) were created for use within the redesigned guidebook. The border designs provide a Southwestern visual flavor. The borders are also a functional indicator of change: a change in border indicates a move to the following state on the itinerary.
Synthesis

Content Diagrams
Applying different organizing methods was helpful in determining the appropriate structure of the redesigned guidebook. Four content diagrams were created to reveal possible, logical ways of organizing the information. Ken White (the workshop coordinator and professor), was consulted before choosing an appropriate content diagram to use as a method of organization for the redesigned guidebook. Ken White’s feedback was important. He has coordinated the workshop for ten years and is very familiar with the existing guidebooks and their use during the workshop.

The most appropriate content diagram, located in Appendix 2, illustrates the organizational structure used consistently throughout the redesigned guidebook. The leading organizational method within the redesigned guidebook is by time. The preliminary material in the guidebook should be read by students prior to the workshop. This material provides an introduction to the Southwest and its relationship to the history of photography, geology & climate, Native American culture, and the Four Corners region. Specific information about New Mexico, Colorado, Utah, and Arizona follows sequentially according to the travel route of the workshop. Within each state, the information is also organized by time and is divided into two subcategories: Campsites and Interest Points. Because of the large amount and variety of information within the Interest Points category, the information is subdivided again into listings by category: Craft Stores & Museums, Landscapes, State & National Parks, and Villages & Towns.
The specific information (about New Mexico, Colorado, Utah, and Arizona) that follows sequentially according to the travel route of the workshop is important. Speaking from experience, it would be easier to remember important details from the workshop when the travel route is identical to the primary organizational structure within the guidebook.

Other possible ways to organize the information were not as logical. Clustering the interest points by location was not as appropriate. A large amount of time would need to be spent to cluster the interest points by their location. And, if the primary organizational method was by alphabet, the students would not become as familiar with the route of the workshop.

In the existing guidebooks, the leading organizational method was also by time. Within each state, the information was organized by time as well. This information would jump from page to page in the existing guidebooks, making it difficult to locate specific information. New category labels (Craft Stores & Museums, Landscapes, State & National Parks, and Villages & Towns) were created for the redesigned guidebook so that information can be located effortlessly.

In the redesigned guidebook, the information within each category is listed alphabetically, not by location. Each night the students are expected to plan their activities and route for the following day. Students should ask themselves what interest points they want to observe or how the following day can be spent. This process familiarizes the students with specific regions of the Southwest and particularly the interest points located within each area.
The redesigned guidebook is intended to be used as a resource during the workshop. It is the student’s responsibility to discover which town or village a particular landscape or monument is located within. If a certain monument is over an hour from the campsite it would be logical to find other monuments nearby so that time is spent wisely. By looking on the maps, a student may find an interest point (that could be worth exploring) that is not highlighted in the guidebook, but would be interesting to photograph. Students may explore places that the workshop coordinator is unaware of. This is one reason the existing maps were left basically unedited and were not redrawn to be more particular to a fixed set of focal points.

A certain interest point highlighted in the guidebook may lead to several other interesting areas not noted in the guidebook. New discoveries may become possible additions that will enrich the workshop for the following year. Student input could be included in future editions of the redesigned guidebook.
Ideation

Placement and Size of Photographs, Found Objects, and Maps

There is a consistent plan for the size and placement for each type of visual element when used in the grid structure of the redesigned guidebook. Photographs range in size and position throughout the grid. Found objects, however, take up three vertical columns and are always placed in the top portion of the grid. This decision is used consistently throughout the entire redesigned guidebook.

There is a consistent plan for the placement of the maps throughout the redesigned guidebook as well. The maps are always placed at the top left side of a page. The maps either take up four, five, or six columns horizontally in the grid. The vertical depths of the maps vary somewhat. A map that takes up four columns horizontally is large enough to read and provides enough margin for rules which direct the reader to specific interest points. The size of the maps is an important factor in this project. A map which takes up less than four columns horizontally is difficult to read.

Visual Elements

The photographs that flow throughout the redesigned guidebook are images taken in the Southwest by the 1997 workshop participants. Appropriate maps and found objects (obtained by participants) will be included as well.
Other visual elements, such as graphic rules, which accompany photographs and found objects are used throughout the redesigned guidebook. Experimentation with variations in rule width and placement can be found in Appendix 3. In some cases, a rule may be distracting to an image. The most useful type of rule for this project was of hairline width, placed next to each image. Beneath this type of rule, a small label displays the location (town and state) of the where the image.

Graphic rules also accompany maps throughout the redesigned guidebook. These rules are used to anchor labels and headings. Experimentation with the widths and positions of these can be found in Appendix 4. The most appropriate type of rule for this project was of hairline width, ending with a dot which marks the location of an interest point on the map. Located to the right of each map is a label which indicates the name of the interest point.

Each map throughout the redesigned guidebook is clearly labeled. Experimentation with various labels can be found in Appendix 5. These labels display the location of a map. The most appropriate type of label is of twelve point width, displaying the location of the map.
Evaluation

The ideation process was crucial in the evaluation stage of the thesis project. From the ideation work, the most appropriate decisions were chosen for the redesigned guidebook. These final decisions are located in the new redesigned guidebook in Appendix 8.

Appropriate Visual Elements

Graphic rules accompany the imagery (photographs and found objects) throughout the redesigned guidebook. The most useful type of rule for this project was of hairline width, placed next to each image. Beneath this type of rule, a small label displays the location (town and state) of the image. Other variations were explored but were not as appropriate. The hairline rules were used to anchor labels.

Graphic rules also draw attention to the interest points on the maps throughout the redesigned guidebook. The most appropriate type of rule, located in Appendix 4 was of hairline width, ending with a dot which marks the location of an interest point. Other variations were explored but were not as appropriate. The hairline rules were not visually distracting to the maps. The hairline rule, by itself, was not bold enough to locate the exact location of an interest point. Vertical rules were explored as well, although a horizontal rule was a cleaner decision. Sufficient space is provided to the right side of each page for the appropriate labels. Limited space was available on the top and bottom of each page because several maps are vertical in format.
Evaluation (continued)

The most useful type of map label was of twelve point width. This heavy rule, found in Appendix 5, is located at the bottom of each map with reversed white type (revealing the location of the map). A heavy black rule is a clean and functional decision. The reversed white type is legible and noticeable. Other variations were explored but were not as appropriate. The heavy rule is located at the bottom of each map, therefore this rule is not distracting to the heading that occurs on every other page.

Paper Stock
Colored paper was added to the redesigned guidebook to separate each state (New Mexico: Copperplate; Colorado: Augusta Green; Utah: Graystone; Arizona: Earthstone). A change in color indicates a change in state. These colors represent those found in the Southwest. The grain within the papers are characteristic of the Southwest landscape.
Implementation

The thesis project was further refined, developed, and arranged to its final form after the evaluation stage. The feedback from all committee members was taken into consideration when preparing the final draft of the redesigned guidebook.

The new redesigned guidebook was output on photographic paper from an Imagesetter. From this final draft, twenty copies were reproduced on a copy machine. Each copy was bound with a comb bind. This type of binding allows easy insertion and removal of pages so that changes are not difficult to make.

The redesigned guidebooks will be distributed to the participants of the 1998 Southwest Photography Workshop. These guidebooks will be used throughout this workshop and future workshops. The suggestions from future participants may be used in future versions of the redesigned guidebook. The redesigned guidebook has been saved on disk for Ken White, to facilitate future revisions and/or additions that would improve the workshop experience.
Dissemination

The redesigned guidebooks will be distributed to participants of the 1998 Southwest Photography Workshop, two weeks prior to its departure. The students are expected to read the preliminary material before arriving in Albuquerque, New Mexico. The workshop begins on June 2, in Albuquerque, New Mexico. The redesigned guidebook will be needed upon departure from Albuquerque in order to travel to the first campsite. The redesigned guidebooks will be used throughout the workshop. The maps will be utilized for travel and the information will be a resource for each location. These guidebooks will be used while traveling, exploring, and learning about the Four Corners region.

Future versions of the redesigned guidebook may be refined or changed. Images may be replaced by future students and information may be added or revised. Beyond the workshop, the participants will be able to use the redesigned guidebook as a resource for independent research and travel as well as a personal memoir of the Southwest Photography Workshop.
Retrospective Evaluation

Two types of evaluation were conducted to evaluate the entire project. Two evaluation questionnaires were created for the evaluation of the redesigned guidebook. The second type of evaluation entailed the feedback from each thesis committee member on the thesis exhibition, documentation, ideation, and content of the evaluation questionnaire. The feedback from the evaluation questionnaires and from each thesis committee member was helpful and was followed by further refinements.

Evaluation Questionnaires

Two evaluation questionnaires were created for the evaluation of the redesigned guidebook. One questionnaire was made for the 1997 Workshop participants and a separate questionnaire was prepared for future participants of the workshop.

The questionnaire for the 1997 participants, located in Appendix 6, involves the comparison of the existing guidebooks with the redesigned guidebook. As these participants have actually used the existing guidebooks, they would be the most appropriate people to evaluate the effectiveness of the redesigned guidebook.

Seven participants attended the 1997 Workshop. The questionnaires were distributed to these individuals. Each of the seven participants completed the questionnaire with both the existing guidebooks and the redesigned guidebook, available for reference when needed.
Committee Feedback

Feedback was given by each thesis member on the evaluation questionnaire, thesis exhibition, documentation, ideation, and the evaluation questionnaire. Further refinement was necessary on the evaluation questionnaire. For example, some work on the language in the evaluation plan was necessary. Many graphic design terms that a designer is accustomed to may be unfamiliar to many participants.

The true test of the redesigned guidebook will be using it during the workshop. Analyzing comments and suggestions from the 1998 evaluation questionnaire will be very helpful. Future participants may comment on details not mentioned in the evaluation plan. This questionnaire is located in Appendix 7. The feedback from this questionnaire will be taken into consideration when further evaluating and refining the redesigned guidebooks. The 1998 evaluation questionnaires will be used again following the 1998 Southwest Photography Workshop.
Conclusion

The direct experience from attending the Southwest Photography Workshop in 1995 and 1997 and using the existing guidebooks extensively was an advantage throughout the entire thesis project.

The strong identification with the workshop has allowed the refinement and addition of existing material. Working with Ken White, the workshop coordinator and client, has been an important part of this thesis project as well. His ten years of experience teaching the Southwest Photography Workshop was an invaluable resource. His advice has proven to be extremely helpful and responsive to the needs of the workshop and its participants.

The imagery throughout the redesigned guidebook is from the 1997 workshop participants. These images show the diversity and abundance of inspiration available in the Southwest. The images used are intended to demonstrate the creativity of past participants and to inspire future participants. One of the most gratifying parts of this project has been to actually incorporate these images into the guidebook design.

The evaluation stage was helpful in assessing the success of this project. From the feedback received in the evaluation questionnaires, as well as direct personal experience with the existing guidebooks, the redesigned guidebook is a strong improvement from the existing guidebooks. Information is now easier to locate, read, and understand.
Glossary of Terms

Aesthetics  Refers to the process by which visual form is created, utilizing formal visual principles which are directed for a specific purpose and / or message.

Audience  Refers to the users of the graphic design application.

Communication  The purpose of graphic design is to facilitate messages and meaning or the purpose of communication.

Elements  The parts, components, or variables within a format.

Evaluation  The most basic purpose of all graphic design methodology is to develop the knowledge and skills to be able to solve a particular problem.

Form  The characteristics that distinguish one visual mark from another, including shape, size, color, and texture.

Format  The space in which an image lives and works. In determining formats, a designer needs to be conscious that in its most basic sense, the format is communicating a message by itself.

Function  The purpose for which all graphic design form exists. Function means design that works for its intended purpose.

Grid  A structured system or framework for organizing elements within a format. A grid can be conceptual or physical. It can be built upon typographic, compositional, or constructional bases. It can be regular, irregular, or progressive in rhythm.

Information Design  An emerging professional design activity in response to the needs of the information age. It is an area of design that is concerned with understanding reader and user response to written and visually presented information.
Glossary of Terms (continued)

**Legibility** The recognizability or readability of a form in relationship to its purpose and context. It may be representational, abstract, or a point which communicates its intended message clearly.

**Southwest Photography Workshop** A course at Rochester Institute of Technology which takes place in the summer and explores the Four Corners region of the southwestern United States.

**Typeface** Alphabet created for the purpose of reproduction. The individual characters of a typeface are designed to work in different combinations and to remain consistent when reproduced by printing.

**User Considerations** The objectives the student will understand and put to use after using the study guide.

**Variable** Refers to the identification of a set of predictable parts in a system from which the designer can select for his / her image formulation needs (i.e., typographic variables including size, line spacing, position, etc.).

**Visibility** Refers to the quality of form in an image and to its capacity to be viewed coherently and understood.


Appendices
Appendix 1  Final Publication Grid
Appendix 2 Final Content Diagram
### Preliminary Material

<table>
<thead>
<tr>
<th>Southwest</th>
<th>New Mexico Material</th>
<th>Colorado</th>
</tr>
</thead>
<tbody>
<tr>
<td>History of Photography</td>
<td>Native Americans</td>
<td>Four Corners</td>
</tr>
<tr>
<td>Essential Landscape</td>
<td>Anasazi Ruins</td>
<td>Four Corners</td>
</tr>
<tr>
<td>New Mexico Material</td>
<td>Early Man in the Southwest</td>
<td>Four Corners</td>
</tr>
<tr>
<td>Photography in New Mexico</td>
<td>Ruins of the Ancients</td>
<td>Four Corners</td>
</tr>
</tbody>
</table>

### New Mexico Material

1. **Campsite 1** De Anza Motor Lodge
   - Santa Fe National Forest
   - Orilla Verde State Park

2. **Campsite 2** Santa Fe National Forest
   - Orilla Verde State Park
   - De Anza Motor Lodge

3. **Campsite 3** Orilla Verde State Park
   - De Anza Motor Lodge
   - Santa Fe National Forest

4. **Campsite 4** Bisti Wilderness
   - De Anza Motor Lodge
   - Santa Fe National Forest
Appendix 3 Ideation for Variations in Rule Placement and Labels

Approach A

Approach B
Appendix 3 (continued) Ideation for Variations in Rule Placement and Labels

Approach C

Approach D
Appendix 3 (continued) Ideation for Variations in Rule Placement and Labels

Approach E

Approach F
Appendix 4 Ideation for Variations in Rule Placement and Labels

Approach A
Appendix 4 (continued) Ideation for Variations in Rule Placement and Labels

Approach B
Appendix 4 (continued) Ideation for Variations in Rule Placement and Labels

Jemez Springs & Vicinity

Approach C
Appendix 5 Ideation for Variations in Rule Placement and Labels
Appendix 5 (continued) Ideation for Variations in Rule Placement and Labels

Approach B
Appendix 5 (continued) Ideation for Variations in Rule Placement and Labels
Appendix 5 (continued) Ideation for Variations in Rule Placement and Labels
Appendix 5 (continued) Ideation for Variations in Rule Placement and Labels

Jemez Springs & Vicinity

Approach E
Appendix 6 Evaluation Questionnaire 1

Comparison of Existing Guidebooks to 1998 Redesigned Guidebook
1997 Southwest Photography Workshop
Past Participant

1. Have the campsites and states been more clearly separated in the new 1998 redesigned guidebook.

5 strongly agree 4 3 2 1 strongly disagree

Please explain

2. In general, is information easier to locate in the new redesigned guidebook than in the existing guidebooks.

5 strongly agree 4 3 2 1 strongly disagree

Please explain

3. Are the maps easier to read and use in the new redesigned guidebook than in the existing guidebooks.

5 strongly agree 4 3 2 1 strongly disagree

Please explain

4. Are the directions to each interest point easier to access in the new redesigned guidebook?

Yes No

Other comments

5. The new redesigned guidebook is organized first by time (Campsite 1, Campsite 2, Campsite 3, etc.), second by category (Craft Stores & Museums, Landscapes, State & National Parks, and Villages & Towns), and lastly, by alphabet (A, B, C). Is this helpful?

5 strongly agree 4 3 2 1 strongly disagree

Please explain
Appendix 6 (continued) Evaluation Questionnaire

6. Is the use of lines helpful when finding the interest points on the maps.
   
   5 strongly agree  4  3  2  1 strongly disagree
   Please explain _____________________________________________________________
   _____________________________________________________________
   _____________________________________________________________

7. The black bars with white text, placed at the bottom of each map, reveal the location of the entire map. Is this helpful?
   
   5 strongly agree  4  3  2  1 strongly disagree
   Please explain _____________________________________________________________
   _____________________________________________________________
   _____________________________________________________________

8. Is the photography supplies information (the villages or towns where they are sold) helpful?
   Yes  No
   Other comments ___________________________________________________________
   _____________________________________________________________

9. At the beginning of each chapter, small italicized text indicates the number of days the group will spend at the campsite. Is this helpful?
   
   5 strongly agree  4  3  2  1 strongly disagree
   Please explain _____________________________________________________________
   _____________________________________________________________

10. Is the text easy to read throughout the entire new redesigned guidebook?
    Yes  No
    Other comments ___________________________________________________________
    _____________________________________________________________

11. In the Interest Points section, the information is organized alphabetically. Is this helpful?
    
    5 strongly agree  4  3  2  1 strongly disagree
    Please explain _____________________________________________________________
    _____________________________________________________________
1. Have the campsites and states been more clearly separated in the new 1998 redesigned guidebook?

<table>
<thead>
<tr>
<th></th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>strongly disagree</td>
</tr>
</tbody>
</table>

Please explain: Yes, before the information was too spread out, maps were hard to read; it was too difficult to read before.

2. In general, is information easier to locate in the new redesigned guidebook than in the existing guidebooks.

<table>
<thead>
<tr>
<th></th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>strongly disagree</td>
</tr>
</tbody>
</table>

Please explain: Yes, the maps are right next to the information.

3. Are the maps easier to read and use in the new redesigned guidebook than in the existing guidebooks.

<table>
<thead>
<tr>
<th></th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>strongly disagree</td>
</tr>
</tbody>
</table>

Please explain: Yes, because they are right next to each other.

4. Are the directions to each interest point easier to access in the new redesigned guidebook.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>No</th>
</tr>
</thead>
</table>

Other Comments: Yes, the maps are clearer, no messiness.

5. The new redesigned guidebook is organized first by time (Campsite 1, Campsite 2, Campsite 3, etc.), second by category, (Craft Stores & Museums, Landscapes, State & National Parks, and Villages & Towns), and lastly, by alphabet (A, B, C). Is this helpful?

<table>
<thead>
<tr>
<th></th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please explain: A nice to have the information organized according to subjects.
6. Is the use of lines helpful when finding the interest points on the maps.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1 Strongly disagree</th>
</tr>
</thead>
</table>

Please explain: It makes it easier to locate on maps when we know what we're looking for.

7. The black bars with white text, placed at the bottom of each map, reveal the location of the entire map. Is this helpful?

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1 Strongly disagree</th>
</tr>
</thead>
</table>

Please explain: It helps to know what you're looking at.

8. Is the photography supplies information (the villages or towns where they are sold) helpful?

Yes | No

Other Comments: It gives us an idea of what is available.

9. At the beginning of each chapter, small italicized text indicates the number of days the group will spend at the campsite. Is this helpful?

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1 Strongly disagree</th>
</tr>
</thead>
</table>

Please explain: Of course we want to know how long we'll be staying at each campsite.

10. Is the text easy to read throughout the entire new redesigned guidebook?

Yes | No

Other Comments: Well organized, good layout.

11. In the Interest Points section, the information is organized alphabetically. Is this helpful?

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1 Strongly disagree</th>
</tr>
</thead>
</table>

Please explain: It just makes it easy to find what you're looking for.
Questionnaire 1
Comparison of Existing Guidebooks to 1998 Redesigned Guidebook
1997 Southwest Photography Workshop
Past Participant

1. Have the campsites and states been more clearly separated in the new 1998 redesigned guidebook?
   5) strongly agree 3 2 1 strongly disagree
   Please explain: 
   [Handwritten comment]

2. In general, is information easier to locate in the new redesigned guidebook than in the existing guidebooks.
   5) strongly agree 3 2 1 strongly disagree
   Please explain: 
   [Handwritten comment]

3. Are the maps easier to read and use in the new redesigned guidebook than in the existing guidebooks.
   5) strongly agree 4 3 2 1 strongly disagree
   Please explain: 
   [Handwritten comment]

4. Are the directions to each interest point easier to access in the new redesigned guidebook.
   [Handwritten response: No]

5. The new redesigned guidebook is organized first by time (Campsite 1, Campsite 2, Campsite 3, etc.),
   second by category, (Craft Stores & Museums, Landscapes, State & National Parks, and Villages & Towns),
   and lastly, by alphabet (A, B, C). Is this helpful?
   5) strongly agree 3 2 1 strongly disagree
   Please explain: 
   [Handwritten comment]
6. Is the use of lines helpful when finding the interest points on the maps.
   
<table>
<thead>
<tr>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>strongly agree</td>
<td>strongly disagree</td>
<td></td>
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</tbody>
</table>

   Please explain: [Handwritten comments]

7. The black bars with white text, placed at the bottom of each map, reveal the location of the entire map. Is this helpful?
   
<table>
<thead>
<tr>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>strongly agree</td>
<td>strongly disagree</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   Please explain: [Handwritten comments]

8. Is the photography supplies information (the villages or towns where they are sold) helpful?
   
   Yes  No

   Other Comments: [Handwritten comments]

9. At the beginning of each chapter, small italicized text indicates the number of days the group will spend at the campsite. Is this helpful?
   
<table>
<thead>
<tr>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>strongly agree</td>
<td>strongly disagree</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   Please explain: [Handwritten comments]

10. Is the text easy to read throughout the entire new redesigned guidebook?
    
    Yes  No

    Other Comments: [Handwritten comments]

11. In the *Interest Points* section, the information is organized *alphabetically*. Is this helpful?
    
    | 5 | 4 | 3 | 2 | 1 |
    |---|---|---|---|---|
    | strongly agree | strongly disagree |

    Please explain: [Handwritten comments]
Questionnaire 1
Comparison of Existing Guidebooks to 1998 Redesigned Guidebook
1997 Southwest Photography Workshop
Past Participant

1. Have the campsites and states been more clearly separated in the new 1998 redesigned guidebook?
   - [ ] Strongly agree
   - [ ] 4
   - [ ] 3
   - [ ] 2
   - [ ] 1
   - [ ] Strongly disagree
   Please explain: The information was too scattered and hard to read.

2. In general, is information easier to locate in the new redesigned guidebook than in the existing guidebooks?
   - [ ] Strongly agree
   - [ ] 4
   - [ ] 3
   - [ ] 2
   - [ ] 1
   - [ ] Strongly disagree
   Please explain: Yes, the maps are right next to each other.

3. Are the maps easier to read and use in the new redesigned guidebook than in the existing guidebooks?
   - [ ] Strongly agree
   - [ ] 4
   - [ ] 3
   - [ ] 2
   - [ ] 1
   - [ ] Strongly disagree
   Please explain: Yes, they are right next to each other.

4. Are the directions to each interest point easier to access in the new redesigned guidebook?
   - [ ] Yes
   - [ ] No
   Other Comments: Maps are cleaner. No messy lines.

5. The new redesigned guidebook is organized first by time (Campsite 1, Campsite 2, Campsite 3, etc.),
   second by category, (Craft Stores & Museums, Landscapes, State & National Parks, and Villages & Towns),
   and lastly, by alphabet (A, B, C). Is this helpful?
   - [ ] Strongly agree
   - [ ] 4
   - [ ] 3
   - [ ] 2
   - [ ] 1
   - [ ] Strongly disagree
   Please explain: It is nice to have the info organized according to subject.
6. Is the use of lines helpful when finding the interest points on the maps?
   - Strongly agree: 5
   - Strongly disagree: 1
   Please explain:
   [Handwritten response: Makes it easier to locate on maps when you know where you're looking for.]

7. The black bars with white text, placed at the bottom of each map, reveal the location of the entire map. Is this helpful?
   - Strongly agree: 5
   - Strongly disagree: 1
   Please explain:
   [Handwritten response: Helps to know what you're looking for.]

8. Is the photography supplies information (the villages or towns where they are sold) helpful?
   - Yes
   - No
   Other Comments:
   [Handwritten response: Gave us an idea of what we can expect to see.]

9. At the beginning of each chapter, small italicized text indicates the number of days the group will spend at the campsite. Is this helpful?
   - Strongly agree: 5
   - Strongly disagree: 1
   Please explain:
   [Handwritten response: Makes it easier to know how many days we were staying at each camp.]

10. Is the text easy to read throughout the entire new redesigned guidebook?
    - Yes
    - No
    Other Comments:
    [Handwritten response: Well organized, good layout.]

11. In the Interest Points section, the information is organized alphabetically. Is this helpful?
    - Strongly agree: 5
    - Strongly disagree: 1
    Please explain:
    [Handwritten response: Makes it easy to find what you're looking for.]

Questionnaire 1
Comparison of Existing Guidebooks to 1998 Redesigned Guidebook
1997 Southwest Photography Workshop
Past Participant

1. Have the campsites and states been more clearly separated in the new 1998 redesigned guidebook?
   - 5 strongly agree
   - 4 strongly disagree
   Please explain

2. In general, is information easier to locate in the new redesigned guidebook than in the existing guidebooks?
   - 5 strongly agree
   - 2 strongly disagree
   Please explain

3. Are the maps easier to read and use in the new redesigned guidebook than in the existing guidebooks?
   - 5 strongly agree
   - 2 strongly disagree
   Please explain

4. Are the directions to each interest point easier to access in the new redesigned guidebook?
   - Yes
   - No

Other Comments

5. The new redesigned guidebook is organized first by time (Campsite 1, Campsite 2, Campsite 3, etc.),
   second by category, (Craft Stores & Museums, Landscapes, State & National Parks, and Villages & Towns),
   and lastly, by alphabet (A, B, C). Is this helpful?
   - 5 strongly agree
   - 2 strongly disagree
   Please explain

Existing guidebooks had very poor organization.
6. Is the use of lines helpful when finding the interest points on the maps?

5 strongly agree 4 3 2 1 strongly disagree

Please explain

7. The black bars with white text, placed at the bottom of each map, reveal the location of the entire map. Is this helpful?

5 strongly agree 4 3 2 1 strongly disagree

Please explain

8. Is the photography supplies information (the villages or towns where they are sold) helpful?

Yes

Other Comments

9. At the beginning of each chapter, small italicized text indicates the number of days the group will spend at the campsite. Is this helpful?

5 strongly agree 4 3 2 1 strongly disagree

Please explain

10. Is the text easy to read throughout the entire new redesigned guidebook?

Yes

Other Comments

11. In the Interest Points section, the information is organized alphabetically. Is this helpful?

5 strongly agree 4 3 2 1 strongly disagree

Please explain
Questionnaire 1
Comparison of Existing Guidebooks to 1998 Redesigned Guidebook
1997 Southwest Photography Workshop
Past Participant

1. Have the campsites and states been more clearly separated in the new 1998 redesigned guidebook?
   
   [ ] 5 strongly agree
   [ ] 4
   [ ] 3
   [ ] 2
   [ ] 1 strongly disagree
   
   Please explain: Organized by state

2. In general, is information easier to locate in the new redesigned guidebook than in the existing guidebooks?
   
   [ ] 5 strongly agree
   [ ] 4
   [ ] 3
   [ ] 2
   [ ] 1 strongly disagree
   
   Please explain: You easily know where to go. Big picture until then small helps a lot.

3. Are the maps easier to read and use in the new redesigned guidebook than in the existing guidebooks?
   
   [ ] 5 strongly agree
   [ ] 4
   [ ] 3
   [ ] 2
   [ ] 1 strongly disagree
   
   Please explain: They pinpoint the locations

4. Are the directions to each interest point easier to access in the new redesigned guidebook?
   
   [ ] Yes
   [ ] No
   
   Other Comments: Much more clearly defined. Pictures help also

5. The new redesigned guidebook is organized first by time (Campsite 1, Campsite 2, Campsite 3, etc.), second by category, (Craft Stores & Museums, Landscapes, State & National Parks, and Villages & Towns), and lastly, by alphabet (A, B, C). Is this helpful?
   
   [ ] 5 strongly agree
   [ ] 4
   [ ] 3
   [ ] 2
   [ ] 1 strongly disagree
   
   Please explain: Easy to find maps make it easy to find the place you want to go.
6. Is the use of lines helpful when finding the interest points on the maps.

- Strongly agree (5)
- 3
- 2
- Strongly disagree (1)

Please explain: Shows the point of interest in

7. The black bars with white text, placed at the bottom of each map, reveal the location of the entire map. Is this helpful?

- Strongly agree (3)
- 2
- 1
- Strongly disagree (1)

Please explain: Shows you where you are.

8. Is the photography supplies information (the villages or towns where they are sold) helpful?

- Yes
- No

Other Comments: You never know when you will need something. Equipment can break.

9. At the beginning of each chapter, small italicized text indicates the number of days the group will spend at the campsite. Is this helpful?

- Strongly agree (4)
- 3
- 2
- Strongly disagree (1)

Please explain: Always want to know how long you’re going to be there so you can plan a head. See what you can do in the area to have fun.

10. Is the text easy to read throughout the entire new redesigned guidebook?

- Yes
- No

Other Comments: Clear and well spaced out.

11. In the Interest Points section, the information is organized alphabetically. Is this helpful?

- Strongly agree (5)
- 4
- 3
- 2
- Strongly disagree (1)

Please explain: Where you want to go and know what you can see and
Questionnaire 1
Comparison of Existing Guidebooks to 1998 Redesigned Guidebook
1997 Southwest Photography Workshop
Past Participant

1. Have the campsites and states been more clearly separated in the new 1998 redesigned guidebook?

   5 strongly agree  3  2  1 strongly disagree

   Please explain: The layout is easier to read.

2. In general, is information easier to locate in the new redesigned guidebook than in the existing guidebooks?

   5 strongly agree  3  2  1 strongly disagree

   Please explain: The quality of them is better.

3. Are the maps easier to read and use in the new redesigned guidebook than in the existing guidebooks.

   5 strongly agree  3  2  1 strongly disagree

   Please explain: The quality of them is better.

4. Are the directions to each interest point easier to access in the new redesigned guidebook.

   Yes  No

   Other Comments: Some time to the west.

5. The new redesigned guidebook is organized first by time (Campsite 1, Campsite 2, Campsite 3, etc.), second by category, (Craft Stores & Museums, Landscapes, State & National Parks, and Villages & Towns), and lastly, by alphabet (A, B, C). Is this helpful?

   5 strongly agree  3  2  1 strongly disagree

   Please explain: Because you outlined it, you know.
6. Is the use of lines helpful when finding the interest points on the maps?

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

Please explain: If you like the lines on the maps.

7. The black bars with white text, placed at the bottom of each map, reveal the location of the entire map. Is this helpful?

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

Please explain: It's very unclear.

8. Is the photography supplies information (the villages or towns where they are sold) helpful?

Yes No

Other Comments: It would be nice to know what towns.

9. At the beginning of each chapter, small italicized text indicates the number of days the group will spend at the campsite. Is this helpful?

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

Please explain: No we need more time.

10. Is the text easy to read throughout the entire new redesigned guidebook?

Yes No

Other Comments: I like all the pictures.

11. In the Interest Points section, the information is organized alphabetically. Is this helpful?

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>Strongly Disagree</th>
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<td></td>
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<td>3</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

Please explain: It's organized so you can find it simply.
Questionnaire 1
Comparison of Existing Guidebooks to 1998 Redesigned Guidebook
1997 Southwest Photography Workshop
Past Participant

1. Have the campsites and states been more clearly separated in the new 1998 redesigned guidebook?
   - 5 strongly agree
   - 4 strongly disagree
   Please explain:
   
2. In general, is information easier to locate in the new redesigned guidebook than in the existing guidebooks?
   - 5 strongly agree
   - 1 strongly disagree
   Please explain:
   
3. Are the maps easier to read and use in the new redesigned guidebook than in the existing guidebooks?
   - 5 strongly agree
   - 1 strongly disagree
   Please explain:
   
4. Are the directions to each interest point easier to access in the new redesigned guidebook?
   - Yes
   - No
   Other Comments:
   
5. The new redesigned guidebook is organized first by time (Campsite 1, Campsite 2, Campsite 3, etc.),
   second by category, (Craft Stores & Museums, Landscapes, State & National Parks, and Villages & Towns),
   and lastly, by alphabet (A, B, C). Is this helpful?
   - 5 strongly agree
   - 1 strongly disagree
   Please explain:
   

6. Is the use of lines helpful when finding the interest points on the maps.

- Strongly agree: 4
- Agree: 3
- Neutral: 2
- Disagree: 1
- Strongly disagree: 0

Please explain: Very helpful because this is a time saver. The points are easy to be grouped together.

7. The black bars with white text, placed at the bottom of each map, reveal the location of the entire map. Is this helpful?

- Strongly agree: 4
- Agree: 3
- Neutral: 2
- Disagree: 1
- Strongly disagree: 0

Please explain: They help us know where to go and what location on the map the campsite will have been easier to read with some kind of bar.

8. Is the photography supplies information (the villages or towns where they are sold) helpful?

- Yes
- No

Other Comments: It was helpful to mention the towns that they are located in, possibly mentioning the destination as well.

9. At the beginning of each chapter, small italicized text indicates the number of days the group will spend at the campsite. Is this helpful?

- Strongly agree: 5
- Agree: 4
- Neutral: 2
- Disagree: 1
- Strongly disagree: 0

Please explain: The most helpful. I was just trying to get an idea of how long we would be in each campsite.

10. Is the text easy to read throughout the entire new redesigned guidebook?

- Yes
- No

Other Comments: Big improvement from the last guidebooks.

11. In the Interest Points section, the information is organized alphabetically. Is this helpful?

- Strongly agree: 4
- Agree: 3
- Neutral: 2
- Disagree: 1
- Strongly disagree: 0

Please explain: Easy to find information you know where you
Appendix 7 Evaluation Questionnaire 2

1998 Southwest Photography Workshop
Future Participant

1. The workshop begins in Albuquerque, New Mexico. All students are required to meet in Albuquerque on June 2nd. Is this stated clearly enough in section one of the guidebook?
   - Yes
   - No

   Other comments

2. The chapters with isolated areas are distinguished from other chapters within the guidebook. Is this helpful?
   - Yes
   - No

   Other comments

3. The first page of each chapter is clearly distinguishable.

<table>
<thead>
<tr>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
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<tbody>
<tr>
<td>strongly agree</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

   Please explain

4. It is necessary for a viewer to be reminded of a new chapter by the use of a transition symbol (representing a change in the campsite location) at the end of each chapter.

<table>
<thead>
<tr>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
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</thead>
<tbody>
<tr>
<td>strongly agree</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

   Please explain

5. The maps are clear and large enough to read.
   - Yes
   - No

   Other comments

6. The use of the subheads (referring to the type of interest point such as Villages & Towns) which are located at the top of each page, are noticeable and helpful.

<table>
<thead>
<tr>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>strongly agree</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

   Please explain
Appendix 7 (continued) Evaluation Questionnaire 2

7. Is the use of lines helpful when finding the interest points on the maps.

5 strongly agree 4 3 2 1 strongly disagree

Please explain

8. The black bars with white text, placed at the bottom of each map, reveal the location of the entire map. Is this helpful?

5 strongly agree 4 3 2 1 strongly disagree

Please explain

9. Is the photography supplies information (the villages or towns where they are sold) helpful?

Yes No

Other comments

10. At the beginning of each chapter, small italicized text indicates the number of days the group will spend at the campsite. Is this helpful?

5 strongly agree 4 3 2 1 strongly disagree

Please explain

11. Is the text easy to read throughout the entire new redesigned guidebook?

Yes No

Other comments

12. In the Interest Points section, the information is organized alphabetically. Is this helpful?

5 strongly agree 4 3 2 1 strongly disagree

Please explain
Appendix 8 Evaluation Summary

Evaluation Questionnaire 1

The feedback from the evaluation questionnaire from the 1997 Workshop Participants was helpful when analyzing the effectiveness of the redesigned guidebook. There are many improvements to the new redesigned guidebook. The primary improvements dealt with the organization of the guidebook. Information was made easy to find through labeling and organization.

The surveyed participants stressed that the resolution of the maps and the information which accompanied them was a significant improvement over the existing guidebooks. The labels (located at the bottom of each map) identify the location of each map. Each map is very readable and the rules that located the interest points are clear and legible. These rules clearly mark the exact location of an interest point. The interest points are now easy to locate on the maps. The directions to each interest point are located below each map. This detail is helpful, particularly because the directions to each interest point in the existing guidebook were not often placed in close proximity to the corresponding map.

Some suggestions for further improvement were included in the feedback from the evaluation questionnaire. The headings (located at the top of each page) would be more useful slightly larger. The rules which locate the interest points could also be slightly heavier. These suggestions are useful but not necessary. The labels are placed at the top of each page spread and are very readable. The rules which lead the reader to the interest points are thin, although the dot which marks the specific location of the interest point is quite noticeable. A heavier rule would be distracting to the information within the maps.
Appendix 9 Final Redesigned Guidebook
Southwest Photography Workshop
Ken White
Willie Osterman

School of Photographic Arts & Sciences
Course 2066-770
Southwest Photography Workshop
Ken White
Willie Osterman

School of Photographic Arts & Sciences
Course 2066-770
# Preliminary Material

<table>
<thead>
<tr>
<th>Title</th>
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<tr>
<td>History of Photography</td>
<td>1</td>
</tr>
<tr>
<td>Geology &amp; Climate</td>
<td>30</td>
</tr>
<tr>
<td>Native American Culture</td>
<td>55</td>
</tr>
<tr>
<td>Four Corners Region</td>
<td>70</td>
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</table>

# Traveling Material

<table>
<thead>
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<tbody>
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<tr>
<td>Santa Fe National Forest, New Mexico</td>
<td>4</td>
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<tr>
<td>Orilla Verde, New Mexico</td>
<td>23</td>
</tr>
<tr>
<td>San Luis Lake, Colorado</td>
<td>36</td>
</tr>
<tr>
<td>Mesa Verde National Park, Colorado</td>
<td>41</td>
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<tr>
<td>Bisti Wilderness, New Mexico</td>
<td>58</td>
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<tr>
<td>Arches National Park, Utah</td>
<td>61</td>
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<tr>
<td>Manti-La Sal National Park, Utah</td>
<td>76</td>
</tr>
<tr>
<td>San Rafael Reef, Utah</td>
<td>79</td>
</tr>
<tr>
<td>Glen Canyon Recreation Area, Utah</td>
<td>83</td>
</tr>
<tr>
<td>Monument Valley, Arizona</td>
<td>86</td>
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</tbody>
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Photography Credits                                | 88   |
The Southwest Photography Workshop is a course at Rochester Institute of Technology which takes place in the summer and explores the Four Corners region of the southwestern United States. This guidebook is an important part of the workshop and its objectives.

The leading organizational method within this guidebook is by time. The preliminary material should be read by students prior to the workshop. This material provides an introduction to the Southwest and its relationship to the history of photography, geology & climate, Native American culture, and the Four Corners region. Specific information about New Mexico, Colorado, Utah, and Arizona, follows sequentially according to the travel route of the workshop. Within each state, the information is also organized by time and is divided into two subcategories: Campsites and Interest Points. Because of the large amount and variety of information within the interest points category, the information is subdivided again into listings by category: Craft Stores & Museums, Landscapes, State & National Parks, and Villages & Towns.
History of Photography
The Essential Landscape: Looking at New Mexico
by J.B. Jackson

We learn about history by reading it in school; we learn to see it when we travel, and for Americans the place where we see most clearly the impact of time on a landscape is New Mexico.

Our history is more complicated than most, and it is far more visible. In regions to the east of us, more prosperous and blessed with more abundant rainfall, the past, even the recent past, soon vanishes from sight: bulldozed out of existence in favor of something new and larger and more costly, it is also often quickly hidden by exuberant vegetation. Even the rubble of abandoned tenements in the Bronx soon acquires a covering of weeds and vines, and sometimes wildflowers; trees conceal the abandoned farms of Appalachia. But here in New Mexico history remains exposed to the sun for all to see. Our landscape is everywhere spotted with ruins—ruins of ancient towns, ruins of shepherders' shelters built a decade ago. It is to see our past that thousands of tourists come to New Mexico: archeologists, geologists, antiquarians, lovers of whatever is old or out-of-date or mysterious because of its age. Our history invites the photographer.

The best time for seeing history is the summer. That is when the remoter country can be explored; it is when schools and colleges all over America are closed, and teachers and students and scholars are free to wander. It follows, therefore, that awareness of southwestern history is a seasonal phenomenon determined by the academic calendar, much as a certain kind of piety is determined by phases of the moon. Summer is the time for looking back and recording what we see. Family reunions, two hundred strong, gather in the shade of a cottonwood grove, in a dance hall, in a half-forgotten village once an ancestral stronghold. Veterans' organizations parade down Main Street and Santa Fe, Wagon Mound, and Arroyo Seco deck themselves out in Indian or Spanish-American or cowboy or counterculture costume, celebrating the old days. The sun shines out of a deep blue sky; it is hot, but not too hot, and history is transformed into a photographic pageant, an ideal subject for color slides.
Yet it is hard not to be fleetingly aware of a background suggestive of a kind of history with a different dimension, no matter where we are in New Mexico. We glimpse it in a dark face in the crowd; we catch an echo of it in the voices and the music coming from a corner bar. We see and never quite forget the horizon of range after range of mountains of diminishing blue. In every background there lurks another kind of past, far more ancient, far less easy to comprehend than the strictly human history on display.

There is one region of New Mexico where we can come closer to a time measured not by events or seasons but by millennia, a landscape with a history of its own that is perhaps not history at all, merely the unending repetition of cosmic cycles, a landscape where by a paradox the still photograph records all we can ever know of its past. The Colorado Plateau is the name given by geographers and geologists to an immense region covering most of Utah, western Colorado, eastern Arizona, and northwestern New Mexico.

When you drive due west of Albuquerque toward Grants and the uranium country, you catch a glimpse of a small portion of it—a horizon like a long, pale blue rampart, extending beyond sight to the north and south. It is deceptively unspectacular, almost a continuation, one would say, of the pleasantly humanized landscape of the Rio Grande country. But this is actually only the eastern edge of a province distinguished by its great elevation, its hundreds of remarkable canyons, and its overall horizontality.
Every mesa, every canyon, every free standing mountain seems composed of layer upon layer of red and brown and yellow and dead white rock. Only a small fragment of this spectacular landscape lies in New Mexico, but it is a fragment containing some of the largest prehistoric ruins in the United States, as well as areas with occasional stands of trees and small streams meandering through canyons. There are expanses of pale grass and sagebrush, and piñon and juniper trees in groves on the slopes of the valleys. It seems to be empty of life, but in summer it sometimes has a strangely pastoral, almost Arcadian quality. Navajos graze their flocks of goats and sheep on the grass among the miniature forests of sagebrush, bells tinkling. In the middle of the day they rest in the dense black shade of piñons.

The air is fragrant, the light on the perpendicular dark red canyon walls is golden. Small clusters of ragged Navajo dwellings, with a peach tree or two nearby, stand under the piñon trees, and a saddle horse sleepily hangs his head. Turn elsewhere and the view is perhaps a little too vast for comfort: a panorama of endless range country with a rim of violet mesas and dark mountains where there must be forests and streams of water, though very far away. The days are all alike; the summer is long and immobile. In the late afternoon immense black clouds boil up to the zenith, and then some small portion of the hot and thirsty landscape is suddenly blessed with a brief, violent downpour which makes every rock, every patch of earth glisten. The storm comes to an abrupt end like a duty routinely performed, and is followed by not one but two perfect rainbows. It is as if some rite had been reenacted, some myth made visible for the millionth time, antiphony to a ceremonial dance in a nearby Indian village.
Which comes first: the blessing or the prayer? It is not easy in this landscape to separate the role of man from the role of nature. The plateau country has been lived in for centuries, but the human presence is disguised even from the camera's eye. There are ruins like geological formations, disorders of tumbled stone. There are immense arrays of slowly crumbling rocks that look like ruins. The nomenclature we Americans have imposed on much of the landscape testifies to our uncertainty: the ruins have unpronounceable Navajo names; the natural formations are called Gothic Mesa or Monument Valley or Chimney Rock.

It is the sort of landscape which (before the creation of the bomb) we associated with the world after history had come to an end: sheep grazing among long-abandoned ruins, the lesson of Ozymandias driven home by enormous red arches leading nowhere, lofty red obelisks or needles commemorating events no one had ever heard of, symbols of the vanity of human endeavor waiting to be photographed. But is that really the message of the plateau country? There was a time, several generations ago, toward the end of the last century when photographers, masters of their art, had a clearer vision: they wanted to leave history, even human beings, out of their pictures. Perhaps there were technical reasons for wishing to exclude all movement, or perhaps it was a matter of belief, a way of responding to the concept of time in the Colorado Plateau.
For what makes the landscape so impressive and so beautiful is that it teaches no copybook moral, no ecological or social lesson. It tells us that there is another way of measuring time, and that the present is, in fact, an enormous interval in which even the newest of man made structures are contemporary with the primeval. That is why it is possible to see that the dams on the Colorado and San Juan rivers, the deep pits of the Santa Rita copper mines, and the terraced mountains near La guna where uranium has been extracted are all as old or as young as the canyons and mesas and the undulating plains of sagebrush. Not far from Quemado (which is not far from the Arizona line) there is a field of innumerable lightning rods, geometrically planted in an expanse of range grass. As an example of contemporary environmental art it is a source of infinite curiosity and bewilderment. Some day, centuries hence, the field of lightning rods will have been forgotten by tourists and entirely assimilated into the landscape. Navajos grazing their sheep among them will know that these rods derive from the same cosmic occurrence that balanced liver-colored rocks on pedestals of yellow mud in the Chaco region; objects identified with an Emergence myth, easily explained, provided our small-scale micro-history is left out of the picture.

That school of “timeless” photography flourished at a period when all of New Mexico was described by outsiders, and even admiringly described, in terms of its peculiar notions of time. It was “the land of poco-tempo,” “the land of mañana,” “the land where time stood still.” What was meant was not Indian or prehistoric New Mexico, but Spanish-American New Mexico. By and large this is the New Mexico associated with the upper Rio Grande Valley and the mountains containing it. For it was here that the first colonists settled in the late sixteenth century, and it was here that the province (or state) acquired its identity. What attracted settlement was the mild climate, the apparent abundance of water, the fertile soil, and the forests covering the mountains. In many ways the landscape seemed to resemble that of Spain.

What attracted settlement was the mild climate, the apparent abundance of water, the fertile soil, and the forests covering the mountains. In many ways the landscape seemed to resemble that of Spain. Almost from the time of the first explorations New Mexico was seen as a kind of promised land: not a paradise of ease and abundance, to be sure, but a land of grass and forests and flowing water where the efforts of working men and women would be duly rewarded. For it so happens, even today, that no matter where you come to New Mexico from the immediate east, the High Plains, the arid south, or the canyon landscape in the west, the region always seems, by comparison with the country you have been traveling through, something like a land flowing with milk and honey. What shatters the illusion is the long, dry summer that affects the greater part of the state.

How long it took the earlier generations of Spanish-speaking colonists to learn that lesson is a complicated question: the presence of hostile Indians in the plains of the eastern part of New Mexico acted to discourage their settlement and even exploration until the mid-eighteenth century. In any event, Spanish settlement was long confined to the Rio Grande region, which to this day remains the heartland of Spanish American culture. The small lateral valleys of the Rio Grande, as well as the valley of the Rio Grande itself, provided the colonists with an environment suited to their kind of agriculture and their kind of living—in small villages where old established customs and relationships could be continued.

Time in those secluded places has a special flavor—a resigned, slow, autumnal beat. The colors linger into the early winter, in the brown and orange leaves on the cottonwoods along the streams and irrigation ditches, in the strings of red chili on the fronts of houses, and in the groves of lemon-yellow aspens far up in the mountains. Then a winter wind sends all their leaves to the ground in a shower of gold, and the chamisa turns grey.
In the old days the clanking of tire chains was part of winter in the country, but in the mountains of northern New Mexico, as elsewhere, we no longer hear it, and the almost perfect silence is what visitors notice first of all. Find out for yourself what this means: stand on a hillside overlooking a village of tin-roofed houses on the edge of the forest in the Sangre de Cristos or in some part of the Pecos Valley; if it is a bright day in January or February you will hear the screaming of flickers in the groves of piñon. Then in a backyard, perhaps a half mile away, someone is slowly chopping wood. Go down into the village where there are the familiar sounds of melting snow coming off the tin roofs or out of the canales. Not a voice is heard; life has withdrawn into the houses behind closed doors, and the windows, with their displays of geraniums in tin cans, are half obscured by frost. Someone tries to start a car but soon gives up. In the cold, starry night the lights are few and dim, and you can barely make out the landscape of black forest and small, snow-covered fields. If you are lucky you may hear, very late at night, the yelp of a coyote. It sets the village dogs into a brief frenzy of barking.

Snow that lasts comes in later November and remains on the higher slopes of the Sangre de Cristos and the Jemez until well into the spring. In the valley and in the foothills it slowly melts, leaving patches hiding under the pinon trees, but in the heights and in places the sun reaches only for a few hours a day, winter is a season to be taken seriously. It transforms the smaller dirt roads into lanes of bottomless mud. The rancher stays close to headquarters, and villagers think twice before driving their mud-splattered pickups into the forest after firewood; even in town we are careful to stay on the paved surfaces. What was recently a landscape of coming and going and outdoor work—a landscape of gardens and orchards and small farms—almost overnight has turned into a scattering of isolated villages and hamlets. The cold and the wretched roads make every community, every family shrink into itself, and the silence is rarely broken.
Climate, sooner or later, makes us return to origins, makes the tourists and the environmentalists and students of folklore and handicrafts scurry back to Berkeley or New York or Dallas to show their brightly colored slides of the Land of Enchantment, and to dream of owning an adobe house of their own, with hollyhocks in the front yard, and a loom or a potter's wheel or a dulcimer in the cool, dark room within. Climate tells us to stay where we belong and to do what we have always done. On Sunday (in remoter, smaller villages every other Sunday) the cracked church bell sounds off with an unmelodious Bang! Bang! Bang! A stove in the corner crackles and shines but fails to heat. After the service there are brief greetings on the church doorstep, yet nothing in winter can keep us together for long. That is the virtue and even the beauty of this time of year in northern New Mexico: it isolates and intensifies existence, it creates a landscape and then preserves it by freezing it.

It is hard to remember, despite all we have read about the history of this landscape, that as the crow flies (or as the car travels), Mexico, once the motherland, is not distant. But it is separated from us by more than barriers of mountains and desert. Snow and total darkness have imposed a kind of environmental Calvinism on northern New Mexico that all but obliterates the historic ties with that talkative and gregarious nation south of the Rio Grande, and not even the happiness of summer can entirely dispel it. Climate, no less than an ingrained sense of what is fitting, clears the plazas and the lanes of the last summer idlers, one leg propped against the wall, talking in grave voices. Climate, coupled with loyalty to family, keeps us home where we sit in silence, pondering old grievances and searching our souls. Outside, the clear bright air smells of snow and pinon smoke; inside it smells of coffee and roasting chili and wet clothes drying near the stove.
Decay can be halted, but only briefly, and then it resumes. It is the negative image of history, and its presence throughout northern New Mexico has long fascinated the wandering photographer, hunting for the essence of Spanish-American rural culture. The relentless progress of ruin and abandonment was interpreted as a kind of romantic growth, something to be recorded and perpetuated before it is too late. There was, in fact, a period after World War II when the landscape of the Sangre de Cristo villages and the upper Rio Grande Valley was seen exclusively as a panorama of crumbling adobe walls, sagging roofs, doorways without doors, abandoned roads bordered by rusty barbed wire, leading uncertainly to overgrown fields and resurgent forest. There was never a face except the old and defeated, never a sign of continuing life, but many sad pictures of deserted graveyards. This vision, repeated by artists in many other parts of the country, seems in retrospect to have been less a reflection of reality than a way of expressing a nostalgic version of history; a desperate, last-minute recording of old and once cherished values, the New Mexico chapter in that once-popular chronicling of "vanishing America," the old America of small farms and small villages and small hillside fields. We captured on film the ghosts of places not yet entirely dead.

As long as those remnants of an old, nineteenth-century New Mexico survive as more or less recognizable human artifacts, they will remind us of the old order—and of an older photographic approach to the rural world. But it is increasingly evident, I think, that Americans, especially young Americans, are beginning to discover the new landscape that is evolving, demanding our attention and interpretation, if not necessarily our critical acceptance. History has started a new chapter, and our vision expands to include the newer landscape. Actually it is not a new landscape; it is an aspect of the essential New Mexico landscape—hitherto empty and forbidding that has been explored, invaded, and occupied.

In the last generation we have, for the first time, ventured out beyond the familiar, protective landscape of watered valleys and forested mountains, beyond the green landscape of rain and snow and the traditional succession of seasons, and have undertaken the settlement of the semiarid plains, the naked mountains, and the deserts of the Southwest.

Desert is not a word people in New Mexico like to hear carelessly used. It hurts us deeply to read in eastern papers references to the "desert" around Santa Fe, or the "desert" climate of Albuquerque. No offense is intended, of course. The term conjures up a pleasant image of silence and mystery and strange beauty, and its use is a carry-over from the writings of early nineteenth-century explorers who believed that desert began somewhere in eastern Kansas. To them any region without trees and not adapted to traditional eastern methods of farming was desert. Much of New Mexico, in fact, can be called arid or semiarid, an immense, rolling, underpopulated country covered by short, wiry grass, which in the early summer turns the color of straw.

Geologically speaking, much of eastern New Mexico is an extension of the High Plains—of the Texas Panhandle and Oklahoma. But what distinguishes it from that impressively monotonous region is its variety of land forms innumerable, widely scattered, dark, steep-sided mesas, floating on the sea of pale yellow grass like a fleet of flat-tops riding at anchor; the cones of extinct volcanoes; the many canyons. These last are remote and hidden from view, and those who formerly explored the range land on horseback rather than from the air came upon them with frightening suddenness. All that betrays their existence is a scantly fringe of piñon and juniper on their rim. You find yourself gazing down into a long, deep, narrow valley with almost vertical walls of red or brown rock, and below where you halt there are the tops of cottonwood growing hundreds of feet along some meandering river.
These enormous landforms are about the only variety the arid (or semiarid) landscape of New Mexico provides. In the spring, long after the winter snows have melted and left pools of clear water in the hollows of the range land, the grass is a brilliant green, and the expanse of wildflowers—there are said to be more than six thousand varieties in the state—are spectacular. But much depends on when you see the eastern region. If in April, it seems to be potentially ideal farming country; in July it is a sunbaked emptiness, to be avoided whenever possible. Those of us who live here the year round are well aware of the seasonal change.

Our lives, like all lives, revolve around the man-made elements in the landscape. We shuttle between people and places—specific people and the specific places where they live and work and relax, and the expressionless solitudes of the open road between let us say Vaughn and Roswell, or Tucumcari and Hobbs or Logan occupy—or used to occupy little of our thought. We learned to welcome almost every trace, every sign, no matter how incongruous or unsightly, that reminded us of the human presence: the lonely, two pump gas station, the gate and cattle-guard entrance to some far-off invisible ranch, the tattered billboard out in the middle of nowhere. We were (and perhaps still are) attracted to ruins, no matter what their size or age. Their shabbiness served to bring something like a time scale to a landscape, which for all its solemn beauty failed to register the passage of time.
The story of the dying of small rural communities in every part of the world has become familiar to us all over the last century and a half. It is most impressive, most regrettable when it tells of the decay of a well-known and well-loved landscape, like that of New England or New Mexico, but the moral of the story is in almost every case the same: existence for people in the country became more and more difficult, more and more joyless and without reward. Low pay, monotonous work, a sense of being isolated and forgotten, a sense of diminishing hope for the future afflicted one village, one farmstead after another.

For more than a century, here in America, we have seen it happening, so perhaps it is not too early for us to look elsewhere in the countryside to become aware of the new communities, the new installations that are evolving in that rural landscape. If much of the migration from that landscape has found its way to large cities, much of it, perhaps most of it has swelled the population of small towns and even created entirely new types of settlement—still rural in location, but essentially industrial or commercial in economy, dependent not on a stream or river or a climate of familiar seasons, but on a highway, a dam, a mine, a tourist attraction.

The movement away from the countryside is everywhere, but in our relatively empty landscape, the fluidity is more easily discerned, and in New Mexico we can, when we look, see more than the decline and death of the traditional order. We can see the emergence, all over the state, of a new kind of community—new in that it represents a different relationship with the environment, a deliberate confrontation with elements in the landscape that earlier generations sought to avoid.
What New Mexico seems to offer is what it has always offered: the dramatic confrontation between the new and mobile and optimistic human installation on the one hand, and the overpowering "timelessness" of an ancient landscape with its visible cosmic chronology on the other—Los Alamos on the flanks of an extinct volcano, the array of lightning rods near Quemado, the clock-like precision of modern irrigation techniques in a region where seasons scarcely exist.

The uranium country near Laguna and Grants can be seen as a sample—and not a very happy one—of the new landscape. It is now idle and without movement, perhaps it never will be active again. But it is here that the photographer, seeking to record the new relationship with the environment, can find the most revealing evidence. Mountains have been carved into stepped pyramids and in places planted with bright green grass; the vast piles of waste and slag are, in fact, more natural in appearance than the natural landforms themselves. Model workers' villages, strikingly Mediterranean in style, alternate with villages of mud and rock. Both kinds of community are languishing, each in its way evolving into ruins. The immediate background of this enforced still life is the old grazing landscape of sheep and cattle raising, of half-dead Spanish villages and the deceptively classical, piñon-covered hills and sunbaked rock. Beyond that is the horizon of dark blue mountains. All New Mexico can be seen, superimposed and blending.

The photographer who explores the last landscape—whether in the Four Corners region or in the farmlands of Clovis and Hobbs, or even in the lower Rio Grande Valley—will record in a fresh and direct manner the immensely significant change in environmental relationships, typical of much of the Western world. It is by no means the first such change, nor the last. The prehistoric Indian migrants produced on a modest scale the same juxtaposition of the primordial and the human; the Spanish farmers and ranchers produced their own traditional European version. The drama of New Mexico's attraction and conquest is being continued, and we are in the fortunate position of being able to observe and record that wave of optimistic expansion and discovery. It is no less a fact of history than the compromise and defeat that ultimately overtake our endeavors to live in a region which continues to fascinate us, allure us, and teach us the hard lessons of the passage of time.
New Mexico Revisited
by Gilles Mora

I first experienced the magic of the Southwest as a child in the 1920's. In those days New Mexico was more like a foreign country than anything else. The combination of Spanish and Indian cultures, adobe houses, towns that blended into the landscape, crystal clear air, radiant sunshine, and scenery second to none made this country unlike any other place on earth. I was not alone in identifying with the magic of New Mexico; it became a part of my very being—so much so that I developed an addiction and could not leave for more than short periods. Others who have been captured by its magic include Ben Wittick, Laura Gilpin, Ansel Adams, Eliot Porter, Paul Caponigro, and William Clift—only a few of the more famous photographers who found themselves caught in the mystical web of the Southwest.

This enchanted country has always provided an inexhaustible supply of unique images. It was to be expected that the artist and the photographer would find New Mexico irresistible. Yet only a few, such as those mentioned above, have really succeeded in capturing the true spirit of this complex and wonderful country, while the rest have produced various degrees of kitsch or worst. But why? Part of the answer may be found in the relationship of photographic images to the subject, the photographer, and the viewer. Like other art forms, if they are to succeed these images must do several things. First, they must release an immediate response in the viewer; to be especially good, on another, more subtle level, means allowing the viewer to continue to find something new in the photograph for months or even years to come. A master photographer does not allow his work to give up its message all at once or too easily; the images must demand subtlety and perseverance on the part of the viewer.
But there is another side to photography that is even more difficult to describe. It is almost as though each image must do double duty: not only does the photograph record in a meaningful way the patterns of reflected light that combine in the visual cortex of the viewer's brain, but there is something about this process that is far from passive. In one sense the viewer brings with him as much as the photograph provides. There is a transaction not only between the print and the viewer but between the photographer and the subject; it is almost as though the camera were endowed with two lenses one pointed forward at the scene and another hidden lens directed at the photographer himself. As much as anything his record is a record of himself and what he has chosen to reveal through his choice of subjects, his angles, use of light, and composition. These more subtle messages must be teased from the data provided by the images he puts before us.

If painting is considered as a transaction, O'Keeffe's images are surely as much pictures of O'Keeffe as they are of light and dark places, bones, flowers, and bright blue skies. Because of the nature of the medium, it's a little harder to see this projection of self in the photograph, but every photographer must reveal himself whether he wills it or not.

Bernard Plossu has given us a remarkable record of our own Southwest as seen through the eyes of a Frenchman. One can tell that the country really had an enormous impact on him, for his images illustrate all the points made above. The viewer knows what Plossu is saying by the immediate impact followed by slow release. There are no clichés here. His subtle images must be teased from the data he provides. It is our own Southwest but seen in a new light from another point of view. We can learn and enjoy from all three: the images, the photographer, and what they release in us. We also learn that our teacher—and all good photographers teach—is far from conventional. He stirs us up and helps us to look at things in new ways.
Indifference rarely results from disgust with reality but rather from a failure to understand it. The richer our cultural codes, the tighter their grip on the reality we perceive, the better for our vision. This rule holds as true for photography as for other forms of vision. In photography innocence no longer pays off. The first photographs of New Mexico, taken in the 1860's and 1870's by Alexander Gardner, Timothy O'Sullivan, and photographers like them, may be considered aesthetically innocent; their function is essentially referential. The intentions of these photographers were, in a way, didactic; by bringing back spectacular pictures of relatively virgin territory, they were showing what they could see for the benefit of others. Their photographs never fail to surprise us the way the first daguerreotypes do—as a wonderfully simple coincidence of intention and result. Walter Benjamin identifies this charm when he speaks of reality "burning" the character of an image. This phenomenon, at any rate, was possible only in the early photographs of the American West, when photography and the West were new and the photographer could evince his wonder at scenes unprecedented and unrecorded.

New Mexico has lost this innocence, its iconic virginity. Any photographer who wishes to photograph something new there must take into account the images that have derived from the state, its photographic geography, expanses of reality where the hazards of history, or light, or shapes, or atmosphere have attracted and inspired photographers for years. The West, particularly New Mexico, has an image dating back to the middle of the nineteenth century. Paul Strand, Edward Weston, Ansel Adams, Paul Caponigro, Laura Gilpin, even Henri Cartier-Bresson, Robert Frank, and Lee Friedlander have revealed in New Mexico an incomparable iconography comprising both physical elements—contours, light, geology—and human ones—the state's mixture of Indian and Hispanic cultures and ethnicity, and the nearness of Mexico. It is no easy task to restore freshness to one's vision, to discipline oneself from the accumulation of images that block one's view of the country.

Edward T. Hall
Reality for a photographer is a palimpsest of earlier photographs. The imago of a place amounts to its ability to inspire a photographer—some kind of photogenic quality. Its role is to show the photographer that he can make reality—any reality—his own, by means of some trick that is as powerful as the palimpsest that conceals the reality. An analogy is the way literature, as Roland Barthes said, goes round and round in almost amorous convolutions.

Photographic innocence is possible, but only if the photographer aims not to capture the essence of reality but rather to create an original photographic image, in opposition to those that have come before.

The problem that Bernard Plossu had to tackle, then, as a photographer living and working in New Mexico, was not to ignore the state's photographic past but to make it his own in order to go beyond it. In short, he had to build his own vision. I use the word vision, as opposed to style, advisedly, for vision in photography differs from style as depth does from surface. A photographer's vision is actually a "vision of the world." It involves the framework as well as the theme of a project; it is the photographer's principle of selection. Style can only submit to vision; as Proust said, "Style is a matter not of technique but of vision." Plossu's New Mexico photographs result from an original vision that amounts not to an altogether unique apprehension of New Mexico's reality but to a unique relationship to that reality.

Whoever comes to New Mexico knows that he is both inside and outside the United States. The color of the earth, the dusty roads, the chromatic contrasts of the buildings belong to Mexico. Indeed the border between the two countries—and Plossu has traveled there often—tends to blur any pictures the traveler forms of either Mexico or the United States. This constant ethnic and cultural uncertainty is fascinating; so are the smells from Mexican restaurants and the bordertown threat of violence. All of these factors, as well as the presence of an Indian population trying to preserve its culture, add to the mystique of Taos, by now a somewhat inaccessible retreat for fashionable artists.
Geology & Climate
According to conventional wisdom at the time, the earth was between five thousand and six thousand years old. An Irish (James Ussher), counting generations in his favorite book, figured this out in the century before. Ussher actually dated the earth, saying that it was created in 4004 B.C. The Irish, as any Oxbridge don would know, are imprecise, and shortly after the publication of Ussher’s *Annales Veteris et Novi Testamenti* the Vice Chancellor of Cambridge University bestirred himself to refine the calculations. He confirmed the year. The Holy Trinity had indeed created the earth in 4004 B.C. and they had reported the Vice Chancellor, on October 25th, at 9 a.m. His name was Lightfoot. Geologists today will give parties on the twenty-sixth of October. Some of these parties begin on the twenty-fifth and end at nine in the morning.

It was also conventional wisdom toward the end of the eighteenth century that sedimentary rock had been laid down in Noah’s Flood. Marine fossils in mountains were creatures that had got there during the Flood. To be sure, not everyone had always believed this. Leonardo, for example, had noticed fossil clams in the Apennines and taking into account the distance to the Adriatic Sea, had said, in effect, that it must have been a talented clam that could travel a hundred miles in forty days.

**4.5 Billion Years**

David Brower, for example, the founder of Friends of the Earth and emeritus hero of the Sierra Club, has tirelessly travelled the United States for thirty years delivering what he himself refers to as “the sermon,” and sooner or later in every talk he invites his listeners to consider the days of Genesis as a figure of speech for what has in fact been four and a half billion years. In this adjustment, a day equals something like seven hundred and fifty million years, and thus “all day Monday and until Tuesday noon creation was busy getting the earth going.”
Life began Tuesday noon, and "the beautiful, organic wholeness of it" developed over the next four days. At 4 p.m., Saturday, the big reptiles came on. Five hours later, when the redwoods appeared, there were no more big reptiles. At three minutes before midnight, man appeared. At one-fourth of a second before midnight, Christ arrived. At one-fortieth of a second before midnight, the Industrial Revolution began. We are surrounded with people who think that what we have been doing for that one-fortieth of a second can go on indefinitely.

In like manner, geologists will sometimes use the calendar year as a unit to represent the time scale, and in such terms the Precambrian runs from New Year's Day until well after Halloween. Dinosaurs appear in the middle of December and are gone the day after Christmas. The last ice sheet melts on December 31st at one minute before midnight, and the Roman Empire lasts five seconds. With your arms spread wide again to represent all time on earth, look at one hand with its line of life. The Cambrian begins in the wrist, and the Permian Extinction is at the outer end of the palm. All of the Cenozoic is in a fingerprint, and in a single stroke with a medium-grained nail file you could eradicate human history.
College Field Trips
In June, every year, students and their professors from Eastern colleges, with their hydrochloric-acid phials and their hammers and their Brunton compasses, head West. To be sure, there is plenty of absorbing geology under the shag of Eastern America, galvanic conundrums in Appalachian structure and intricate puzzles in history and stratigraphy. In no manner would one wish to mitigate the importance of the Eastern scene. Undeniably, though, the West is where the rocks are where it all hangs out, as someone in the United States Geological Survey has put it, and of Eastern geologists who do any kind of summer field work about seventy-five percent go West. They carry state geological maps and the regional geological highway maps that have been published by the American Association of Petroleum Geologists—maps as prodigally colored as drip paintings and equally formless in their worm-trail and paramecium depictions of the country's uppermost rock.
Great Sand Dunes CO

Hot Springs
In a country full of living hot springs, this was a dead one. Sectioned by the road builders, it remembered in its swirls and convolutions the violence of water raging hot in rock. The dead hot spring had developed cracks, and they had been filled in by a couple of generations of calcite veins. Deffeyes was busy with his hammer, ping, chipping samples of the calcite. “This stuff is too handsome to leave out here,” he said, filling a canvas bag. There was a lot of thermal action here. Most of this material is not even respectable rock anymore. It’s like soil.

In 1903, a mining geologist named Waldemar Lindgren found cinnabar in crud like this at Steamboat, near Reno. Cinnabar is mercury sulphide. He also found cinnabar in the fissures through which water had come up from deep in the crust. He thought, Aha! Mercury deposits are hot-spring deposits! And he applied that idea to ore deposits generally. He started classifying them according to the temperature of the water from which they were deposited—warm, hot, hotter, and so on. We know now that not all metal deposits are hydrothermal in origin, but more than half of them are. As you know, the hot water, circulating deep, picks up whatever is there gold, silver, mercury, tin, uranium—and brings it up and precipitates it out near the surface. A vein of ore is the filling of a fissure. A map of former hot springs is remarkably close to a map of metal discoveries. Old hot springs like this one brought up the silver of Nevada. It would do my heart good to find silver right here in this roadcut and put it to the local highway engineer.”

Deffeyes pointed out to them that while new gold strikes are still occurring in the world and new gold mines are still being developed, no major silver mine has been discovered since 1915. The pressure for silver is immense. Dentistry and photography use two-thirds of what there is, and there are at present no commercial substitutes. “We’ve been wiped out. We’ve gone through it, just as we have gone through magnesium and bromine. You can raise the price of silver all you want to but you won’t have a new mine.” He predicted that as prices went up silver would probably outperform gold, as, by percentage, it overwhelmingly has done. The potentialities in the secondary recovery of silver appeared to him to be a lot more alluring than working through tailings for gold.
His next move was to buy aerial photographs from the United States Geological Survey. The pictures were in overlapping pairs, and each pair covered sixteen square miles. "You look at them with stereo equipment and you are a giant with eyeballs a mile apart and forty thousand feet in the air. God, do you have stereovision! Things jump off the earth. You look for tailings. You look for dumps. You look for the faint scars of roads. The environmentalists are right. A scar in this climate will last. It takes a long time for the terrain to erase a road. You try to reason like a miner. If this was a mine, now where would I go for water? If this was a mill here, by this stream, then where is the mine? I was looking for mines that were not marked on maps. I could see dumps in some places. They stood out light gray. The old miners made dumps of rock that either contained no silver at all or did not contain enough silver to be worth their while at the time. I tried to guess roughly the volume of the dumps. Mill tailings made unnatural light-gray smudges on the pictures. "Some of the tailings and dumps I found in these mountains appear on no maps I've seen."

He flew to Nevada, chartered a light plane, and went over the country a thousand feet above the ground, taking fresh private pictures with a telephoto lens. When he flew over places where other scavengers looked up and waved, he crossed those places off his list.
Along with sparse rainfall, the deserts are characterized by high heat. Their low humidity lets the sun’s rays penetrate the atmosphere and warm the ground to an extent that is impossible in moister places. The highest temperature ever recorded on earth, 136.4 degrees in the shade, was measured at Azizia, in the Libyan sector of the Sahara. Summer temperatures of 120 degrees are a desert commonplace and the surface of the ground often gets 30 to 50 degrees hotter than the air.

Moisture in the air forms an effective insulating blanket over most of the earth's surface. But the low humidity of typical deserts allows their daytime heat to dissipate quickly at night. After a blazing summer day the temperature may drop 50 degrees or more. The desert's nighttime coolness is an important factor in the survival of plants and animals.

Desert plants fall into two categories according to the way they deal with the problem of surviving drought. There are the drought evaders—those which persist only as seeds, ready to spring up when it rains, to flower quickly and produce another crop of seeds, and to die again. There are also the drought resisters—those which have evolved various methods for storing water, locating underground water, or reducing their need for water by such devices as shedding their leaves. The drought resisters are perennials; they manage to live from one rainy season to another, slowly growing bigger and bigger. Of these year-rounders, the succulents (so called for their juiciness) are a small but interesting fraction. They may store water in their leaves, like the century plant; in their stems, like the cactus; or in underground containers, like the night-blooming cereus.

On the American deserts the best-known succulents are the cacti. They come in a wide range of sizes, from so-foot-tall giant saguaros to tiny round cacti the size of a thumbnail. They take thick, cylindrical or even spherical forms, thereby exposing a minimum of evaporating surface to the air and light. They are leafless except in youth, and then the leaves are small, scale-like affairs. Typically their surfaces are spiny, discouraging thirsty animals, and fluted like an accordion, so the fleshy stem may expand quickly when the plant drinks and contract slowly as it uses up the water. The root system is widespread and shallow.
The deathly quietude of the noonday summer desert, where no creature seems to stir, is an illusion. Life does go on here, a teeming life that is highly successful if all but invisible. Going about their business in a tightly interlocked association are insects and spiders, fishes, snakes and lizards, cats, rats and bats, birds and foxes. In fact, species of all the familiar animals of the woods are at home here, and many more.

Animal life on the desert, as anywhere else, is completely dependent upon plant life for sustenance. Only a green plant can manufacture organic food from non-organic materials—carbon dioxide, water and energy from the sun. Upon the economic foundation of plants there develops a complex society of animal species; some eat plant foods directly, some eat each other, but all in the final analysis trace their livelihood back to green leaves and radiant sun energy. The nature of the vegetation, therefore, governs the kinds and relative abundance of animals. On the desert there are two primary phases of plant growth—the lush period of rainfall when all kinds of vegetative foods are in good supply (tender leaves, flowers, seeds and fruits), and the long droughts when the only available foods are plant stems, roots, drought-resistant leaves and seeds dropped to the ground. The critical time for animals, naturally, is the drought period, and the animals which populate desert environments are those that have found a way to cope with or to evade the lean, dry seasons.
The desert animals have adapted to survive drought, too, but more of ten by a change of habit than by altered structure. There are some anatomical and physiological differences between them and the animals of the moist forest, but they are minor compared to the striking structural differences shown by the plants. To combat heat and aridity, the animals limit their activity to the cool hours of night, or of early morning and evening.

Nearly all the desert's birds and mammals do this; they can be nocturnal in habit as well as crepuscular—active at dawn and dusk. A desert that appears to be devoid of animals during the scorching heat of midday literally comes to life with the coolness of late afternoon and evening. As the shadows lengthen, it is the reptiles that make their appearance first. Lizards begin scurrying over the ground, gathering a supper of the insects that are moving out of their shelters. Then the birds start to stir, calling softly at first from their sheltered perches but soon actively foraging. A thrasher darts from one clump of brush to another. A saucy cactus wren pours forth its song from the crown of a cholla, proclaiming this thorny home to be its own. Gambel quail appear along the sandy washes, scratching in the ground for buried seeds. Then flycatchers, desert sparrows, tiny verdins and mourning doves all become active.

The mammals are generally last to emerge. Ground squirrels often forage along with the birds, and a lanky jack rabbit may be seen sitting quietly in the shade of a rock; but the burrowing rodents await the late dusk to come out of their underground shelters. Now, too, the bats wing from dark desert caves, gathering high flying insects from the blue-black sky. The owls and carnivores, which feed on the rodents, are among the last to become active. Through the starry night the desert is astir with the activities of the mammals, the few night birds and the snakes that feed largely on the mammals. In the morning the sequence is reversed. Mammals retreat to their hiding places. Most lizards await the warmth of the rising sun to heat their bodies so they can move quickly while feeding. By the time they have fed, the birds have quieted down and moved to sheltered perches. Everyone rests through the heat of the day.

Of the major animal groups, the reptiles, lizards, snakes and tortoises—are probably as desert-adjusted as any. Their scaled or plated skin is highly resistant to drying, and their eggs are usually deposited in the soil, where there is enough moisture for them to hatch. The young emerge as miniature adults without going through a tadpole stage as frogs must.

To anyone walking on the desert in daytime the lizards are the most conspicuous of all moving things. Fast runners like the zebra-tailed lizard dash about the flats at high speed on their hind legs, their forelegs dangling against their chests. Spiny lizards scuttle over the rocks or around the trunks of desert trees—not aimlessly, but in pursuit of insects on the wing. On stretches of sand the flat, prickly horned lizards (better known incorrectly, as horned toads) patiently await passing beetles or ants. The horned lizard, concealed by its color, will hardly bother to get out of the way of a human footfall, but at the approach of a rattlesnake or road runner may plunge headfirst into the sand to try to bury itself. All the lizards but the Gila monster have a quick trick to foil predators: when grabbed by the tail, they simply shed it and escape. In time they can even regenerate a fair replica of the old tail.

Because so many lizards are seen abroad on the desert in hot weather it might be assumed that they are oblivious to heat. Not so: no reptile can survive a body temperature of 120 degrees and most lizards suffer heat prostration at 104 to 116 degrees. Their optimum activity is in the general range of the temperature of the human body, 95 to 100 degrees Fahrenheit.

Being cold-blooded and having no built-in cooling system requiring intake of water, a lizard takes its temperature from its external surroundings. It must move back and forth from sun to shade, or go underground, to keep its body heat within tolerable limits. On the sun-baked desert floor, which may get as hot as 180 degrees, no lizard could stay alive more than a few minutes. The same is true of desert snakes. Their critical body temperature is even lower, and 101 to 103 degrees quickly brings prostration or even death.
Temperature readings taken on active lizards fluctuate only a few degrees, showing how successful they are in regulating their own temperatures. Some may even have special organs to help them. Recent studies of the spiny lizard in California suggest that the parietal eye, a strange vestigial organ in the middle of the head between the two normal eyes, is one such. It resembles a true eye in having cornea, lens and retina, with a nerve connecting it to the brain. If the parietal eye is surgically removed or masked with foil, the lizard becomes dangerously careless about its exposure time in the bright sun. Most lizards are insect eaters, but the rock-dwelling chuckwalla is a strict vegetarian, feeding on the buds, leaves, flowers and fruits of almost any desert plant, including the creosote bush. When alarmed, the chuckwalla heads for a rock crevice. There, if molested, it instantly sucks in air and inflates itself so that it becomes jammed tight and cannot be pulled out.

The only poisonous lizard in the United States, the Gila monster, is also one of the largest, though only 20 inches or so long. Its diet consists of bird eggs and nestlings, small rodents and other lizards. When biting, the Gila monster hangs on with a bulldog grip and chews slowly, while its poison flows along grooves in the teeth. There is no record of a healthy human dying from its bite, and the lizard is sluggish and hard to provoke, but a victim may spend several painful days in the hospital. Recognizing it as an animal of scientific as well as tourist interest, the state of Arizona passed a law a few years ago giving full protection to the Gila monster, along with the horned lizard. This is perhaps the first legislation ever enacted for the benefit of a venomous reptile.

Both in species and in individual numbers the snakes of the desert are much less common than lizards. A few small snakes are insectivorous, but most feed upon other vertebrates—lizards, frogs and toads, smaller snakes, occasional birds, and especially the numerous rodents and rabbits.
The moving light of dawn finds the desert a piece at a time, first touching the highest peaks with orange while the rest of the world waits beneath a sea of blue half-light. I remember especially an April morning when my wife Virginia and I walked into the deepening indigo of an Arizona canyon just as the first earlybird songs were being ventured. Moments later, the sun discovered the skymost crags above us, sending a mellow glow among the canyon’s spiny cactus forest of organ pipes, saguaros, and chollas. Dipping down the chasm’s rocky sides, the sun at last sought out a cluster of paloverde trees in fullest bloom, golden fleece against a purple-shadowed stone backdrop. "Could anything be more beautiful?" Virginia asked. I thought not.

Great American Deserts
by Rowe Findley
We would know so many moments of stunning lights and haunting panoramas in our desert travels, however, that comparisons would drown in richness. Yet the excitement and beauty of desert lands go far beyond the mere experience to a sense of their vital place in the scheme of our world. Vaulting stone arches, striped buttes, huge mesas, and fragile spires bear vivid witness to the power of erosion that wears our continents down. Cinder-heaped volcano fields and great fault-lifted mountains testify to the dynamic forces that are building the continents up again. The resourceful kangaroo rat and hardy creosote bush tell of life’s ability to endure and thrive in a harsh realm. The ranchers and prospectors and boomers and dreamers bear witness to the self-reliance born of necessity, of cheer tinged sometimes with desperation, of
Some of my friends think my love of such country is a bit wild too. Here's the picture that often comes to their minds at mention of the word desert.

Glaring sun...saas of dunes shimmering in heat waves toward distant salt flats...the wind erasing a zigzag of footprints...another victim swallowed up.

Some of my desert friends tend to be too enthusiastic in the other direction. They talk in terms of Shangri-Las where health is automatically assured.

Obviously, desert means different things to different people, and the truth lies somewhere between opinion's extremes.

People fear desert heat, and rightly so, but we found cold to be more of a problem. I've awakened in late April in southern Utah to find my sleeping bag under an icy mantle of snow, and Virginia and I were glad we had roaring campfires and snug down-filled sleeping bags for February nights on the quarter-mile-high desert of central Baja California.

Though many people have met tragic death in the desert, many more have come to the land and regained health. And just as there is something in the clear dry air that may restore the body, there is something in its ever-changing lights, stubborn life, and distant skylines that exhilarates the spirit. "It's a country where you can see clear into forever," said El Paso artist Russell R. Waterhouse, whose perceptive brush captures the land's big sky.

There was a time not so long ago when Virginia had her doubt about deserts. "I'm a mountain person," she said, and by that she meant green mountains—like the Great Smokies or the forested slopes of the Rockies.

The fact that mountain ranges generously corrugate North American desert, with many rooftop forests of pine and aspen and fir, did much to help me change Virginia's tolerance for arid country to a growing affection.
Summer thunderheads took ever bigger bites out of the Utah sunset. Boiling black clouds curtained off the afterglow, and gusts whiplashed the campfire where we clustered—my family and friend Ted Ekker, our guide in this south east corner of his native state. “These desert storms blow by quickly,” Ted forecast. “Even when you think thunder and lightning are going to tear up the world, the clouds move on after a few drops.”

The lightning was horrendous. Multi-armed bolts jabbed heaven and earth. Staccato flashes conjured darkness into day, alternating blackout with bright images of orange cliffs. Volleys of thunder bounced off the high sandstone walls around us with an unremitting roar that shook the soles of our feet.

The first few drops kicked up a dusty smell, almost stopped, and then gradually multiplied to soaker status. What the raindrops had not managed to do upon descent, they achieved on the ground; they collected into a two-inch sheet that flowed down the slope where we stood and drowned the fire’s underlying bed of embers.

Now the storm approached gully-washer stage; water surged downhill, rushing over the hard-baked earth and rock-mantled cliffs. Runoff cascaded into sandy washes and stream beds, usually bone-dry. Ted spoke of some gully washers he had seen, flash floods with walls of water five or six feet high that swept away cattle and turned cowboys aquatic. He remembered a crossing on Utah’s Dirty Devil river so altered in a single rainy season that a horse and wagon almost sank from sight in the mud where once the bottom had been solid.

After a couple of hours the storm moved on east, and we got some sleep under a starry sky that appeared more brilliant for its recent washing. The sun came up white gold in a turquoise sky.
Native American Culture
The Anasazi Ruins of the Southwest
William M. Ferguson and Arthur H. Rohn
Foreword by Richard B. Woodbury
The Anasazi Indians of the Southwest represent 2,500 years of cultural continuity from the early Basket Makers of 700 B.C. to their modern descendants, the Pueblo Indians. The pueblos and cliff dwellings built by these ancient people during their halcyon days between A.D. 1000 and 1500 are the most spectacular ruins north of Mexico.

The magnificent ruins of Anasaziland are located in a variety of settings: Chaco Canyon in the middle of the desert of northwest New Mexico, Mesa Verde on the forested high mesa in southwest Colorado, Canyon de Chelly and the Navajo monument's ruins (Kayenta) in cliffs deep in canyons of eastern and north Arizona, Wupatki on the north slope of the San Francisco peaks near Flagstaff, and Bandelier with its living shrines in the rugged canyons next to Los Alamos. Also included in the book are many other accessible Anasazi sites, each of which is important to the Anasazi culture and exciting to visit. Examples include Aztec Ruin with its restored great kiva and Chimney Rock Pueblo built on a narrow ridge 1,000 feet above the valley floor in southern Colorado in a setting that rivals that of the temples of ancient Greece.
This volume looks at the extant ruins of the Anasazi culture from Basket Maker II (before A.D. 500) to the end of Pueblo IV, when the Spaniards arrived—the beginning of historic times. Many of the major ruins are preserved in the national parks and monuments and cover the phases from Basket Maker III to the end of Pueblo IV (600 to 1540). Because of the number of excavated ruins, the emphasis in the book lies with Pueblo III times at Mesa Verde, Chaco Canyon, Kayenta, and Canyon de Chelly. Pueblo IV coverage is less extensive. These ruins are found at Bandelier, Pecos, Salinas, and the Hopi Mesas. The contact and amalgamation of the Anasazi with their southern neighbors, the Mogollon, Sinagua, and Hohokam, during the 1200’s is displayed at Wupatki.

The most reliable tool for reconstructing the life of the ancient Anasazi is to consider the culture of the Pueblo Indians of historic times. They are the descendants of the ancient ones. We look at the way these Pueblo Indians live, their social organization, rituals, mores, myths, and legends. From these sources we can extrapolate about how their forebears lived in prehistoric times.

The Anasazi were a people almost unique in the world; their culture was egalitarian. There were no kings, chiefs, nobles, warrior class, or elite. They were farmers who constructed masonry pueblos and cliff dwellings, hunted small game, and planted and harvested corn, beans, and squash. They were a neolithic people without a beast of burden, the wheel, metal, or a written language, yet they constructed magnificent masonry housing and ceremonial structures, irrigation works, and water impoundments.

There is strong disagreement among Anasazi scholars concerning interpretations of the Anasazi culture. Without written records, there can be no definitive answer to many of the enigmas of the past. We have endeavored to present contradictory theories and have not endeavored to defend any particular point of view. The principal thrust of this book is to display and explain the magnificent Anasazi ruins of the Southwest and the culture of these ancient peoples.

Richard B. Woodbury
The Anasazi

Anasazi is the name given to the prehistoric Indians who inhabited the Four Corners area of southeastern Utah, northeastern Arizona, south western Colorado, and northwestern New Mexico for a 2,000-year period from about 700 B.C. to the arrival of the Spaniards in the Southwest. The Anasazi descended from older Paleo-Indians and may have been a fusion of Shoshoneans from the Great Basin, Tanoans from the western plains, and Keres from the mountains. These Indians were not indigenous to North America; their ancestors—and the ancestors of all of the Pre-columbian peoples of the Western Hemisphere—came from Asia across what is now the Bering Strait between Siberia and Alaska on the land bridge. Dry land was created because the water trapped in the great glaciers of the Ice Age had lowered the level of the world’s oceans. These migrants followed the ice-free corridors south across what is now Canada into mid-North America and Central and South America.

For most of their known history, the Anasazi occupation centered around the Four Corners in the drainage of the San Juan and Little Colorado rivers. Anasaziland covered most of the high Colorado Plateau: the geographic area bounded by the Rocky Mountains on the north and east, the Great Basin on the west, and the Sonoran Desert on the south, or in terms of modern landmarks, the territory inside a line beginning at Pagosa Springs, Colorado, extending northwesterly to Monticello, Utah, southeasterly to Springerville, Arizona, easterly to Grants, New Mexico, and northeasterly along the Continental Divide back to Pagosa Springs.

Two additional small regions occupied by the Anasazi lie east of the Continental Divide in northern New Mexico—the territory around Taos, and the Chama River valley from Chama to Española. Following the Great Migration of the late 1200s, Anasaziland had receded to the Rio Grande valley from Taos to Socorro, the Zuni River Valley of west central New Mexico, and the four Hopi mesas near Keams Canyon, Arizona.
Native American Culture

**Pueblo II (A.D. 900 to 1100)**

It is during Pueblo II times that the architecture and site arrangement we see in the restored ruins today developed. Rectangular masonry houses with contiguous rooms were common in the Four Corners area. The unit pueblo consisted of a combination of a multi-roomed masonry building fronted on the south by a kiva and a trash dump. The Anasazi placed their garbage, broken pottery, worn out stone tools, and other dispensable things in a pile to the south their work plaza. These deposits are called "trash dumps" by the archaeologists. The cliff-dwelling unit-type construction was usually built against the back wall of a rock alcove with one or more kivas in front. Each block of ten to twelve rooms, one kiva, and associated refuse constituted a modular unit, a unit pueblo, of Puebloan village arrangement.

The kiva is the centerpiece of the Anasazi culture. During this stage it developed from the earlier pithouse into the cultural center of the unit pueblo. It became a fully subterranean chamber with a banquette around its circumference, a central fire pit, a ventilator, an air deflector, and a sipapu hole. The sipapu was a hole a few inches in diameter in the floor of the kiva representing the opening in the earth from whence their ancestors were believed to have reached the surface of the earth. The kivas were used by kin, lineage, or clan groups. Prototypes of great kivas were known as early as Basket Maker III.

The Anasazi had no system of writing and therefore could leave no written records. So the only way we can hypothesize about their social system is to assume that the social order of the ancient Anasazi was similar to that of the Pueblo Indians of the historic period. Certainly this is conjecture, but by dovetailing modern Indian traits with prehistoric social systems of primitive peoples worldwide we are able to make an educated guess concerning how the Anasazi lived at the end of Pueblo II. By that time, the people were probably divided into descent groups or clans known by the name of some plant, animal, or object such as corn, bear, or flute. The members of the clan or lineage segment were the presumed descendants of a common ancestor, most likely female.

As in the case of modern Pueblos, we can assume that each of the ancient towns, together with their surrounding habitations, was politically and ceremonially self-sufficient. We might also postulate, based upon the architectural division of many of the later Pueblo III towns, that then as now there was a duality of social administration, something akin to the Winter and Summer People of the modern Pueblos.

Houses traditionally belonged to the women. Husbands came from another clan. Many ethnographers argue that the society was egalitarian as it was in the hunting-gathering era, except that the men did the hunting and farming and the women did the gathering and took care of the children. Others suggest that as farming became more productive and the population increased, leisure, and wealth became possible, at least for some, and an elite class developed.

The Chaco Canyon Anasazi offer the strongest argument for an elite class. The Chacoans produced a system resembling a hub culture with outlying towns connected to Chaco Canyon by a series of roads and a communication network. The architecture and irrigation works they built are impressive, but the culture flowered and waned in a very short period of time—only about sixty years from A.D. 1070 to 1130. If there was an elite class superimposed upon the existing society, it didn't endure and the Chaco Phenomenon died. Chaco and other Anasazi areas have no evidence of elite quarters. There are burials with jewelry, ceramics, and other artifacts but none with the essential symbolism that tells us that this deceased person was a ruler, a noble, an elite person of a special class. The Anasazi seem to have been egalitarian people.

During Pueblo II several other developments contributed to the flowering of the Anasazi culture. Baskets were frequently replaced with more versatile pottery, especially coiled pottery made by rolling the purified and tempered clay into thin ropes that were then coiled into various shapes and sizes. Smooth finishes were possible through the use of slips of clay in liquid form applied to the surface of the pot, which was then decorated with black painted designs.
As a part of the Mesa Verde center we also include the pueblos of the Montezuma Valley near the Colorado city of Cortez, which included the unexcavated ruins of Mud Springs, Yucca House, Yellow Jacket, Sand Canyon, Goodman Point, and the partially stabilized site of Lowry. In northern New Mexico, the Aztec Ruin is a Mesa Verde-type site with a small Chacoan population, who constructed some Chacoan style rooms and kivas, while the Salmon Ruin is a Chacoan outlier.

The classic pueblo stage was characterized by settlements of large, multiroom, multistory stone masonry pueblos with many kivas, built in open valleys, at canyon heads, or in natural rock shelters. The largest settlements probably held 2,000-2,500 people and focused on a great kiva or a tri-wall structure. The Anasazi had developed water management systems that delivered and stored water for domestic and irrigation uses. By the end of this stage the San Juan drainage, Chaco Basin, and Kayenta were abandoned. Essentially, Pueblo III Anasazi times are marked by three elements: population increase, architectural development of masonry apartment house like structures, and migration from and abandonment of the Four Corners.
The major ruins at Chaco Canyon may have been abandoned by A.D. 1150. The final known treering date at Mesa Verde is A.D. 1278, and it is assumed that the area was abandoned by 1300. These people left the northern area and moved southeastward to reestablish their culture along the Rio Grande. The Kayenta region in northeastern Arizona, which included the Canyon de Chelly, held on slightly longer. The 1270's and 1280's were the expansion years at Keel Seel and Betatakin (Kayenta) but at Canyon de Chelly, they too, were abandoned shortly after A.D. 1300.

At this juncture in the history of the Anasazi two questions arise: where did they go and why did they leave? The Mesa Verde and San Juan River peoples ultimately moved to and settled in the Rio Grande valley, while the western peoples moved south and west into what is now the Hopi settlement area. The Chacoans may have moved to the Zuni region or preceded the Mesa Verdeans to the Rio Grande. What precipitated the migrations is neither simple nor straightforward. In the first place, there was no sudden mass exodus. The evidence suggests they drifted away in smaller or larger groups for a period of more than a hundred years. The only fact agreed upon is that the great pueblos were abandoned by about A.D. 1300, which brought the Pueblo III stage to a close.

Among the suggested causes for the abandonment are: the great drought (1276 to 1299), climatic changes that caused arroyo-cutting which destroyed the tillable land, continued attacks by the Athapaskan Navajo and Apache and Shoshonean Indians, internecine warfare (one group of Anasazi against another), disease, and the shortening of the growing season because of a drop in the mean temperature resulting in sharply reduced production of food.
Pueblo IV (A.D. 1300 to 1540)
The principal centers of culture during Pueblo IV and Pueblo V times were located in the Rio Grande valley, the Zuni (or Cibola) region, and the Hopi Mesas (or Tusayan) region. There were other zones where the Pueblo IV and V Indians lived after the migrations early in the 1300’s, but these three regions contain the principal extant ruins.

Among the Pueblo IV sites in the Rio Grande valley of New Mexico are the Pajarito Plateau sites of Puye and Bandelier; the Galisteo Basin ruins; the Salinas Group sites located near Mountainair—Gran Quivira, Quarai, and Abo; Acoma and Kuaua, near Albuquerque; and Pecos, east of Santa Fe.

The Zuni Pueblos (Hawikuk and Halona), at Sinna, and Pueblo de los Muertos are located south of Gallup. The three Hopi Mesas and Antelope Mesa are located southeast of Tuba City, Arizona, contain several Pueblo IV and V ruins: Awatovi, Kawaika, Kokopnyama, Sikyatki, Old Walpi, and Old Oraibi. And near Winslow is Homolovi.

Pueblo Indians today can trace their ancestry from Pueblo IV times in the 1300’s through the Pueblo V stage (1540 to 1850), during which time they were subjugated by the Spaniards, Mexicans, and the early New Mexicans. The last stage, Pueblo VI, beginning about 1850, brings the descendants of the Anasazi to the present time.
Physical Appearance
The ancient Anasazi resembled the Pueblo Indians of today; this we know because of the many withered bodies preserved by the dryness of the caves where they were buried. Their skin was dark brown. Their features show some Asiatic characteristics. The skeletal structure of their heads was rather long and narrow, and their faces were of medium length, with high cheek bones. The natural long-headedness was artificially deformed to round-headedness starting in the Pueblo I stage by the use of wooden cradleboards. We assume that they had brown eyes and smooth and relatively hairless faces and bodies.

The scores of skeletons found in the San Juan area show the men to have averaged about five feet four inches tall (some were six feet tall), and the women were somewhat shorter than the men. These skeletons also reveal that the Anasazi Indians had shovel-shaped upper incisor teeth, a physical characteristic found frequently in Asiatics.

It can be inferred from the skeletons that they were moderately sturdy people, perhaps even stocky. Change in physical appearance is slow to occur unless there is an infusion of different genetic types. Therefore, the ancient Anasazi probably looked significantly like the Pueblo Indians today.
Kivas

The evolution of kiva architecture is a remarkable story in itself. The kiva changed through time, developed various styles representative of the Anasazi of different regions, and evolved into a structure that served both kinship groups and whole communities. Kivas have become one of the clearest hallmarks of Puebloan culture.

Development of the smaller kin-group kiva is completely documented from studies at Mesa Verde. Ruins Roads Site 16 and Twin Trees show how the old pithouse four roof-support posts were first set in the front edge of the banquette around 900, then replaced by four short stone masonry columns or pilasters footed on the banquette around A.D. 1000, and finally increased to six tall masonry pilasters by 1100. The shift from four to six pilasters signaled a shift to a cribbed log, dome-shaped roof construction not unlike the old Basket Maker II cribbed log construction for pithouses, except that the area around the dome was filled to make a level courtyard at ground level.

While the kiva roof-support system was changing, so were other features. Stone masonry lining began to replace the old clay-plastered earth sides of the pit. At first, this masonry merely shoed up weak spots of loose earth on the front of the banquette, but by 1100 it lined the entire structure. The Anasazi then applied coats of clay plaster over the face of the masonry. By the 1200's, painted murals appeared on kiva wall plaster, although the actual beginnings of this practice may date back considerably earlier. By the time of the Spanish conquest in 1540, kiva mural painting had reached a very sophisticated state, as exemplified at Kawaika on the Hopi Mesas, at Kuaua in Coronado State Monument near Bernallilo, New Mexico, and at Awatovi on Antelope Mesa in Arizona.

With the advent of stone masonry linings, small storage niches were frequently built into the masonry facing. When six roof-supporting pilasters became common, the space between the two southernmost pilasters and directly above the ventilator tunnel was deepened to form a recess at banquette level. A bird's-eye view of one of these kivas without its roof would reveal a keyhole shape.

Keyhole-shaped kivas with six masonry pilasters and ventilator tunnels entering at the floor level are the style characteristic of the Pueblo III Anasazi at Mesa Verde and neighboring Northern San Juan districts such as the Montezuma Valley. Similar distinctive styles may also be recognized for Pueblo III Chaco and Kayenta Anasazi. Chacoan kivas tend to be larger than their Mesa Verde-style counterparts: their ventilators enter the chamber below floor level opening adjacent to the fire pit, thereby obviating the need for a separate deflector. They have a shallow southern recess at floor level—really more an offset in the wall—and they most commonly have eight low pilasters to support the cribbed roof. Chacoan style pilasters consist of a short log embedded in the kiva wall with thin masonry veneers on each side; the logs of the cribbed roof rest on these short logs. Caches of turquoise have been found in pockets on the top surface of many such log pilasters in Pueblo Bonito kivas.

Chacoan kiva fire pits tend to be stone lined. Many have one or more long vaults set into the floor—used for storage or as foot drums. The typical Chacoan masonry style of small, closely fitting sand stone blocks sets this kiva style apart from the Mesa Verde style, where larger stones and some upright slabs above banquette level were set in thick mud mortar.

Pueblo III marked the epitome of kin-kiva construction and use by the Anasazi. Probably every kin group had its own kiva for both ceremonial and domestic use. Following the Great Migration of the late 1200's kin kivas became less numerous. There were more people yet fewer kivas, especially in the Rio Grande valley. Typical kiva features continued to be incorporated into many Pueblo IV kivas, but a new style also developed. The Anasazi of the Pajarito Plateau west of Santa Fe built many of their houses and kivas against the bases of vertical cliffs of soft volcanic tuff. They burrowed many rooms and kivas into the cliffs themselves. Such cave kivas tend to be ovoid with fire pits and side entries. Roof supports were not needed. Sipapus were only occasionally present. Side entries provided ventilation. Rows of loom anchors occur commonly. Because of the Spanish attempts to suppress Pueblo Indian religion, kin-group-style kivas are found today only in Taos and in the Hopi pueblos.
Great Kivas
The so-called great kivas had a separate path of development from the kin-group kivas. They are distinguished primarily by their large size more than forty-five feet across—by the presence of masonry fire boxes and floor vaults, and by the rooms attached to the main chamber. Like the others, great kivas evolved from pithouses, but from a kind of pithouse that stood apart from others by virtue of its unusually large size.

A typical great kiva of Pueblo III was circular, forty-five to seventy feet in diameter, and dug partially into the ground. Stone masonry lined the pit and carried the walls above ground level. Chacoan style masonry characterizes the great kivas of Chaco Canyon and its outliers, while those north of the San Juan River have Mesa Verde style masonry.

Entry usually could be made down staircases from the south and north sides. The north staircase normally led to a ground-level masonry room, attached to the circular kiva wall, in which an altar like platform usually stood. The Aztec Ruin great kiva had a set of masonry rooms completely encircling the structure’s exterior. Each room could be entered through an exterior door or from inside the kiva by climbing a ladder of short sticks set in the interior wall. Many great kivas lacked this circle of rooms but instead had a row of niches in the inside circular wall; others, such as Casa Rinconada in Chaco Canyon, had a tunnel leading from the north altar room beneath the floor to an opening near the center of the floor. As in the kin group kivas, great kivas were oriented along a north south axis from a north altar room through the north entry, firebox, and sipapu, to the south entry, with other features arranged symmetrically on either side.
The Ancient Ones: The Anasazi

A prehistoric Indian culture was developing in this region before the birth of Christ. The name "Anasazi," a Navajo word meaning the "the ancient ones," was given to these people. At first, the Anasazi were foragers and hunters, living off the land, roaming the canyons and mesas looking for food. They used native materials such as wood, bone and plant fibers to produce crude tools and shelters.

As the cultural influence from Mexico diffused northward, they became a semi-agricultural people, producing corn, squash and beans in the canyon bottoms and on the mesa tops. Mannose and mutates were used to grind their corn. These crops were supplemented with nuts, seeds, berries, and fruit of the yucca and cacti plants. They ate rabbits, gophers, beavers, and other small animals and occasionally killed a deer or bighorn sheep. The larger animals were utilized entirely; the meat eaten, and the bones, sinews and skins used for tools and clothing. The main weapon of the Basketmaker was the atlati, a throwing stick used to give added leverage to a short spear.
As their name implies, the Basketmakers used the fibers of dogbane, yucca and other native plants to make their baskets which were of excellent quality and design. Sandals were also made of these fibers to protect their feet from the cacti and sharp stones.

As the Culture developed further, the Anasazi became a sedentary, agricultural people and began establishing communities. The art of making pottery was refined to a high degree during the Pueblo period of the Anasazi. Each area that the Anasazi inhabited had a distinctive pottery style and design. They began building large communal houses. Religious rituals and shrines became increasingly important.

About 1276 A.D., a long drought began in the Southwest which ruined the harvest and depleted the food supply. Other climate related problems may also have been involved. Increasing dangers from marauding, nomadic bands of Indians who entered the region at the time and other unknown factors also may have influenced the Anasazi's abandonment of the four corners area by the end of the thirteenth century.
Four Corners Region
Four Corners Country
by Ian Thompson

From the peaks of the San Juan Mountains the country plunges thousands of feet, levels briefly to sweep across the mesas, then breaks and plunges again into the far, shimmering basins. Rock as far as the eye can see.

The Four Corners Country we call it, this place where Arizona, Colorado, New Mexico, and Utah meet. It has had other names before, uttered in forgotten tongues. It is a place of rearing, plunging, freezing, scorching rock, not an easy place for life to find a roothold or a toehold. Yet life, in a multitude of forms, does cling to this vast sweep of stone.

The center of the Four Corners Country is marked by a monument where the corners of the four states come together on a sere and rubbed plain just south of the San Juan River. The outer boundaries of the Four Corners Country are more difficult to define. Those boundaries surround the people who consider themselves residents of the region.

The heartland of the Four Corners Country is the San Juan River Basin that is about a twenty-five-thousand-square-mile expanse of peaks and brilliant mesas and canyons draining into the San Juan River which joins the Colorado River at the foot of Navajo Mountain in Utah.

Though the region is vast, not many people call it home. The Four Corners Country remains one of the most sparsely populated, rugged, and remote parts of the United States.

Two thousand years ago, after the dawn of agriculture here, the Four Corners was the birthplace of the Anasazi civilization, whose people called this place home for over a thousand years before they departed. They left behind the stone towns preserved today in Mesa Verde and Chaco national parks and Aztec, Canyon de Chelly, Navajo, and Hovenweep national monuments. The Anasazi joined other ancestral peoples along the Rio Grande or on the Hopi Mesas where their descendants live today.
The group will spend a required one night in Albuquerque. More information about this area can be found at the Visitor Center in Albuquerque.

Photography Supplies
Kurt's Camera, Albuquerque
Knight's Inn
All participants should arrive by 5:00 pm on Tuesday, June 2, at the Knight's Inn. A group dinner is at 7:00 pm at Little Anita's restaurant in Old Town, Albuquerque. If you are arriving late into Albuquerque, the group will be at Little Anita's by 7:00 pm.
Albuquerque
The plaza was the center of Albuquerque's business and social life from the time the city was founded in 1706 until the railroad came in 1880. With the coming of the railroad, business and social activities shifted to the new Albuquerque which sprang up on the sandhills around the railway depot a mile or so to the east.

Old town deteriorated over the years in the shadow of fast growing of fast-growing New Town, and adobe buildings around the plaza which once served as spacious haciendas, hotels, mercantile stores, banks, gambling halls and saloons became vacant and began to fade away. During the past 40 years, however, these old business buildings and homes of the original Albuquerque have been given a new lease on life. Restored and remodeled, they now house quaint gift shops, restaurants, Indian trading posts and arts and crafts galleries.

Today with a population of around 350,000, Albuquerque is by far the largest city in New Mexico. It has quadrupled in size since World War II, and some business experts predict that it has just started to grow. Most Albuquerqueans would prefer that their city not become much larger, but ruefully admit they probably will not be able to stop the expansion. Fly-drive vacations usually begin here, since most major airlines serve the international Airport. Almost all visitors to New Mexico come to or at least through Albuquerque.

During World War II, Sandia Laboratories were established here as the scientific and military liaison with Los Alamos Laboratories, so the city has developed as a major center for atomic, nuclear, solar and other forms of energy development. Regional offices for many federal agencies are in Albuquerque. The city is also the business center form the mining and livestock industries in the state.

In spite of the problems that always plague a growing city, Albuquerque has preserved much of its historic past and artistic environment. More professional artist live and work in Albuquerque than any place else in the state.
Santa Fe National Forest
Albuquerque to Santa Fe
Santa Fe & Vicinity

Directions from Albuquerque to Santa Fe

The road on the east side of the Sandias is the most scenic route to Santa Fe. SR 14 continues north past the turnoff to the crest, through Golden, Madrid, and Cerillos, old mining towns. Gold and silver were mined at Cerillos during the early 1800's, and Amerindians mined turquoise in ancient times.

Enter Santa Fe on Saint Francis Drive. Parking is near the plaza. Allow 2.5 hours to drive to the Paliza Group Campsite in the Santa Fe National Forest.
Directions from Santa Fe to Santa Fe National Forest
Go south on State Route 4 about 11 miles, to the left, turn off onto Route 290. Proceed about 6 miles to Ponderosa (past winery). Take National Forest Road 10 north, 5 miles to Paliza Group Campsite.

Paliza Group Campsite
Paliza is located in the scenic Santa Fe National Forest and offers a full spectrum of outdoor recreation opportunities, from sightseeing and picnicking to wilderness backpacking and ski touring. Its diversity of natural communities ranges from arid to humid, desert to alpine tundra, grassland to deep forest. It has some of New Mexico's highest ridges, good fishing in clear mountains lakes and rushing streams, abundant wildlife, a network of backcountry roads and trails, almost 300,000 acres of roadless wilderness.
The group will spend 4 nights in Santa Fe National Forest.

Photography Supplies
The Camera Shop, Santa Fe
Decol's Photo, Los Alamos
Craft Stores & Museums

Bradbury Science Museum
Visitors may explore the museum, experiment with lasers, use computers and view Laboratory research in solar, geothermal, fission and fusion energy. Bradbury Science Museum offers a glimpse into World War II's historic project as well as today's advanced science and technology of Los Alamos National Laboratory. For more information call (505) 827-5442.

Museum of Fine Arts
This museum is an outstanding example of the Pueblo Revival style of architecture that has become synonymous with the Santa Fe style. As Santa Fe's cultural scene expanded in the early 1900's, the Museum of Fine Arts was opened in 1917 as a permanent home for the works of artists who were arriving in New Mexico from around the world. Today, the museum shows both contemporary and historical works by outstanding Southwest and international artists. An ambitious exhibition schedule offers a large variety of changing exhibits yearly. In the summer, the Santa Fe Chamber Music Festival celebrates its lively art in the museum's St. Francis Auditorium. For more information call (505) 827-6442.

Museum of New Mexico:
Museum of Indian Arts and Culture
For information call (505) 827-8941.

Museum of New Mexico:
Museum of International Folk Art
For information call (505) 827-8350.
Bradbury Science Museum
Located in downtown Los Alamos.

Museum of Fine Arts
Located on the edge of Santa Fe's historic plaza.

Museum of New Mexico:
Museum of Indian Arts and Culture
710 Camino Lejo Drive

Museum of New Mexico:
Museum of International Folk Art
706 Camino Lejo Drive
Ancient Indian Ruins
There are a number of Indian ruins near Los Alamos, some built as early as the 12th century by the Ancient Ones, the Anasazi who are believed to be the ancestors of the Pueblo Indians now living in Northern New Mexico.

Battleship Rock Hot Springs
Here is a natural pond to delight the heart of the hiker and the hot spring lover. About fifty feet long, it has water about 90 degrees Fahrenheit flowing through continuously.

Jemez State Monument
Jemez Springs. Features the impressive ruins of the Towa Pueblo of Guisea (1300-1630) and the Spanish mission of San Jose de los Jemez (1620-30). Interpretive exhibits provide an account of life at the village of Guisea from the perspective of its original inhabitants. The Jemez Springs area is a year-round recreation destination with hiking, hot springs, fishing, cross-country skiing and camping. Jemez Pueblo is nearby.
There are sites at Bandelier National Monument, the Puye Cliff Dwellings and Jemez State Monument - all of which are within an hour's drive of Los Alamos.

**Battleship Rock Hot Springs**
Drive North about 5 miles from Jemez Springs on Highway 4. Start walking from the foot of Battleship Rock along the trail that leads up the canyon to the springs.

**Jemez State Monument**
Drive North about 2 miles from Jemez Springs on Highway 4. The monument is located on the left side of the highway.
Pueblo of Jemez

The Pueblo of Jemez, pronounced Hay-mez; traditionally pronounced He-mish, is one of 19 pueblos located in New Mexico. It is Federally recognized American Indian tribe with just over 3100 tribal members, most of whom reside in a puebloan village that is known as Walatowa (a Towa word meaning this is the place).

The Pueblo of Jemez is a dependent sovereign nation with an independent government and tribal court system. Our secular Tribal Government includes the Tribal Council, the Jemez Governor, two Lieutenant Governors, two tiscales, and a Sheriff. Interestingly, our second Lieutenant Governor is also the Governor of the Pueblo of Pecos.

Traditional matters are still handled through a separate governing body that is rooted in prehistory. This traditional government includes the spiritual and society leaders, a War Captain and Lieutenant War Captain. Through perseverance, our people have managed to preserve our traditional culture, religion and knowledge of our ancient traditional way, regardless of outside pressures. We have also preserved our complex traditional language, a language that anthropologists and linguists refer to as “Towa.” Jemez is the only culture that speaks this language, and in fact, our traditional law forbids our language from being translated into writing in order to prevent exploitation by outside cultures.

Puye Cliff Dwellings

These Cliff Dwellings are a registered National Landmark. Many Santa Clara Indians consider this site, which once was home to more than 1,500 of their ancestors. Climbing the trail up the canyon wall to see the caves and cliff dwellings, or drive to ruins of adobe structures on the mesa above. In either case, the panoramic views are a memorable part of the experience.
Pueblo of Jemez
Located within the southern end of the majestic Canon de San Diego. It is located on State Road 4 and approximately one hour northwest of Albuquerque (55 miles), about one hour twenty minutes southwest of Santa Fe.

Puye Cliff Dwellings
Extensive ruins are located off State Road 30 at nearby Santa Clara Pueblo.

Tsankawi Ruins
Take NM 502 out of Pojoaque and head toward Los Alamos. Turn south onto NM 4 and head toward White Rock. Just before NM 4 intersects with Los Alamos truck route, you will see a small parking lot on the east side of the road.
Santa Fe National Forest

The forest lies on both sides of the Rio Grande Valley. To the West is the Jemez Division, including the Jemez Mountains and other ranges, rising to nearly 12,000 feet at Chicoma Peak. This huge block of forest land is broken by several Indian reservations and numerous private holdings. It is drained by Rio Chama, Rio Puerco, Rio Cebolla, Rio Gallina, Rio de las Vacas, Jemez River, and Rio Grande.

On the East side of the valley, the Pecos Division is dominated by the Sangre de Cristos extend for 200 miles from Ponchas Pass near Salida, Colorado to between Santa Fe and Pecos. Highest point in the range is 13,160 feet. Wheeler Peak in the Carson National Forest. In the North portion of the Pecos Division is the 223,000 acre Pecos Wilderness. Principal rivers are the Pecos, Santa Fe, and Mora. Many high mountain lakes are in the North portion.

Terrain is generally mountainous, ranges from bases at about 6,000 feet elevation, with numerous river valleys, mesas, and plateaus. The Jemez Division is characterized by steep, narrow, V-shaped canyons separating gentle to moderately steep mesas. The Pecos Division is more rugged, secondary ranges branching from the Sangre de Cristos, with many deep canyons and steep sidehills.
Santa Fe National Forest
Two divisions, west and east of Santa Fe. West division is crossed by Highway 4.
Tsankawi Ruins

Please refer to page 14 for the proper map and directions to this interest point. Ken recommends a morning visit to Tsankawi ruins. Save your Bandelier entry receipt for free entry into this non-crowded area.

Tsankawi Ruins, provides a look back into the history of the Rio Grande Anasazi. Here, evidence remains of the intimate relationship that existed between the land and the prehistoric precursors of the Pueblo Indians.

The site stretches out on the Pajarito Plateau, nestled among the Jemez Mountains. The plateau was created more than one million years ago during the formation of one of the world's largest volcanoes. Its eruptions blackened the skies of New Mexico with ash that coated the surrounding landscape in thick layer, drowning all life. Eventually, the flora and fauna returned, and the area became the home of Native Americans looking for good hunting and farming grounds.

Spence Hot Springs

Spence is typical of New Mexico's many undeveloped and thus pristine hot springs. There are two pools, one at about 102 degrees fahrenheit and the other slightly cooler. Both have great views of the surrounding scenery. It's a bit of a hike to reach, and you must cross a small cascading brook, but it will be worth it. The battle between uptights and hangloosers has been resolved by having certain days for suits and others for the skin set.

After you've enjoyed your soak, drift on down below the pool and enjoy the microcosmic waterfalls; each one slightly cooler than the last. Natives informed us that Spence is especially delightful in the winter but that it's quite a feat to ford the swollen creek. There's a log bridge up a half mile or so that might be advisable.
Spence Hot Springs
About 7 miles north of Jemez Springs on Highway 4. From campsite, go right on Highway 4 about 2 miles downhill, past cafe and store. A quarter mile hike from parking pullout on Highway 4.
Bandelier National Monument
Most visitors come to see the 13th to 16th century cliff houses of the Pueblo Indians, on the slopes of Pajarito Plateau. The main ruins can be seen in an hour’s easy walk. Some visitors take the more strenuous Falls Trail that drops 300 feet in 1.5 miles. Only a few venture into the scenic backcountry of 23,267 acres of roadless wilderness.

The Monument’s geology is largely volcanic, steep-walled canyons cut 600 to 800 feet deep through tuff and basaltic lava draining toward the Rio Grande. Elevations within the Monument range from 5,300 to 10,200 feet.

The most accessible area is Frijoles Canyon, extending Northwest. Cliff ruins extend for about 2 Miles along the base of the North wall. Indians chose this site because the canyon was then, as it is now, a channel of green in the desert.

Summer days are usually hot, nights cool. Afternoon thunderstorms are common in August through September. Fall is one of the best times to visit; clear skies, little rain. Winters are unpredictable rather than severe. Snow seldom lasts long in the canyons, but at times it’s deep enough for ski touring on the mesas, and significant snowfalls can occur as late as April. Spring comes late, with days likely to be windy and chilly.
Bandelier National Monument
From the vehicle entrance on the Northeast boundary, the roads lead to the campground and visitor center. Beyond, all travel is on foot or horseback.
From Paliza Group Campsite, take Highway 4 North (back through Ponderosa).
Jemez Springs
The tiny village of Jemez Springs is the site of a historic bath house where the springs for which the town was named provide bubbling sulfur-laden water. Jemez Springs is also home to a Zen Buddhist Center and a number of Catholic retreat houses.

Two especially festive times in Jemez Springs are the 4th of July and the Jemez Fiesta occurring the weekend nearest the 15th of August. Just above the village is the Jemez State Monument which includes a large stone ruin of the Church of San Jose, founded in the early 1600's, and the prehistoric site of the pueblo of Guisewa, meaning place of boiling waters.

The Jemez Mountains were shaped by a great volcanic eruption, leaving complex geology and spectacular natural wonders. The high walls of Jemez Canyon are decorated with tent rocks conical formations of hardened ash surrounding the escape route for volcanic fumes. Just a mile further North Soda Dam, a natural spring and dam, blocks the canyon and the Jemez River. The spring bubbles even in the winter and in this entire area hot rocks are fairly near the surface, heating ground water – a legacy from the volcanic past. Also watch for Battleship Rock, a sheer cliff that rises suddenly above the river and towers over a picnic area.
Orilla Verde Recreation Area
The group will spend four nights in Chimayó Verde State Park.

Photography Supplies
Fox Photo, Taos
Fun’s Photo Processing, Taos
Peaza Photo, Taos
Directions from Jemez Springs to Taos
Of the two routes linking Espanola and Taos, the High Road NM 76 / 3 beckons the unhurried traveler. This historic trail through the foothills of the Sangre de Cristo Mountains weaves past a string of sleepy villages whose roots remain firmly planted in New Mexico's Spanish heritage.

The High Road starts at Espanola, founded in 1598 by conquistadors and site of Nuevo Mexico's first capital. Chimayo lies about 10 miles to the east. In addition to its famous sanctuary, this is the place to see top quality, naturally dyed woolen goods woven on traditional horizontal looms.

Beyond Chimayo, Route 76 begins a twisting accent, moving slowly into thick pinon forests. The road skirts the tiny hamlet of Cordova, where many older residents still speak a form of Spanish very close to the pure Castilian of their ancestors. Then a steep climb brings you to the lofty mountain village of Truchas, a cluster of narrow streets and adobe-and corrugated-tin houses clutching a wind-whipped hilltop.

From here, the High Road dips and slides through the valleys and wooded hills of the Carson National forest. At Las Trampas, you'll encounter a masterpiece of Spanish Colonial architecture in the San Jose de Gracia mission church.

At the junction of Routes 76 and 75, consider taking a slight detour west to the pueblo of Picuris, one of 15 Indian settlements in Northern New Mexico. At Penasco, the High Road turns North, following Route 3 on a scenic trip through the Rio Grande del Rancho Valley. After 16 miles you'll reach Ranchos de Taos, end of the High Road and home to the splendid Saint Francis of Assisi mission church. From here, the town of Taos lies just three miles away.

Taos Junction Group Campsite
The local terrain is comprised of rugged, wide open mesas and chiseled steep canyons. The elevation along the river is 6,100 feet and rises in places 800 feet to the gorge rim. Because of this dramatic change in elevation, the cliffs in Orilla Verde draw many raptors such as eagles and hawks as well as many other bird species. Due to the diversity of plant life in the recreation area, there is a great variety of wildlife.
Kit Carson Home & Museum
For information call 505-758-0505.

Martinez Hacienda
For information call 505-758-0332.

St. Francis De Assisi Mission Church
For information call 505-758-0552.
Kit Carson Home & Museum
One half block from Taos Plaza on Kit Carson Road.

Martinez Hacienda
Ranchitos Road.

St. Francis De Assisi Mission Church
Located off Route 68.
Hondo Hot Springs
Some dirt road driving and a hike is required to reach Hondo. Hondo Hot Springs is not easy to get to, but that doesn’t stop a lot of people from the Taos area who love to go skinny dipping at night. Of course you can go there in the daytime too, but local custom makes Hondo especially popular at night. If you intend to join them, carry a heavy duty flashlight.

Rio Grande Gorge Bridge
The only bridge across the gorge, affording a spectacular view of this wild and scenic river.
Hondo Hot Springs
From Taos, take Highway 3 north to Arroyo. After crossing the Hondo bridge, go up a hill. When you come to a fork, take the right hand road and go back down to the river, cross the John Dunn Bridge, and continue on parallel to the river until you come to the parking area. There is a path to the bathing area.

Rio Grande Gorge Bridge
Located on US 64 (the highway to Tres Piedras), about 10 miles west of the intersection with NM 68 which is four miles north of Taos.

Taos Pueblo
Taos Pueblo is two miles north of the city of Taos; the Pueblo entrance road turns off NM 68 on the north side of town.
Taos Pueblo

Please refer to previous page for the proper map and directions for Taos Pueblo. The smooth walled, multi-story apartment-like architecture of Taos Pueblo has always had a powerful effect on visitors. Artists, including Georgia O'Keeffe and Oscar Berinanzas, were inspired to capture these extraordinary buildings on canvas or film. Four hundred years ago these golden brown adobe structures wooed Spanish soldiers into thinking that they had discovered one of the lost cities of gold. Taos Pueblo has survived a volatile history from the invasions of the Spaniards in the 1540’s, to the Pueblo Revolt of 1680, finally the Taos Rebellion against the United States Government in 1847 in which 150 Taos Indians perished.

Taos Pueblo has many fine artisans that sell their handmade wares and creations within the Pueblo Plaza. Though the Arts and Crafts incorporate the contemporary style, they also reflect the rich cultural heritage that is world renowned. These arts and crafts include fine leather goods, moccasins, drums, weavings, silver jewelry and pottery. All items sold at Taos Pueblo are original and Indian made from all natural materials. In addition to the Arts and the scenery Taos Pueblo offers several public dances throughout the year. Two of the larger gatherings are the Annual Taos Pueblo Pow-Wow held during the second weekend in July. This event continues to become more popular and exciting. The colors and diversity of the dancers and singers that participate represent Indian Tribes throughout the United States and Canada. The San Geronimo Feast Day is held annually on September 30. It features dances, races, pole-climbing, and a trade fair.
Orilla Verde Recreation Area
The State Park is downstream from the Rio Grande Gorge bridge. Here the gorge broadens into a canyon. A paved road offers a scenic 5 mile drive beside the river. Clusters of campsites, some with ramadas, are spaced along the road.

The canyon walls are moderately steep, sparsely vegetated, littered with brown and red-brown volcanic rocks, in size from pebbles to boulders that one could scramble up. There is some riparian vegetation. This section of the river has riffles rather than rapids, and people float it in canoes, kayaks, and small rafts. If one is driving between Taos and Santa Fe, the park offers a pleasant interlude: the motorist’s closest look at the Rio Grande, or a quiet walk. Birding is moderately good.
Town of Taos

Few places off the beaten path are so eagerly sought out as Taos, the renowned New Mexican pueblo, village and church. Each of the three focal points is distinctively different, yet somehow delightfully intertwined. Taos Pueblo is not an abandoned relic of some forgotten lifestyle, but the twentieth century home of 1,400 Taos Indians who live in the same adobe village their ancestors inhabited 800 years ago. The Spanish explorers saw Taos pueblo much as it is today, nestled on a plateau at the foot of Taos Mountain. The holden brown structures stair step up five stories on ether side of Rio Pueblo de Taos, a stream that meanders through the central plaza. The Taos tribe members are so conservative they won’t even allow installation of electricity in the pueblo. They are also tri-lingual, speaking their own language, Towa, as well as Spanish and English.

The Spanish began the village of Taos around an almost circular plaza in 1615. The arrangement of the adobe buildings gave the plaza a fortress quality. Most visitors sense the aura: mystery, legend, folklore, and Spanish atmosphere that pervades Taos. Even when tourists are elbow-to-elbow on the bumpy sidewalks and traffic is snarled along the dusty streets, Taos is still magic.

Kit Carson, soldier and Indian scout, lived in the town of Taos with his high-born Spanish wife longer than he lived anywhere else. He is buried in Kit Carson State Park on the main street and their home is a museum. Carson’s brother-in-law, Charles Bent, was the first governor of New Mexico after it was taken over by the Americans in 1846. A few months later Bent was murdered during a Spanish-Indian uprising. His home is another interesting museum.
Colorado
Directions from Taos to Great Sand Dunes

From Taos, continue north on NM 88 (which becomes Colorado Highway 159 as it crosses the state line) for 79 miles, following the Sangre de Cristo Mountains along the eastern side of the San Luis Valley through San Luis. San Luis is Colorado's oldest town, founded in 1851 and joining US 160 near Fort Garland, an 1850's US Army outpost once commanded by Kit Carson and now a Colorado State Historic Site. This route is known as the Kit Carson Highway.

From Fort Garland, turn left (west) on US 160 and go ten miles to the turnoff on the right (north) to Great Sand Dunes National Monument. From there, it's 16 miles to the monument entrance gate.
The group will spend **one night** in San Luis State Park. More information about this **isolated area** can be found at the Visitor Center in San Luis.

**Photography Supplies**

None
San Luis Group Campsite

This campsite is part of the San Luis State Park, nearby the Great Sand Dunes National Monument. At the eastern edge of the San Luis Valley in south-central Colorado, paralleling for nearly 10 miles the base of the heavily forested snow-capped Sangre de Cristo Mountains, are the highest inland sand dunes in the United States.

Ancient campsites reveal that Folsom Man roamed the region about 10,000 years ago, and after him various other primitive peoples. In fairly recent times the valley was controlled by the Ute Indians, who made it their permanent home. Spanish explorers reached the valley in 1779, when Juan Bautista de Anza returned this way from a punitive expedition against the Comanches. In the winter of 1806-7, Lieutenant Zebulon Pike's expedition came through, followed by later explorers and finally settlers in the early 1850's.
**Great Sand Dunes**

Bordering the great valley are the Sangre de Cristos to east and northeast, towering to over 14,000 feet above sea level; the San Juans to the west; and the San Luis hills to the south. Fed by melting snow, streams have carried sand, silt, and gravel down from the mountains into the valley for thousands of years, and most of them drop their loads and sink into the valley floor a short distance from the mountains.

The prevailing southwesterly winds, sand-laden, sweep across the valley and funnel through the lowest gaps in the Sangre de Cristos. Here the dunes have formed. And here the dunes and Medano Creek, at the meeting place of valley floor and mountain range, provide a variety of altitudinal and climatic conditions which require considerable adaptation by plants and animals to the dunes and their fringe areas.
Mesa Verde National Park
The group will spend three nights in Mesa Verde National Park.

Photography Supplies
Cortez Camera, Cortez
One Hour Photo, Cortez
Directions from San Luis State Park to Mesa Verde National Park
From Cortez, 10 miles east on US 160 to the entrance road of Mesa Verde National Park.

Morefield Group Campsite
This campground is located near the entrance within Mesa Verde National Park. The access road climbs to the mesa at 8,000 feet high above the surrounding country. Here prehistoric Indians built hundreds of dwellings on mesa tops and in alcoves along cliff ledges. The Park includes nine major canyons.
Craft Stores & Museums

Mesa Verde National Park
Visitor Center
Located near the entrance of Mesa Verde National Park.

Mesa Verde National Park Museum
Located near the entrance of Mesa Verde National Park.
Mesa Verde National Park Museum
Displays on the history of southwestern Native American culture. For more information call 505-758-0505.

Visitor Center
Displays depicting contemporary southwestern Native American culture. For more information call 505-758-0505.
Landscapes

Spruce Tree House
Located in Mesa Verde National Park near Sun Temple.

Cliff Palace
Located in Mesa Verde National Park near Sun Temple.

Petroglyph Point Trail
Located in Mesa Verde National Park. This trail begins and ends at the park headquarters area.
Anasazi Heritage Center:
Dominguez and Escalante Ruins
Please refer to following page for the proper map and directions. The Anasazi Heritage Center is a new archaeological museum and research center. The center is set into the hillside near the remains of the twelfth century Dominguez and Escalante ruins. These ruins are now open for self-guided tours.

Cliff Palace
Mesa Verde's largest ruin. Visitors descend on picturesque stone steps to reach the ruin. To come back out of the dwelling you'll climb four, ten foot ladders, so wear suitable clothing and shoes. It only seems longer than a quarter mile.

Crow Canyon Archaeological Center
Please refer to following page for the proper map and directions. This Archaeological Center offers programs for persons of all ages to work beside professional archaeologists in collecting artifacts and data in learning to interpret the findings. The center is currently excavating sites in southwest Colorado.
Four Corners Monument
This monument marks the only point in the United States where four states meet at one point. This attraction is operated by the Ute and Navajo Indians. During the summer months, you may buy wares directly from area Indians. Features an Indian marketplace with handworked jewelry, sandpainting, pottery and arts and crafts.

Goodman Point Ruins
This large, unexcavated site is part of the Hovenweep National Monument.

Hovenweep National Monument
This monument covers 784 acres and consists of six groups of ruins where Pre-Columbian Indians once lived. These ruins are known for their towers and all except Square Tower are isolated and difficult to reach. All approach roads to Hovenweep are of graded dirt. Inquire locally regarding road conditions since storms may make them impassable.
Anasazi Heritage Center
Located on Highway 184, one mile west of Highway 145 near Dolores.

Crow Canyon Archaeological Center
Northwest of Cortez.

Four Corners Monument
Located one half mile off Highway 160.

Goodman Point Ruins
Located in Hovenweep National Monument.

Hovenweep National Monument
Located off of Route 10.
Lowry Ruins
Please refer to the following page for the proper map and directions to this interest point. Lowry Pueblo was constructed by Anasazi farmers about A.D. 1090. Its Great Kiva, or ceremonial room, is one of the largest ever found. It also has a unique painted kiva in which the original decorated plaster can still be seen. The pueblo was home to a community of about 100 people.

Sand Canyon Ruins
Please refer to the following page for the proper map and directions to this interest point. These ruins are a vast thirteenth century pueblo of over 350 rooms, kivas and towers.

Sleeping Ute Mountain
Please refer to the following page for the proper map and directions to this interest point. Sleeping Ute Mountain is a brooding presence of legend and beauty. Etched against the western sky, the mountain presents the reclining silhouette of a sleeping Indian. His headress flows to the north. Folded arms across the chest form the highest point: long legs and strong knees peak to the south.

Petroglyph Point Recreation Trail
Please refer to page 46 for proper map and directions to this interest point. This trail is part of the National Recreational Trail system. A three mile loop trail with markers keyed to a guide booklet provides an intimate look at the natural history and the ways it was used by the indians. Obtain trail permit and an interpretive trail guide at the chief ranger's office.
Spruce Tree House
Please refer to page 46 for the proper map and directions. This is the easiest of the cliff dwellings to visit as no steps or ladders are involved. The trail begins in front of the museum. Walking distance is about a half mile round trip.

Ute Mountain Tribal Park
The Ute Indians offer tours to many cliff dwellings, ruins and scenic primitive areas. Reservations are required and all tours must be accompanied by an approved tribal guide.

Yucca House National Monument
This large, unexcavated late Anasazi site is difficult to reach. Beware of rattlesnakes.
Lowry Ruins
Located off Highway 666 near Pleasant View.

Sand Canyon Ruins
Located near Goodman Point Ruins.

Sleeping Ute Mountain
This interest point is part of Ute Mountain Tribal Park.

Ute Mountain Tribal Park
Tours start at the Ute Pottery Plant, 15 miles south of Cortez on US Highway 666.

Yucca House National Monument
Located off Route 789 on a paved dirt road.
Mesa Verde National Park
Traveling from Cortez, the escarpment of the Mesa Verde (green table) rises like the prow of a huge ship where the road into the park snakes upward from the east edge of the Montezuma Valley. The mesa covered by pinyon-juniper woodland is a magnificent place to visit any time of the year, but is especially lovely in the summer.

Within the park, nearly 3,900 sites have now been located, including over 600 cliff dwellings. During 1100 to 1300, probably more than 30,000 Anasazi lived in villages in the Montezuma Valley, northwest of Mesa Verde, ten times more than were living on the mesas and in the cliffs.

The Mesa Verde mesas and cliffs were occupied by the Anasazi for at least seven hundred years, from about 600 to 1300, when the entire area was abandoned and the Anasazi migrated southeastward to the Rio Grande valley. The period of occupation encompassed several stages of cultural development. The spectacular cliff dwellings were inhabited during the terminal phase of the Mesa Verde Anasazi occupation, during late Pueblo III times between 1200 and 1300, after which the Mesa Verde was abandoned.
Durango
This town began as a mining and smelting center during the gold and silver booms. It is now a crossroad for local industry, ranching, commerce, and culture. Vestiges of the past accent Durango’s Victorian downtown, where visitors can still enjoy the spirit of that colorful era.

Durango is a natural gateway to one of the more scenic sections of the state. Because they are geologically younger than other Colorado mountain ranges, the San Juans present a more jagged appearance.

Durango abounds with such professional rodeos as the Durango Pro Rodeo Series, held every Tuesday and Wednesday evening. The Durango Cowgirl Classic, held July 4th weekend, claims to be the only all female rodeo held in Colorado. The Durango Ghost Dancer All-Indian Rodeo, held Labor Day weekend, is one of the largest Native American rodeos in the country.
Bisti Wilderness
The group will spend one night in the Bisti Wilderness. More information about this isolated area can be found at the Visitor Center in Green River.

Photography Supplies
None
Directions from Mesa Verde National Park to Bisti Wilderness

Our trip to Bisti Wilderness by way of Four Corners, Shiprock, and Farmington. Bisti Wilderness is 40 miles south of Farmington on NM 371. Meet at the Bisti Wilderness gate by 6pm. Bring water, there are no stores or facilities.

Bisti Wilderness Unimproved Campsite

This campsite is surrounded by the Bisti Wilderness, a 3,968 acre area of weird, eroded shale and sandstone, administered by the Bureau of Land Management. This area is a federally protected area of petrified logs and other plant fossils that are scattered among numerous interesting scenic and colorful landforms.
Utah
Campsites

The group will spend five nights in Arches National Park.

Photography Supplies
None
Directions from Bisti Wilderness to Arches National Park
Arches National Park is located off US 191, five miles north of Moab. Devil's Garden Campground is part of Arches National Park. Canyon Wren Group Campsite is located in Devil's Garden Campground. The group campsite is very near to the Devil's Garden Trail.

Canyon Wren Group Campsite
This campsite is located in Devils Garden Campground. The group campsite is within walking distance from Devils Garden Trail. This trail leads to some of the most interesting arches in the Park, including Landscape Arch, the longest known natural arch in the world. The twenty minute walk to this graceful span of almost 300 feet is a relatively easy one; beyond it, walking becomes more difficult.
Craft Stores & Museums

Arches National Park Museum
Geologic and ecologic exhibits.

Hole n' the Rock Gift Shop
A variety of souvenirs from the Moab area.
Arches National Park & Surrounding Areas

Arches National Park Museum
Located off US 191, 5 miles north of Moab in Arches National Park at the Visitor Center.

Hole n' the Rock Gift Shop
15 miles south of Moab on US Highway 191.
Courthouse Towers
It would appear that two large arches once existed in Courthouse Towers, in the expanse between Sheep Rock and the fin containing Hole-in-the-Wall. These postulated ancient arches probably resembled in appearance. The Spectacles North Window and South Window are in the Windows section. Like the Spectacles, this arch duo presumably formed in a fin where the sandstone was weakened either by fractures or by a reduced amount of natural cement (silica, calcium carbonate, or one of the iron oxides) holding the grains together. Weathering processes attacking the rock surface eventually developed recesses. These expanded, and ultimately developed into openings. They continued to enlarge until the openings became relatively big arches and finally collapsed.

Delicate Arch
At the lookout viewpoint, Delicate Arch can be seen to the northeast. This beautiful freestanding arch is the symbolic land form of the Park. Delicate Arch has a span of thirty-three feet and a height of forty-five feet. It is formed in the Entrada Sandstone, with the Slick Rock Member composing all of the feature except the top five feet of cap rock, which is of the Moab Member.
Courthouse Towers
Located near Sheep Rock and the North Park Avenue Trailhead.

Delicate Arch
From Wolfe Cabin, this interest point is located off a graded dirt road which is off of the main Park Road. The lookout is one and a half miles east of Wolfe Cabin, on top of a ridge above Winter Camp Wash.

Devils Garden
Devils Garden is at the end of the main road. The road here is a one-way loop returning to the main road. Further around the loop, past the campground entrance, is the Devils Garden trailhead.

Fiery Furnace
This interest point is 18 miles from the Visitor Center and is located off the main road.
Landscapes

Arches National Park UT

Devils Garden
Please refer to previous page for proper map and directions. This trail leads to some of the most interesting arches in the Park, including Landscape Arch, the longest known natural arch in the world. The 20 minute walk to this graceful span of almost 300 feet is a relatively easy one; beyond it, walking becomes more difficult and rubber soled footwear is recommended. Those who do not mind an unimproved dirt road and who enjoy a strenuous hike may wish to travel the road to Klondike Bluffs, which leaves the main road about one mile below the Devils Garden area. From Klondike Bluffs one can follow a primitive foot trail to Tower Arch.

Fiery Furnace
Please refer to the previous page for proper map and directions. Fiery Furnace is a maze of fins, spires, and chutes (narrow passageways). It was named for the warm, reddish glow which the area’s Entrada Sandstone often seems to radiate in late afternoon sunlight.

Hole-in-the-Wall
Also aptly called Baby Arch, it is at the beginning of its life cycle. Hole-in-the-Wall developed in the Slick Rock Member of the Entrada Sandstone. The opening probably began in the prominent bedding plane along the arch’s base. The adolescent arch has a span of twenty-five feet and a height of fourteen feet. Symptomatic of its youthful stage is the impressive volume of rock surrounding the opening—the rock mass above the arch is approximately 300 feet thick!

Rock Settee
In Winter Camp Wash, below the viewpoint stands a large rock mass, the Rock Settee.
Arches National Park

Hole-in-the-Wall
Located near Sheep Rock and Courthouse Towers.

Rock Setee
Located by Winter Camp Wash, below the viewpoint.

Salt Wash
Located on the main road directly after Delicate Arch.

Sheep Rock
Located by Courthouse Towers.

Tapestry Arch
Located by Salt Wash, near the Devils Garden Campground.

Winter Camp Wash
Located on the main road directly after Delicate Arch.
Salt Wash
From Wolfe Cabin the graded dirt road off of the main Park Road continues to Delicate Arch Viewpoint, fording en route Salt Wash and Winter Camp Wash.

Sheep Rock
Once the north abutment of one of these supposed large arches, today stands magnificently isolated. A small arch, Hole-in-the Wall, has since formed near the end of the fin that once was the south abutment of the other ancient span.

Tapestry Arch
Tapestry Arch illustrates a type of arch created by the intersection of a cave and a joint, or fracture along which no movement has occurred as opposed to fault, a fracture on which slippage has taken place. As weathering and erosion attacked the rock mass and formed a cave in it, these same geologic processes widened and deepened a joint behind and above the cave. In time, the two met, making a hole, then a small arch.

Continued weathering and erosion enlarged the opening, forming a bigger arch. As with all natural arches, ultimately the span will become so fragile it will fall. Tapestry Arch, now in the mature stage of its life cycle, is sculptured in the Entrada Sandstone. The white Moab Member of the Entrada caps the span, while the rest of the arch is formed from the Red Slick Rock Member.

Winter Camp Wash
From Wolfe Cabin the graded dirt road off of the main Park Road continues to Delicate Arch Viewpoint, fording en route Salt Wash and Winter Camp Wash.
Arches National Park
In the red-rock country of southeast Utah, the 73,234 acre, Arches National Park has more natural stone arches, windows, spires, pinnacles than any other location. Water and wind have eroded the Entrada Sandstone into spectacular and bizarre shapes, grand and small.

Most visitors drive the 21 mile paved route along which are numerous viewpoints, parking areas and short trails. The Park also has 11 miles of fair-weather dirt roads and four principal hiking trails. The south boundary is on the Colorado River, but neither Park Road or various trails touch the shoreline.

Elevations from 4,085 feet to 5,653 feet. Annual precipitation is 7 to 10 inches. Daytime summer temperatures as high as 110° Fahrenheit. Snow falls occasionally but seldom lasts more than a day.

The entire Park is scenic, viewed from any vantage point. Featured areas are the Windows, with 8 large arches and other formations; Delicate Arch, in a setting of cliffs and slickrock domes; Fiery Furnace, a maze of narrow passageways and high walls; Devils Garden, where the paved road ends and trails lead to Landscape Arch, believed to be the world's longest and other arches. A dirt road leads to Klondike Bluffs, but ask about road conditions before proceeding. Hikers can visit many formations that motorists see only from a distance, if at all.
Moab, population about 5,000, is between Arches and Canyonlands National Parks. Most of the surrounding land is public. One could spend a season or a lifetime exploring this spectacular region by car, jeep, horse, boat or on foot. The Colorado River runs through Moab, traveling downstream from Moab through a flatwater area, into Canyonlands National Park, below Dead Horse Point State Park and Island in the Sky. Points of interest include Indian ruins, pictographs, fossil beds, a petrified forest.

Mill Creek is 9,700 acres of roadless BLM land three miles east of Moab. Canyons up to 400 feet deep; tidal flats; fine sandstone fins and ridges to the northwest. Mill Creek is perennial, with some opportunity for swimming. Vegetation ranges from riparian communities in the canyon bottoms to scattered pinon-juniper above. Exposed sandstone fins and ridges offer excellent petroglyph viewing opportunities. Inquire locally before driving some roads are unmaintained. Several tour companies offer backcountry trips in 4-wheel drive vehicles. Such vehicles can be rented.

Moab is 7,800 acres of roadless BLM land three miles east of Moab. Canyons up to 400 feet deep; tidal flats; fine sandstone fins and ridges to the northwest. Mill Creek is perennial, with some opportunity for swimming. Vegetation ranges from riparian communities in the canyon bottoms to scattered pinon-juniper above. Exposed sandstone fins and ridges offer excellent petroglyph viewing opportunities. Inquire locally before driving some roads are unmaintained. Several tour companies offer backcountry trips in 4-wheel drive vehicles. Such vehicles can be rented.
Moab
Located on US 163 at the Colorado River.
Manti-La Sal National Forest
The group will spend one night in Manti-La Sal National Forest. More information about this isolated area can be found at the Visitor Center in Moab.

Photography Supplies
None
Directions from Arches National Park to Manti-La Sal National Forest
The La Sal Mountain Loop Drive is off of US 163 at the Colorado River. This scenic drive is about 70 miles on paved and improved roads along the Colorado River, through Castle Valley. This route continues into Manti-La Sal National Forest and returns to Moab by Spanish Valley.

Manti-La Sal Unimproved Campsite
The campsite is within the wild lands of the Manti-La Sal National Forest. This unimproved forest land is filled with Aspen forests. Mountain slopes can be seen from the campsite.
San Rafael Reef
The group will spend **one night** in San Rafael Reef. More information about this **isolated area** can be found at the Green River Visitor Center.

**Photography Supplies**
None
San Rafael Reef Unimproved Campsite
San Rafael Reef is near Goblin Valley and can be reached from Green River by traveling 12 miles west on Interstate 70, then turning south on Highway 24 for 24 miles until you arrive at the well marked turnoff point to Goblin Valley. From here the first 5 miles are paved, then you turn on to 7 miles of improved gravel road before you reach the entrance. Continue to drive through the park to the scenic overlook. The unimproved campsite is near Temple Mountain which is part of the San Rafael Reef. There are no facilities at the group campsite.
Camping facilities at Goblin Valley State Park include water, showers, and fire grills. The campground is at the foot of a bluff about 150 feet high, deeply eroded.
Goblin Valley

Goblin Valley has been carved by erosion in Entrada Sandstone. However, the principal visible layers are Curtis formation, creamy white above, terracotta below. Approaching the site, the visitor sees sandstone columns, which have been eroded into many fanciful shapes, some two feet tall, some more than twelve feet tall.

Highest elevation in the Park is 5,200 feet, lowest 4,900 feet. Summer daytime temperatures hover around 100 degrees Fahrenheit, often drop rapidly 30 degrees Fahrenheit or more after sunset. Below freezing temperatures are common in winter. Annual precipitation is about seven inches, often in short, intense cloudbursts and snow falls occasionally.

Spectacular scenery abounds in such areas as Arches and Capitol Reef Parks. Closer, is the beautiful and scenic San Rafael Swell area and the Crystal Geyser. Eruption of this cold water geyser is caused by the buildup of carbon dioxide gas. The origination of the CO2 is not fully understood and is being studied at this time. Eruptions occur every 14 or 16 hours, can last 15 to 30 minutes, and can reach a height of over 100 feet. The geyser was formed in the 1930's when a petroleum exploration well hit water. After more than 50 years, massive, beautifully colored mineral deposits have formed cascades that flow to the bank of the Green River. These deposits rival those of the Yellowstone geysers.
Glen Canyon Recreation Area
The group will spend **four nights** in Glen Canyon Recreation Area.

**Photography Supplies**
None
Directions from San Rafael Reef to Glen Canyon Recreation Area
To reach this recreation area, travel 12 miles west from Green River on Interstate 70, take the Hanksville exit and travel 33 miles south on Highway 24 to Hanksville, then south on U-95 to either the Hite or Bullfrog Marinas. Hite is 50 miles south of Hanksville and Bullfrog is about 70 miles. The Group Campsite is located in an unmarked location before you cross the Dirty Devil bridge.
Glen Canyon Recreation Area
Glen Canyon Dam, built between 1956 and 1964 across the Colorado River, has backed up a pool, Lake Powell, 186 miles long, in a narrow, twisting canyon with many even narrower side canyons, it has a shoreline of about 200 miles, depending on the height of the pool. Conservationists, valuing Glen Canyon, fought unsuccessfully to block the project. They were dismayed when the pool first reached maximum height 17 years later, flooding the lower portions of Coyote Glutch, and Escalante Canyon; they thought they had been assured that this would not happen. They argued that federal law prohibited flooding any part of a National Monument, but the lake waters extend under Rainbow Bridge.

The lake quickly became a popular boating and fishing area. On weekends processions of cars with boat trailers can be seen on nearby desert highways. But as of yet, there are only four marinas on the lake and less than a dozen places where a car can be driven to the lakeshore. Slowboat and water skiers don't venture far from their marinas. Most of the lake is quiet and much of the shore is wilderness. Almost all of the surrounding land is public, including wilderness areas of Capitol Reef National Park, Dark Canyon Primitive Area, Grand Gulch Primitive Area and various roadless areas administered by BLM. Camping from boats is permitted, and one can hike or backpack into many roadless areas from the shore.

In addition to flooding Glen Canyon, the dam also backed up a pool on the San Juan River. The National Recreation Area includes the north shore of the San Juan all the way to the Goosenecks State Reserve; the south shore is the Navajo Indian Reservation.

Glen Canyon was carved by the Colorado River in sedimentary rock, much of it brick-red Navajo sandstone. It is a region of canyons, large and small, many of them deep and steep-walled, separated by narrow ridges or broader mesas. Most of the land is between 4,500 and 5,500 feet elevation, with occasional mesas over 6,000 feet. The highest point is 7,451 feet.

Average maximum temperatures are in the 90's in summer, 45 degrees Fahrenheit to 50 degrees in winter. Average lows are 25 to 35 degrees. Annual precipitation is about 10 inches. Most winters see some snow but no significant accumulation.

Lake Powell UT
Arizona
Monument Valley Tribal Park

Glen Canyon Recreation Area to Monument Valley Tribal Park

Monument Valley Tribal Park
is an optional campsite for the group.
Reservations are required in advance.

Photography Supplies
None


1. Ken White, Ken White
2. Ken White
3. Willie Osterman, Willie Osterman, Andrew Doak
4. Ken White
5. Melissa Lagod
6. Melissa Lagod, Ken White, Melissa Lagod
8. Melissa Lagod, Melissa Lagod, Melissa Lagod
9. Melissa Lagod, Willie Osterman
11. Ken White, Ken White
12. Ken White, Melissa Lagod
13. Melissa Lagod, Ken White
14. Melissa Lagod, Ken White
15. Melissa Lagod, Melissa Lagod
16. Melissa Lagod, Ken White
17. Ken White, Melissa Lagod
18. Melissa Lagod, Melissa Lagod
19. Melissa Lagod, Melissa Lagod, Melissa Lagod
20. Andrew Doak
21. Mary Webb, Holly Matthews, Mary Webb
22. Maggie Scheid, Melissa Lagod
23. Holly Matthews, Mary Webb, Mary Webb
24. Melissa Lagod
25. Melissa Lagod, Melissa Lagod
Photography Credits  Preliminary Material (continued)

26. Andrew Doak, Mary Webb, Mary Webb
28. Maggie Scheid, Willie Osterman
29. Andrew Doak, Maggie Scheid
30. Willie Osterman, Mary Webb
31. Melissa Lagod
32. Andrew Doak, Willie Osterman
33. Andrew Doak, Andrew Doak, Andrew Barton
34. Holly Matthews, Holly Matthews
35. Maggie Scheid, Ken White, Willie Osterman
37. Mary Webb, Andrew Doak, Andrew Doak
38. Andrew Doak
39. Ken White, Ken White
40. Holly Matthews, Holly Matthews
41. Ken White, Mary Webb, Mary Webb
43. Ken White, Andrew Doak
44. Maggie Scheid, Ken White, Willie Osterman
45. Holly Matthews, Willie Osterman, Holly Matthews
46. Ken White, Andrew Doak
2. Ken White, Holly Matthews
3. Ken White, Maggie Scheid, Willie Osterman
7. Willie Osterman, Melissa Lagod, Willie Osterman
9. Maggie Scheid, Ken White, Ken White
11. Mary Webb, Melissa Lagod, Andrew Doak
13. Holly Matthews, Andrew Doak
15. Mary Webb, Willie Osterman, Melissa Lagod
17. Melissa Lagod, Melissa Lagod, Melissa Lagod
19. Melissa Lagod, Andrew Doak
22. Melissa Lagod, Melissa Lagod
26. Ken White, Maggie Scheid, Holly Matthews
28. Willie Osterman, Melissa Lagod, Willie Osterman
30. Melissa Lagod
31. Willie Osterman, Andrew Doak, Andrew Doak
32. Willie Osterman
33. Melissa Lagod, Mary Webb, Ken White, Melissa Lagod
34. Melissa Lagod
35. Melissa Lagod, Ken White
39. Melissa Lagod, Andrew Doak, Mary Webb, Maggie Scheid
40. Mary Webb, Melissa Lagod, Melissa Lagod
43. Melissa Lagod, Melissa Lagod, Ken White
45. Maggie Scheid, Andrew Barton, Andrew Barton
47. Mary Webb, Melissa Lagod, Ken White
Photography Credits

48. Melissa Lagod, Melissa Lagod, Ken White
50. Maggie Scheid, Melissa Lagod, Maggie Scheid
51. Andrew Doak
52. Ken White, Andrew Barton, Holly Matthews
54. Holly Matthews, Mary Webb, Mary Webb
55. Holly Matthews
56. Melissa Lagod
57. Holly Matthews, Melissa Lagod, Holly Matthews
59. Ken White, Ken White, Melissa Lagod
60. Ken White, Mary Webb, Ken White
64. Melissa Lagod, Melissa Lagod, Ken White
66. Mary Webb, Melissa Lagod
68. Mary Webb, Melissa Lagod
70. Mary Webb, Maggie Scheid, Mary Webb
71. Melissa Lagod
72. Ken White, Ken White
74. Melissa Lagod, Melissa Lagod, Melissa Lagod
77. Mary Webb
80. Andrew Doak, Melissa Lagod
81. Andrew Doak, Willie Osterman
84. Melissa Lagod, Ken White, Willie Osterman
85. Willie Osterman