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**The Rock Art of Abo Pueblo:
Analyzing a Cultural Palimpsest**

by

Helene Denise Smith

DISSERTATION

Submitted in Partial Fulfillment of the
Requirements for the Degree of
Doctor of Philosophy
Art History

The University of New Mexico
Albuquerque, New Mexico

May, 1998

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DEDICATION

This dissertation is dedicated to my sister, who encouraged and supported me through the many years. She cheered and consoled me, even helped me work out the knotty problems of methodology.

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So many people made this dissertation possible. First, I would like to thank my committee, Joyce Szabo, J. J. Brody, M. Jane Young and Flora Clancy, for believing this project could happen. I would especially like to thank Joyce for her selfless dedication and assistance, even after surgery.

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Finally, I thank the Assistant Provost for Research/ Dean of Graduate Studies, Ellen Goldberg, for awarding me a research grant. I also thank the Albuquerque Archaeological Society for their grant. Such generosity enabled me to fund the field work, and I am truly grateful.

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The Rock Art of Abo Pueblo:
Analyzing a Cultural Palimpsest

by

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ABSTRACT

For the first time, all images on stone located within the Abo Unit of Salinas National Monument have been recorded. This dissertation begins an initial exploration into meaningful patterns of cultural interaction between the art of Abo Pueblo and its physical landscape. Rock art, a product of human social behaviors, shapes and defines landscape space. Traces of these behaviors are analyzed with new tools available with Geographic Information Systems (GIS) software.

The images are first analyzed for stylistic and chronological structure. Style, or aesthetic tradition, is defined primarily on the basis of physical form, composition, and technique, not by subject matter. In contrast to Polly Schaafsma's work, this dissertation separates the iconography from the physical form. A relative chronology is established in a stylistic comparison of Abo's images to nearby rock art sites, pottery, and the Gran Quivira kiva murals. These petroglyphs and pictographs are traditionally attributed to inhabitants of Abo Pueblo, occupied from ca. C.E. 1150 to 1672, due to their relative proximity to this site. However, some images do not conform to a Puebloan aesthetic and are attributed to foreigners, especially Southern Plains peoples, in light of this area's history as a major trade route. Investigation of the site's cultural history reveals greater

time depth of cultural interaction than previously published, from ca. 6,000 B.C.E. to the early 20th century. Dating rock art solely by archaeological attribution is risky, because it is assumed that a nearby village was where the responsible artists lived. Relative dates obtained through stylistic analysis have proven more reliable when the images are compared to better documented materials such as kiva murals and pottery.

Once the fundamental elements of form, space and time are in place, an initial exploration of the dynamic interaction between land and art will follow. With GIS software, it is possible to analyze how the cultural landscape and rock art shape one another, and if that dynamic interplay shifted over time. The ultimate goal is to illustrate and expand what is already known about interaction between Pueblo and Southern Plains cultures.

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Introduction

The levels between the Salinas and Galisteo were favorite haunts of the antelope, and the buffalo also may formerly have approached the Salinas. The [Manzanos] mountains in the west abound in bears, deer, and turkeys. To what extent the great deposits of salt may have been an inducement to the Tiguas [sic] for establishing themselves in their vicinity is uncertain. The natives were acquainted with salt as a condiment in times anterior to the Spanish era, and it is not unlikely, therefore, that this commodity may have been one cause of the original settling of the Tiguas east of the Manzano chain. That a limited commercial intercourse resulted from it seems quite probable ... The valley of Abo, west of the Mesa de los Jumanos, offers the only exception in this otherwise very unprepossessing section of New Mexico. It is a long depression, partially wooded, with a tiny stream, the Arroyo de Abo [Abo Wash], running through it for some distance.¹

Adolph Bandelier was the first American archaeologist to describe the Salinas Pueblos and the Abo Pass. He was also the first to comment on the vibrant paintings still visible in two rock shelters near the ruins of a large village. Abo Pueblo is situated within a pass between the Manzanos Mountains and Los Pinos Hills, which has been used since times of greatest antiquity by many peoples traveling east and west, from the Southwest to the Plains and beyond (map 1). A thorough understanding of the physical context is essential for a more in-depth understanding of the rock art's cultural context, defining how Pueblo peoples used the land for artistic and ritual purposes. Due to their relative locations, the myriad rock paintings and carvings are generally attributed to the people of Abo Pueblo, occupied from approximately 1150 to 1672 C.E. But in light of the physical context of the area as an inter-regional travel route, some of the images do not conform to a Puebloan visual aesthetic and could perhaps be attributed to outsiders, Southern Plains dwellers in particular.

The name of the site, "Abbo," was first recorded by Don Juan de Onate in 1598 during his visit to the Salinas province.² The people living in the pueblo were referenced by the Spanish as the "Tompira"--now known as the Tompiro--a name first recorded by a Franciscan official in the 1620s.³ The Salinas Pueblos include Abo, Gran Quivira--also

known as Las Humanes--and Quarai. The region is named for the numerous saline lakes covering an estimated 13,500 acres east of the Manzanos Mountains and Chupadera Mesa (map 1).⁴ All drainage from the western mountains and nearby mesas collects in these internal lakes--or playas--which have no outflow. As the water evaporates, dissolved minerals are left behind. Over the centuries, these mineral salts have built up to a substantial depth, providing enough raw material to support commercial mining interests. The largest playa is Laguna del Perro, stretching twelve miles in length and one mile in width, while rarely achieving a depth greater than a few inches.⁵

The Salinas province includes the Estancia Basin, Abo Pass, Chupadera Basin, and the Mesa de los Jumanos.⁶ This region is bounded on the west by the Sandia and Manzanos Mountains, on the east by the Pedernal Hills, on the north by the steep scarp forming the southern border of the Galisteo Basin, and on the south by Chupadera Mesa.⁷ Only a small portion within the old Spanish province, and the subject of this study, the Abo Pass region is a basin drained by Abo Wash and bounded on the north by the Manzanos and on the south by Chupadera Mesa, Los Pinos Hills, Cerro Montoso and the Rayo Hills (map 1).⁸

The climate may have influenced the agricultural Pueblo people's choice to settle in this now-arid mountain pass. Rainfall in modern periods averages between ten and sixteen inches of precipitation per year, but Stuart Baldwin, an archaeologist working in the Abo Pass, suggests that rainfall may have been slightly higher during the Pueblo IV period, 1300 - 1600 C.E.⁹ Vegetation is defined by altitude here as elsewhere in New Mexico. Averaging between five and seven thousand feet in altitude, the Abo Pass occupies the Upper Sonoran ecozone, where rainfall is enough to provide grasses for pasturage but is too unreliable for agriculture today. Trees in the pass are characterized by pygmy conifers and juniper, interspersed with open savannahs.¹⁰ Because grasses are the dominant vegetation in the region, many large game animals have been hunted here historically,

including deer and elk in the Manzanos Mountains, antelope and bison in the Estancia Basin.¹¹

The rock art recorded for this study is only a fraction of the total number of images present in the pass region. More rock art awaits recording at Tenabo, throughout the Canyon Saladito and along both sides of Abo Wash through the pass. For the purposes of this study, only the images within the boundaries of the Abo Unit of the Salinas Pueblo Missions National Monument were recorded (map 2). The site of Abo was selected for a rock art study for four reasons: (1) the site is well documented by several archaeological investigations throughout the twentieth century; (2) the rock art and archaeological resources possess a relative integrity; (3) the sheer number of images present at the site promise a detectable variability of cultural patterns throughout time; and (4) the site is located within a mountain pass, a physical point for cultural interface.

Before beginning a discussion of the rock art, it is necessary to define certain key terms. Nineteenth-century documents discussing rock art images in Europe and the United States often use several ill-defined terms to address their topic. Richard Andree is the first scholar to introduce the term "*Petroglyphen*" but does not define it.¹² He also uses other terms interchangeably, such as "*Inschriften*," "*Hieroglyphen*," and "*Bilderschrift*."¹³ "Pictograph" was first used to refer to rock art in America by the venerable H. H. Schoolcraft in 1851. Garrick Mallery used the same term to refer generally to all rock images in his 1886 national survey publication. Julian Steward was the first to restrict the use of the term "pictograph" to rock paintings in his seminal work published in 1929.¹⁴ Since these early years, many publications by scholars such as Polly Schaafsma have refined the usage of these terms, formulating a standard, accepted definition regarding the differences in media. For this study, "petroglyph" will refer to figures carved, incised or pecked into the rock surface. "Pictograph" will refer to figures

created by the application of pigment to the surface. No images at Abo combined the two methods.

To facilitate a description of each image's location, it was necessary to create a reference system. Each image was assigned a locus signifying an independent boulder or other type of rock formation. All loci were assigned an alphabetic code: A-Z, AA-AZ, BA-BZ, and so on. Each locus contains at least one rock-art bearing panel, or perhaps several. Usually the panel would be defined by the natural edges of the boulder. On the larger sites such as the north site (locus BY) and the south site (loci DS and ET), panels were defined by natural breaks, cracks or other surface features. In locus BY, forty-four panels were designated that occupied different faces of the bedrock exposure. In the shelters, panels were determined by the original artists, where paintings seem to cluster at key points in each shelter. In places where water runoff seems to have partially obliterated paintings, dark stains became an arbitrary boundary between panels. In this case, two different panels as coded in this study could conceivably have been one large panel. This will have some effect on future interpretations of these paintings, although it did not play a significant factor in this dissertation.

Southwestern rock art was first reported in American documents in 1846 by Lieutenant William Emory, who led a military expedition through the Gila River drainage in the Arizona territory: "I have found unknown characters written on a rock, copies of which were made"¹⁵ Two military expeditions in the mid-nineteenth century are known to have visited the site of Abo but did not report sighting the rock art.¹⁶

Adolph Bandelier was the first to publish a report on the paintings he found near Abo during his visit in 1882. He wrote:

The mesa ... overlooks a gorge bordered by low cliffs, called the Canon de la Pintada [Abo Wash]. The name is derived from a number of aboriginal pictographs, executed in red, yellow, grey, black, brown, and white, in sheltered places on the walls of the

cliffs. They are mostly human figures, and their colors lead me to suspect that they date from the historical period, for the yellow looks like chrome-yellow, and the green is far too bright not to be some paint unknown to the primitive Pueblo Indian. Some of the figures are interesting; for example, a man in yellow, with a round cap on his head. This figure is called by the people of Abo "El Capitan." Really important are two figures of Indian dancers, one of them masked, showing the naked and painted chest and the gaudy kilt worn by the men on solemn occasions. The other plainly represents a "delight-maker," or jester, with his body painted black and white after the manner of the *koshare*, *kosare*, *kuenshare*, or *shi-p'hung*, as these clowns are called among the Queres, Tehuas, Jemez, and Tiguas. By the side of the human figure stands a snake apparently rising to, or descending from the face of the dancer...Besides the human figures, there are various symbols, such as the rain, shields, and headdresses, all of which figure in Pueblo Indian dances, and more particularly in the *cachinas* [*sic*].¹⁷

Bandelier recorded several of the pictographs, or paintings, in watercolor, but did not comment on any petroglyphs, or carvings. He did make several observations of the ruins, which will be discussed in more detail in Chapter 3 herein. Herbert Sweitzer, an artist and weekend archaeologist, followed after Bandelier, visiting Abo many times to record the images. His observations from 1908 will prove to be particularly insightful regarding twentieth-century use of the site's rock art.¹⁸ The next documented account is that of Wesley Hurt, the first to report on both pictographs and petroglyphs in his unpublished paper written in 1939. He recorded one hundred twenty-six naturalistic and one hundred fifty-four geometric designs among the petroglyphs.¹⁹ Forty years passed before the rock art would be recorded between 1981 and 1984 by Stuart Baldwin and his graduate assistants from the University of Calgary. His team reported thirty-five rock art sites throughout the pass. They surveyed the rock art, recording specific images, but their results await publication.²⁰ In 1984, Sally Cole recorded the pictographs on the south part of the site under the auspices of a Southwest Parks and Monuments Association grant. With Polly Schaafsma's assistance, Cole meticulously recorded all the pictographs, but ignored the petroglyphs.²¹ She likened the rock art of the region to that of the Willow

Springs site in Arizona, created by Hopi travelers journeying to a salt source and successively recording clan symbols in rock art to mark their passage. Salt may have been one attraction of the Salinas area, but, as Cole points out, the rock art in the Abo Pass cannot be simply reduced to clan symbols.²² To this author's knowledge, the field work accomplished for this study represents the first full recording of all rock art, including over twenty-three hundred images, found within the Abo Unit's boundaries. Four Laboratory of Anthropology sites were recorded, totalling 163 loci with 343 panels. To simplify the text, these sites will be referred to as the north site (LA 33127), the mask site (LA 44066), the west site (LA 44065), and the south site (LA 8989) (map 2).

The site of Abo was also chosen for the relative integrity of both the rock art and archaeology; there has been relatively little development here. Numerous archaeologists surveyed or tested portions of the nearby pueblos, but no large-scale excavation has been consummated. Most of the completed investigations have focused on the seventeenth-century mission and church, only occasionally on the pueblo room blocks. There has been no extensive excavation work conducted comparable to the scale of the investigations at the Gran Quivira site carried out by Alden Hayes and his team in the 1960s.²³

Another reason Abo was selected for this study was the concentrated variety of images. By the end of the 1994 field study, nearly two thousand petroglyphs and approximately three hundred pictographs had been recorded. Though small from a statistical point of view, this sample size was adequate for a study of how rock art interacts with landscape. It will be necessary to record much more rock art in the future, but this sample information is enough to discern cultural patterns and differences, particularly between Puebloan and non-Puebloan artistic traditions.

This distinction is crucial and was, in fact, a result sought in the choice of location. The final reason Abo was chosen was that the site was located in a mountain pass. As a point on a physiognomic border in the landscape, Abo provides an opportunity to study

changes in a cultural boundary area. Changes in cultural centers are often most visible at the borders, particularly where one group must translate and adapt to interact successfully with its neighbors.²⁴

Rock art is uniquely interdependent with the surrounding physical landscape, in contrast to other art media. This dissertation will explore meaningful patterns of cultural interaction between the rock art of Abo Pueblo and the physical landscape. Rock art, a product of human social and cognitive behaviors, now can be analyzed *in situ* with the new tools available with geographic information systems (GIS) software. It is possible, even necessary, to analyze rock art in the context of its landscape. As J. J. Brody writes:

...[P]ictorial images and the surfaces on which they are made are interdependent, rather than independent of each other. Classification of artistic images alone can be of little interpretive value, because in the end, observation of the ways that artists use their chosen pictorial spaces is necessary to refine an understanding of how images and the locations where they occur serve any people.²⁵

By analyzing the landscape context, the researcher can observe certain clues revealing the functions of such images.

Other case studies are known. In his studies of petroglyphs in southeastern Alaska, E. L. Keithahn noted that petroglyphs on Prince of Wales Island were found by the mouths of rivers, facing the ocean rather than the inhabited villages. Some petroglyphs were created on boulders which would be submerged during tidal action. Linking the evidence of physical context to oral literature, Keithahn suggested that the rock art was created to communicate with the salmon spirits. The images were placed where they could be easily seen by incoming salmon.²⁶ This is a simple example of how analysis of landscape can inform the interpretation of rock art's function.

With geographic information systems software, such as the Environmental Planning and Programming Language (EPPL), more sophisticated questions may be asked

about how the cultural landscape was shaped by rock art, how the rock art was defined by its physical space, and if that dynamic interplay shifted over time. The ultimate goal is to illustrate and expand what is already known or hypothesized about Pueblo culture and its interaction with Southern Plains dwellers. Three questions will shape this study: (1) does a discernible pattern exist in Abo's rock art that changes through time? (2) do specific images co-occur often enough to define a culturally-determined pattern of iconography? and (3) does the iconography have any connection to the directional orientation of the rock surface chosen by the artist? To answer these questions, an analytical structure must be constructed, beginning with terminology and working through style and chronology.

Chapter 2 will explore landscape theory, delving into concepts of space, place, center and boundary, followed by some suggestions of how rock art may serve different functions framed by these concepts. Chapter 3 will reconstruct a historical framework of Abo Pueblo and the surrounding landscape, beginning in the PaleoIndian era and terminating with modern American occupation. Of primary concern will be the periods in which Pueblo people, and later Southern Plains people, inhabited the pass and perhaps created the bulk of the petroglyphs and pictographs. Chapter 4 will analyze all the recorded images and define their various styles, with the intent of tentatively identifying the originating culture. Once style and culture have been identified, Chapter 5 will assign a tentative chronology to the rock art of Abo. Any conclusions here are speculative, since any methods for dating rock art are necessarily relative. Absolute methods for dating rock art are being announced monthly in the field's publications, but none of these methods have been applied to the pictographs and petroglyphs of Abo. Chapter 6 is the crux of the dissertation, where three computer models--created with EPPL, a GIS software--are created to analyze cultural patterns across the landscape. Finally, in Chapter 7, conclusions will be drawn and future needs discussed.

Methods for stylistic analysis in Chapter 4 and chronological analysis in Chapter 5 will follow traditional art historical trends. Each method will be more thoroughly discussed in its respective chapter but deserves comment here. Formalism is a fundamental method in art history, serving to describe both mimetic and non-mimetic elements of art. Contextualism, coming out of the structuralist tradition, completes the construction of the analytical framework, separating art styles and periods into relative periods. Formal and contextual comparisons to other dateable media such as kiva murals and pottery will assist in suggesting a tentative chronology for Abo's artistic styles.

Chapter 6, however, is the most innovative chapter where chronological periods and element complexes will be mapped across the landscape of Abo with the intent of discerning cultural patterns on the landscape and whether they have changed through time. To accomplish this, geographic information systems (GIS) software will be used, specifically the Environmental Planning and Programming Language (EPPL). What is a GIS?

A geographic information system is a set of programs that help you collect, manage, analyze, and visualize data about phenomena on, above or below the earth's surface. Most GISs are organized around thematic layers. One layer might represent land use, another soil types, a third vegetation, and a fourth annual precipitation rates. Each layer contains regions of different values--precipitation rates ranging from 10 to 40 inches; or land uses classified as agricultural, industrial, residential, water and transportation. Layers can be analyzed individually, combined, or overlaid to reveal distributions of data values and relationships among variables.²⁷

For this study, the layers include the hydrology of the Abo Site and the various loci as divided by chronological, iconographical, or directional criteria. The primary advantage to using GIS is that a researcher can accurately map a specific feature as small as one meter on the larger landscape and can create models to relate such features to others. For example, it is possible to map all talus slope boulders with petroglyphs of shield bearers,

then map the relationship between these boulders and those containing images such as serpents or snakes. It is also possible to map elements within a certain distance, perhaps one-quarter mile from a stream or spring. With the visual results, it is then possible to make tentative interpretations regarding the relationships between images and significant landscape features such as streams and roads.

The disadvantage of GIS is a human one. It is too easy to read meaning into patterns on the landscape that may be truly random or to define a border where in fact one never existed. The data produced by a GIS package such as EPPL is useful only in creating another analytical tool, but the data should not be taken as a greater authority than it is. Ultimately, after all the analysis and modeling is finished, one must acknowledge that rock art was created by humans for their idiosyncratic purposes and these can only be partially glimpsed, even with the most sophisticated of methods and tools. GIS software is useful in that it is a visual method of studying rock art in its physical context. The models provide one way to analyze the changing relationships between art and landscape. In the next chapter, methodologies of landscape study will be examined in greater detail.

ENDNOTES

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²France V. Scholes and H. P. Mera, "Some Aspects of the Jumano Problem," *Contributions to American Archaeology and History* (Washington, D.C.: Carnegie Institution Publication 523, 1940), 276.

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⁵Alden C. Hayes, Jon N. Young and A. Helene Warren, *Excavation of Mound 7: Gran Quivira National Monument, New Mexico* (Washington, D.C.: National Park Service, Publications in Archaeology 16, 1981), 1.

⁶Stuart Baldwin, "Tompino Culture, Subsistence and Trade" (Ph.D. dissertation, University of Calgary, 1988), 4. Hereafter annotated as "Tompino."

⁷Hayes, Young and Warren, 1.

⁸Stuart J. Baldwin, "A Tentative Occupation Sequence for Abo Pass, Central New Mexico" (National Park Service, Salinas National Monument, Mountainair, N.M., 1983, Xeroxed), 1. Hereafter annotated as "Tentative Occupation Sequence."

⁹Baldwin, "Tompino," 71.

¹⁰Baldwin, "Tompino," 61.

¹¹Tainter and Levine, 7.

¹²B. K. Swartz, Jr., "A Survey of Petroglyph and Pictograph Research as Viewed from America." In *Occasional Papers of the American Committee to Advance the Study of Petroglyphs and Pictographs*, ed. Joseph Snyder, vol. 1(1981), 97.

¹³Richard Andree, *Ethnographische Parallelen and Vergleiche* (Stuttgart: Verlag von Julius Maier, 1878), 259.

¹⁴Swartz, 97.

¹⁵William H. Emory, Lieutenant, *Lieutenant Emory Reports: A Reprint of Lieutenant W. H. Emory's Notes of a Military Reconnaissance*, introduction and notes by Ross Calvin (Albuquerque: University of New Mexico Press, 1951), 104.

¹⁶See Chapter 2 for a discussion of the Abert and Carleton expeditions. Neither officer reported rock art, although they did study the church ruins.

¹⁷Bandelier, 276-278.

¹⁸Sally J. Cole, "The Abo Painted Rocks: Documentation and Analysis" (Grand Junction, CO: A Report Prepared for Salinas National Monument, 1984), 7. Hereafter annotated as Cole, "Abo."

¹⁹Wesley Hurt, Jr., "The Abo Series of Pictographs and Petroglyphs" (Bloomington: Indiana University Museum, Unpublished paper, 1939), 2. The terms "naturalistic" and "geometric" are Hurt's.

²⁰Stuart Baldwin, personal communication, August 27, 1996.

²¹J. J. Brody has also recorded at least selected images, to which he alludes in several publications, particularly *Anasazi and Pueblo Painting* (Albuquerque: University of New Mexico Press, 1991). Other researchers are known to have visited and recorded images at Abo but have not published their findings in their entirety.

²²Cole, "Abo," 20.

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²⁴James A. Moore, "Forager/Farmer Interactions: Information, Social Organization, and the Frontier." In *The Archaeology of Frontiers and Boundaries*, ed. Stanton Green and Stephen Perlman (Orlando: Academic Press, 1985), 93.

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²⁶E. L. Keithahn, "The Petroglyphs of Southeastern Alaska." *American Antiquity* 2(1940): 128-132.

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Landscape Theory

Rock art is that rare medium where art historians can deconstruct, then reconstruct, art's complex, multi-layered relationship with a particular landscape. The reasons for this possibility are two-fold: 1) the art was conceived as an integral part of the cultural landscape, and 2) it usually remains in its original location, not being easily collectable. Modern methods in rock art scholarship are constantly changing and expanding. Early methods centered on questions of cultural attribution, chronology and interpretation. Archetypal of these early research methods is Abbe Breuil's voluminous and influential work regarding Paleolithic rock art in Europe. Breuil considered the role of the rock surface in the creation of the art, the position of panels relative to one another, and the overall position of paintings within a cave, but he did not overtly relate cultural structure to meaning in his hunting magic interpretations.¹ As a leader of the French Structuralist school in European rock art studies, Andrei Leroi-Gourhan made the connection between structure and interpretation when he proposed that rock art encoded cultural mythology, what he termed mythograms. A mythogram involves the making and placing of specific images guided by cultural premises.² As Meg Conkey observed, Leroi-Gourhan "linked covarying classes of animals, signs and cave locales to male and female valences."³ One problem with his mythogram model is the decontextualization of the rock art images.⁴

Recent scholarship has sought to contextualize rock art within its cultural landscape, to integrate analyses of tangible form and intangible space.⁵ M. Jane Young, in her work with Zuni rock art, realized that the surrounding images, rock forms, even animals and plants, were crucial to her native friends' understanding of the rock art.⁶ Polly Schaafsma, the most influential author publishing on rock art research today, has also stressed the crucial need for researchers to consider context when recording and

interpreting rock art.⁷ Rock art performs myriad functions in a cultural landscape. Clues to some of these functions lie in the context of the images. In order to seek out such clues, it is essential to provide a methodological framework within which to construct a model for analysis. First, the fundamental terms of general landscape theory such as space, place, center and boundary will be examined. To understand how these concepts work, they will be applied to known Puebloan spatial models, such as Tewa and Zuni world models. Second, rock art's role in creating place, center or boundary will be examined. Third, it will be proposed that the spatial structure of Abo's rock art changed numerous times from the Archaic period through the nineteenth century. Altered landscape space and new iconography in rock art reveal the changing functions such images had for their originating artists and for subsequent users of those images.

In the Western European tradition, landscape is often incorrectly equated with space. Within this space are cities, villages, roads, churches, and other man-made structures, in addition to natural sites that have come to mean something special to people. These living or visitation sites have been called places or centers. But what is a precise definition of these terms, space, place, and center? Maps are commonly drawn with solid lines denoting boundaries between political, cultural and economic units. But what constitutes a boundary? Does a boundary have a specific role in each enclosed society?

Such questions have been addressed by many cultural geographers in the formulation of a general theory of space. While it has proven to be as difficult for geographers to precisely define space as for art historians to define art, some characteristics of space, place, center, and boundary have been established. According to Aristotle, space was only one category for naming and classifying the evidence of the senses.⁸ As explained by no less an authority than Albert Einstein, this earlier concept of space was shaped by the psychologically simpler concept of place. All places were identified as material objects. Space, then, was a collection of these material objects. To

conceive of empty space, devoid of material objects, was logically impossible. This Aristotelian sense of space dominated Western European thought until the seventeenth century, when Descartes proposed that space was absolute; space *contained* all senses and all material objects.⁹ Space, then, had become container. To speak of empty space-as-container is to speak of that which is devoid of objects, but the void itself still exists.¹⁰

Space-as-container holds objects referencing ideas specifically defined by culture. Each culture creates--or in Henri Lefebvre's words, produces--its own space, filling the container with unique objects in a culturally defined manner. The distinction that the production of space is a cultural process is important here, that "an already produced space can be decoded, can be *read*."¹¹ Unique codes exist in each specific historical period.¹² Lefebvre would categorize Abo and other rock art sites as "representational spaces," each of which is defined "as directly lived through its associated images and symbols...."¹³ He continues:

Representational spaces ... need obey no rules of consistency or cohesiveness. Redolent with imaginary and symbolic elements, they have their source in history--in the history of a people as well as in the history of each individual belonging to that people.¹⁴

History, then, is inscribed in representational space. But this "representational space" is also always a *present* space, an immediate whole, complete in every historical period.¹⁵ Thus, in each historical period, the space can be read as a complete text.

Lefebvre's "representational spaces" contain what he terms "affective centers," such as churches and graveyards. Thus "representational space"

...embraces the loci of passion, of action and of lived situations, and thus immediately implies time. Consequently it may be qualified in various ways: it may be directional, situational or relational, because it is essentially qualitative, fluid and dynamic.¹⁶

Place is a locus of emotion, action, and history. History is recorded by objects and their functions in place. Places are emotional or social loci and are not easily translatable to

outside cultural groups. Following this line of reasoning, a place as defined by Archaic traders is different from that which is inhabited by later Puebloan peoples, even though they occupy the same point in geographical space. Such loci could be built environments such as villages or rock art sites, or natural sites such as mountain passes and peaks.

History is recorded in places, according to Yi Fu Tuan, a cultural geographer. For example, the whole landscape is considered by the Australian aboriginal people to be a tribal history, with significant places clearly indicated in mythology and in physical reality.

Landscape is personal and tribal history made visible. The native's identity--his place in the total scheme of things--is not in doubt, because the myths that support it are as real as the rocks and waterholes he can see and touch. He finds recorded in his land the ancient story of the lives and deeds of the immortal beings from whom he himself is descended, and whom he reveres. The whole countryside is his family tree.¹⁷

Each place, each object, evokes narrative. Aboriginal history is a marriage of emotion, memory, language and place. Certain places become highly significant in both emotional and social terms, reflected in greater concentrations of human traces. These places could be termed "centers."

Places are created in a cultural context. According to Tuan, "place" is that locus where a culture organizes the forces of nature and society, assigning them specific locations in the landscape, "thus transforming space ... into place."¹⁸ Culture creates the perception of important objects in space, but "...certain objects, both natural and man-made, persist as places through eons of time, outliving the patronage of particular cultures."¹⁹ The rock art of Abo creates such a place. From the Archaic images to modern graffiti, Abo persists as a place "outliving the patronage" of originating cultures.

Visibility can also create place. According to Tuan, both art and architecture seek visibility.²⁰ As Conkey points out, Paleolithic cave art is another dimension of the built environment.²¹ Rock art shapes space in some ways that are similar to architecture. In

the rock shelters of Abo, art transforms rock formations, reinforcing the identity of this place.

A "center" is a special kind of place. All centers are places but not all places are centers. It is important to consider how a place becomes a center. In his book, *The Sacred and the Profane*, Mircea Eliade discusses the concept of place as center.

[I]t is the break effected in space that allows the world to be constituted, because it reveals the fixed point, the central axis for all future orientation. When the sacred manifests itself in any hierophany, there is not only a break in the homogeneity of space; there is also revelation of an absolute reality, opposed to the nonreality of the vast surrounding expanse. The manifestation of the sacred ontologically founds the world. In the homogeneous and infinite expanse, in which no point of reference is possible and hence no *orientation* can be established, the hierophany reveals an absolute fixed point, a center ... The discovery or projection of a fixed point--the center--is equivalent to the creation of the world....²²

Eliade conflates the concepts of place and center in the above passages. Key is his idea that humans orient themselves in their environment by establishing centers.

Carole Crumley, an archaeologist working in the Burgundy region of France, defines "center" in relation to boundaries and also to analytical scale. She reiterates frequently that scale is a key concept in the identification of a place as a center.²³ Most archaeological work focuses on the community scale, reconstructing only one aggregation of dwellings. So, on this intimate scale, the community is a center for the people who built and lived in it, and certainly for the archaeologist attempting to reconstruct those lives. To consider the relationship of the subject community to nearby cultural sites is to consider culture on a larger scale. However, a community or place--a center in the smaller scale--could lose that special status in the larger scale, perhaps even becoming a boundary place between larger centers. There is no diagnostic set of variables for identifying center versus boundary or in-between place. Crumley asks:

What constitutes boundary and center administratively? ... [C]ities may aggregate, integrate, and mediate varieties of custom and opinion, serving a function also served by some boundary areas. Some centers and some boundaries are sparsely populated, yet charged with meaning, e.g., "no-man's land," "ceremonial center"; some teem with human mental and physical activity, e.g. "gateway cities," "markets"²⁴

Careful examination of environmental and cultural context is crucial in determining whether a place is a center.

Often, a center is defined by its relationship to other places. One must consider how many places create a larger network or "region" in archaeological terms. Lefebvre notes that

[w]e should have to study not only the history of space, but also the history of representations, along with that of their relationships--with each other, with practice, and with ideology. History would have to take in not only the genesis of these spaces but also ... their interconnections, distortions, displacements, mutual interactions, and their links with the spatial practice of the particular society or mode of production under consideration.²⁵

History is encoded in places and the relationships between them. Places are connected throughout a geographic region, while paths and places exist at all levels of space. On the physical level, they are manifest as buildings, roads, and vistas. On the mythic level, paths can lead to other worlds or places can be sites of mythical events. An example would be the Zuni path of deformed boulders warped by Old Salt Woman's anger as described by Young.²⁶

In her earlier work, Crumley suggests that centers and the relationships between them are based on economic models. A "functional center" would be "any spot/place/site/location which serves a function or functions not equally available elsewhere."²⁷ Such single-function centers could develop into commercial, multi-functional sites based on trade, focused around what Crumley terms a break-in-bulk point.²⁸ When a place becomes a center for one function, such as the provision of water

in an otherwise sparsely watered environment, it could rapidly become a multi-function center, acquiring greater economic importance, and later political, cultural and perhaps even religious functions. In addition to providing water for travelers, Abo could have acted as a break-in-bulk point between the Rio Grande Valley and the higher eastern plains. The growth of the pueblo after the eleventh century points to increasing trade and a desire on the part of Puebloan people to reduce the cost of trade goods flowing through their country.

Crumley defines a "functional lattice" as the social network of relationships between functional centers. She gives two examples of such functional lattices: farmer's markets (or short-range relationships) and trade fairs (or long-range relationships). On the local scale, Abo may have acted as a market for local farmers. On the larger scale, trade fairs would have attracted long-range travelers such as traders from the river valley and hunters from the plains. While there are no records of trade fairs at Abo, the Spanish did describe such activities occurring at nearby Tabira (Gran Quivira).²⁹

Such trade fairs often occur in smaller centers located on boundaries between two cultural groups. But what defines a boundary? Crumley and Marquardt suggest drawing tentative boundaries for study purposes only, insisting on the identification of a regional system before defining its limits.³⁰ Boundaries should be of a tentative nature, things of flux, liable to be changed should the evidence support another conclusion. For study purposes, boundaries are clearly arbitrary, but it must be firmly understood that they play a very real role in cultural interaction.

Any definition of boundary is problematic, since it must always be linked to a specific cultural context, disallowing any universal statements. Due to this interdependence, boundaries will shift as the scale level of analysis changes.³¹ What is a center on a community scale may be a boundary on the regional scale. In terms of art,

boundaries are often defined by changes in the way certain objects are created or simply by how the same objects are used differently.³²

Kent Ryden, a social geographer writing about the folk sense of place, discusses the roles boundaries play and some aspects of their nature:

...[B]oundaries--not those drawn by surveyors and cartographers and marked by fences and signs, but those superimposed on the land and inscribed in the mind through the daily experience of inhabiting a locality; not those erected fiercely from without, but those pushed out gently from within--are frequently an important component of people's lived sense of place ... Such regions, self-consciously known and defined by the people within them, may or may not correspond with prominent and visible features on the landscape or with conventional political division; what is important is that the people themselves know and can point out the boundaries of their regions--the regions are accurately defined only from within, not without....³³

Boundaries are frequently dividing lines between political groups, but often this also incorporates cultural, linguistic and religious differences as well. Humans tend to erect markers on boundaries, thus making a record of the role the division plays. Ryden observes that these marks can be read rather like an environmental text.³⁴ Through historical custom, boundaries may be inherited by successive inhabitants of an area, particularly if the border is defined in relationship to the physiognomy of the landscape, such as a river ford or a mountain pass. Through time, people create many signs and markers on the boundary, creating "a palimpsest: a layered accumulation, with each new layer erasing and obscuring the last, of man-made frontier--announcing artifacts, of implied landscapes, of attitudes toward travel, of the unremarkable everyday history of this spot on the border."³⁵ This is precisely what occurred at Abo.

The fundamental terms of space, place, center, and boundary constitute the basic elements of a general theory of space. To understand a real place, Abo, more specific models are necessary. The foregoing terms will be applied to known Pueblo spatial

models, specifically the Tewa and Zuni conceptions of the world's structure. Neither Tewa nor Zuni concepts are directly applicable to Abo's rock art, so they cannot serve as models. They are, rather, examples of how highly structured is the Pueblo world view. It may never be possible to reconstruct the Tompiro world view, but certain patterns can be discerned that can lead to fruitful investigation. While some elements of these models translate generally in the models being built in Chapter 6 herein, they are not templates. The influences are general, not direct. In Puebloan thought, the landscape, indeed the world, is constructed of superimposed layers. While the details differ from one pueblo to the next, all Puebloan cosmology is ultimately based in the geographic reality of the immediate environment.³⁶ Tuan cites the pueblos of Santa Ana, Hopi and the Tewa as examples of people with conceptions of an oriented mythical space that organizes the forces of nature and society into specific geographic locations.³⁷

Alfonso Ortiz, himself of Tewa descent, explains the complex world structure described in the oral traditions of San Juan Pueblo. The world is oriented in the four cardinal directions, centered upon a vertical axis connecting the upper and lower worlds to this middle place. The surface of the world is encircled by four tetrads of boundary markers, all originating with the creation of the world by culture heroes. The outermost tetrad marking the boundaries of the Tewa world are four mountains, one in each cardinal direction. The mountain demarking the southern boundary is Sandia Peak above Albuquerque.

These mountains are understood by the Tewa to be endowed with sacredness in several ways. First, a lake or pond is associated with each, and within this body of water live the "Dry Food who Never Did Become," ... Secondly, there is a *nan sipu* or earth navel on top of each mountain ... [the *Towa 'e*, Creator Brothers who led the people out of the underworld] are associated with the earth navels, which are represented by stone structures, rather than with the lakes or ponds.³⁸

Earth navels are keyhole-shaped arrangements of stones with the open end oriented towards San Juan Pueblo. The purpose of an earth navel is two-fold: 1) it provides an access point to all three cosmic levels, and 2) it gathers blessings and directs them towards the subject village. Smaller keyhole shrines are located near game trails or places where game congregate, functioning to direct blessings onto the game animals.³⁹

Within the boundaries marked by the mountains is the second tetrad of four flat-topped hills, created by a pair of supernatural brothers slinging mud in the four cardinal directions while they were shaping the earth's surface.⁴⁰ Still closer to the pueblo is the third tetrad: four shrines represented by piles of stones at the edge of the village. The fourth and final tetrad of organized space is comprised of the four dance plazas within the pueblo where all dance rituals are repeated four times in each during a single circuit.⁴¹

Tewa space is bounded by four mountains with supernatural connections, represented by both natural and man-made features. Ortiz does not mention rock art, but these images could conceivably play a role in this highly structural concept. Places such as high points and game trails are marked with keyhole-shaped rock structures. San Juan Pueblo itself is bounded by rock structures, while the internal space of the pueblo is organized around four open plazas. The pueblo of San Juan is a small model of the world, since both are considered in the same structural terms: the plazas correlating with the cardinal directions and the village boundary markers with the mountains at the edge of the world. The part represents the whole.

The cosmological structure of the Zuni world, however, is based mainly on the movement of the sun in its annual cycle rather than on landmarks such as mountains. The cardinal directions are also key to the Zuni system, particularly east and west as connected to the movement of the sun in its daily cycle. The intercardinal directions assume great importance in the Zuni perception, since they are connected with sunrise and sunset on both the summer and winter solstices. The center is also important. According to Zuni

oral history, the center was found when a water-skate stretched out his legs towards the intercardinal directions. Directly under his heart and navel was the center, where modern Zuni Pueblo is sited today. Located on the exact place is a heart-shaped rock, contained within the house of the chief priesthood. A vertical axis runs through this center. In addition to the four directions across the surface of the earth, zenith and nadir are also important, particularly as connections to the four upper and four lower worlds. Thus the six directions are key to the structure of the Zuni world.⁴²

Symbolic animals--referred to as the "Beast Gods"--and specific colors are associated with each of the six directions in Zuni cosmology. Young's Zuni friends would sometimes identify the "Beast Gods of the six directions" in the rock art. Some contemporary rock art images were quite clearly identifiable as the six "Beast Gods," but earlier petroglyphs were more ambiguous. The Zuni would look for groupings of all six but would sometimes settle for something "close enough."⁴³ This ambiguity and fluidity of iconography continues to accommodate changing conceptions of rock art for modern viewers. Young concludes: "Just as Zuni temporal and spatial perceptions are characterized by fluid boundaries, so are their perceptions of other qualities or aspects of existence...."⁴⁴

The Tewa and Zuni conceptions of the world's structure are quite similar, despite differences in details. Tuan observes similar hierarchical, direction-oriented mythic space in the cosmology of the Keresan and Hopi pueblos.⁴⁵ Each modern Pueblo community is the aggregation of several populations coalescing through the history of the Rio Grande Valley. The Tompiro artists of Abo did not record their thoughts regarding the world's structure in writing, but their descendants did have some input into the philosophical and religious concepts of their Puebloan cousins. The general Pueblo model of space includes a central vertical axis connecting multiple cosmic worlds, is oriented to the cardinal directions, has space divided into four quadrants, and has specific animals and colors

associated with each direction. The highly structured Pueblo world models do correspond to the general theories of space. It has also been shown how Zuni people interpret their rock art in accordance with their world model. It will not be possible to reconstruct the Tompiro world model, but the Zuni conception offers some interesting suggestions. This potential may make it possible to trace changes in the cultural landscape as recorded in the rock art of Abo. But it must be borne in mind that tremendous differences--as well as similarities--exist between Zuni and Tompiro art, so the comparison must not be overdrawn.

Rock art is frequently a record of a place created by humans in an historical landscape. This art form is specific to culture and to historical time, thus it can be deciphered like an environmental text. Rock art studies to this point have only occasionally and tentatively examined the relationship between the images and the surrounding landscape, and then only on an intimate, intuitive level.⁴⁶ What is needed is a more articulate study of this relationship between landscape and art, focusing on a larger scale than earlier studies. To examine the relationship between art and landscape, it must first be shown how the land shapes art, then how rock art is used to create a place, center, or boundary.

Early scholars were more concerned, and rightly so, with recording, classifying, dating and interpreting individual images. That landscape is, and probably has always been, integral to rock art is illustrated by M. Jane Young's description of her Zuni friend's reactions.

Fred turns from the rock carvings and walks to a nearby pool of water that has been formed by the recent heavy rain. He prays and scatters sacred cornmeal over the water. He fills a small metal container with water to take back and sprinkle on his cornfield. Nearby are some plants with small white flowers; Fred bends down and scrutinizes them closely. He tells me that they are used by the medicine societies in healing rituals ... As we walk through the canyon, Fred notices and often comments on everything there--not

just the rock art depictions, but pools of water, vegetation, insects, birds, an occasional animal track—he seems to be drinking it all in. This is a special place and everything in it is significant.⁴⁷

Such attention is not directed only at rock art at Zuni. Unusual rock formations are linked to ancient stories about catastrophic floods, sacrificial children, or the anger of Old Salt Woman.⁴⁸ Context is so important to some Zuni people that decontextualized images drawn on index cards could not be identified by one man because he had never visited the site.⁴⁹ As Young summarizes:

The importance of context was also revealed by those Zunis who came with me to rock art sites. They not only looked closely at the carved and painted figures on rock surfaces, but carefully observed the features of the landscape within which the rock was located, paying particular attention to varieties of plants, sources of water when available, bird nests, and animal tracks.⁵⁰

This sense of place is by no means restricted to the Zuni, or even to Pueblo peoples in general. Rick Dingus, a photographer, describes the reaction of one of his companions.

Late one day we visited a petroglyph site in the company of Katherine Smith, a respected Navajo elder from Big Mountain. Nearby the many Hopi clan symbols, she searched out a lone sun symbol and centered her attention lovingly on it. She removed her moccasins for traction and climbed half way up a slope of large tumbled boulders so she could stand respectfully, silently viewing the vast space and the sun as it passed below the horizon. Before we left, she collected samples of the red and green-colored earth from there to take home with her.⁵¹

Apparent in both cases is the importance of the entire landscape, from the sky to the ground and all the things visible—animal, vegetable, and mineral. This total context adds layers of meaning to otherwise one-dimensional interpretations of images carved or painted on rock surfaces.

Rock art and landscape interact in myriad, complex ways. While such art shapes space and marks important points in a landscape, the land itself also influences the

production of imagery. On a regional scale, Abo was important as a mid-point between the river valley and the eastern high plains. The site lies in the foothills at one end of a mountain pass and boasts a perennial spring in an otherwise sparsely watered environment. On the community scale, certain areas were probably chosen for rock art production by different cultural groups dependent on many physical features including proximity to water, exposure to the cardinal directions or prominent distant landmarks, and exposure of suitable rock surfaces. Due to the intimate community-level focus of the field work for this study, most of the rock art recorded is located within sight of Arroyo Espinoso or Abo Wash. Because of the direction of the streams, most of the rock art also faces the Manzanos peaks to the west or Chupadera Mesa to the south. The exposure of appropriate rock surfaces also plays a key role in the selection of sites along the waterways or within view of prominent landmarks. The south site, where most of the pictographs are located, consists of shallow rock overhangs opening south-southeast towards Chupadera Mesa (map 2). Located along the banks of Arroyo Espinoso, the west site, the north site and the mask site contain images painted or carved only where vertical sandstone faces or large talus slope boulders with straight, flat, relatively smooth surfaces exist (map 2). The sole pictograph outside the south-facing rock shelters near the highway is located at the Mask site under a low overhang west of Arroyo Espinoso. Other rock shelters exist on both banks and contain many petroglyphs and graffiti but no pictographs. There is a large gap between the west and north sites due to the lack of suitable surfaces. Much of the gap is comprised of a talus slope strewn with small, colorful pebbles of myriad types of rock. This abundance may have attracted tool makers to the site but not the rock artist.

While physical features of the landscape affect the production of art, other factors--what Jack Steinbring terms phenomenal attributes--may also play a role. Phenomenal attributes may at least contribute to the selection of a place for the creation of rock art. In

his investigations of Canadian rock art sites, Steinbring observed that phenomenal attributes may not be critical in initial site selection, but many sites do exhibit at least one. He writes: "Phenomenal attributes, while unquestionably conditioned by numerous cultural influences, exceed the merely pragmatic by stimulating visual, auditory, and aesthetic responses."⁵² Such attributes would be:

1. Prominence--view towards and away from
2. Caves or rock shelters--size and shape, location near water or remoteness, orientation, rock type
3. Sound or Resonance--echo chambers or resonances when rock is struck
4. Effigy forms--human or animal forms in rocks
5. Presence--"special surroundings" composed by nature, e.g. the Grand Canyon
6. Environmental Extremes--water holes in the desert, volcanic lava tubes.⁵³

For the Zuni, inaccessibility of place seems also to be a power-producing phenomenal attribute, according to Young.⁵⁴ Ortiz adds that high places are associated with myth for Tewa people, connoting access points to other levels of existence.⁵⁵ More subtle features in the landscape may shape the rock art of Abo, but any suggestions made here are only tentative, intended to provoke thought and discussion.

Art can serve at least two functions in the definition of place: (1) it can intensify the human experience by serving as a point of orientation as Eliade phrased it, or (2) it can mark a place as having been the site of intense human experience. Art can make space into place. Citing a sculpture by Henry Moore as an example, Tuan writes: "The sculpture creates a place, a center of meaning, by creating an apt image of human feeling; a stone figure takes on the illusory power of life and draws the surrounding space to itself."⁵⁶ In a later article, he reiterates this point when he discusses how art gives the viewer clues as to the cultural complexity of landscape; art causes a fusion of disparate personal, and perhaps even cultural, perspectives.⁵⁷ Kent Ryden would agree, although

he cites examples like colossal fiberglass ears of corn. Art focuses attention and distinguishes part of the landscape.⁵⁸

While Tuan and Ryden use examples of Western art, rock art could serve the same purpose. In places such as Abo, generations of artists have left their marks to record experience, to express deeper meaning, and to focus viewer attention. The task for the art historian is to separate and examine the many layers. As Young and Schaafsma--among others--have discussed, rock art can focus the observer's attention on particular features of the landscape. As Schaafsma describes, petroglyphs and pictographs have

...the distinction of being art forms that have remained through the centuries in their original settings and in which settings they had certain specific functions. Even though meanings and the symbolic import of the many motifs may be lost to the modern viewer, the mere presence of imagery within the natural scene inevitably conveys a sense of significance and heightens the sense of place.⁵⁹

Not only does rock art heighten the sense of place, it may also function to create--or at least emphasize--a locally important center. In the appropriate environmental context, multiple images can dominate the local landscape, denoting a center. Steve Fitch, a photographer of rock art for many years, describes certain rock art sites as being in the center of a series of concentric circles.⁶⁰ The innermost circle is composed of the images themselves and how they relate to each other, followed by "human marks on the land" such as architecture or roads. Then there is the environment surrounding the art. Sometimes sites are intentionally related to one another, like canyons connecting to a river as nerves to a spinal cord. Examples would include the Galisteo hogback where sites are linked in a line-of-sight context--just as at Abo--or Three Rivers, possibly chosen for its isolated position and panoramic view which includes the Sierra Blanca.⁶¹ Fitch defines "place" as a location that "exists within the flow of time ... and within the flow of space as well so that near and far are part of the continuum." The rock art recorded at Abo is part of a larger continuum. The rock art recorded for this study is only a fraction of the total

number of images present in the pass region. Conclusions drawn in this study will be tentative and may be reconsidered as the scope of research expands to include all the rock art in Abo Pass.

Rock art can denote a center in the landscape, but can—at the same time—mark boundaries between regions. As has been pointed out by Schaafsma and other scholars, rock art serves multiple functions:

Imagery in [certain] locations strengthens the connection between society members and their sacred past. It serves to maintain the identification of sacred locations, as well as to honor the appropriate supernaturals. It may also serve the secondary function of maintaining the definition of tribal territories and even boundaries, as certain shrines may be 'owned' by particular social groups.⁶²

Specific examples Schaafsma mentions are the large white figures painted within rock shelters occupied by cliff-dwelling Anasazi between 1250 and 1300 C.E.: "These designs were usually round and conspicuously placed. Visible for long distances, these paintings may well have been emblems of the social affiliation of the group or groups occupying the dwelling." Smaller images near living or work spaces may also have served as territorial indicators.⁶³ Young also mentions the use of rock art for boundary markers by both Hopi and Zuni people. The Hopi are known to have used boundary stones engraved with clan symbols. This may also be the case at Zuni, but not every petroglyph is a clan symbol.⁶⁴ Deduced solely from its geographical location on the eastern slopes of the Manzanos Mountains, Abo may have served as a boundary between the Rio Grande Valley and the eastern plains. The rock art, in at least the historic period, seems to have reinforced cultural, as well as physical, boundaries.

Rock art sites, then, can be both center and boundary. In their archaeological research of the Burgundian landscape, Carole Crumley and William Marquardt discuss this inherent duality of boundaries:

From the standpoint of the groups divided by the boundary, that boundary is an edge, a periphery. From the point of view of participants in commerce and communication, the boundary is in fact an important kind of functional center....⁶⁵

Abo was part of the Puebloan eastern frontier, a locale for trade with Plains hunters operating on the western edge of the plains. But to the people of Abo, their pueblo was a center of local importance during its five-hundred-year history. Whether to define Abo as center or boundary hinges on definition of scale.

Scale must be explicit in any discussion of Abo as center or boundary. As Crumley and Marquardt insist, what is a center at one scale is a boundary at another: "The essential difference between concepts of boundary and centre would then turn on questions of scale, context, and perception"⁶⁶ Abo's rock art can be analyzed at four different scales, which are not fully realized in this preliminary study:

1. That of the rock art images themselves, how they relate to one another in a group, and how panels relate to one another in the local vicinity;
2. How all the rock art loci from a particular period relate to other stylistic and chronological clusters;
3. How these clusters relate to natural features of the site, such as the spring, the arroyo, or the ancient road;
4. And finally, how the rock art of Abo relates to that of the Rio Grande Valley or the eastern plains.

Metaphorically, these different degrees of scale could be seen as concentric circles, one nesting inside another.⁶⁷

Whether Abo was a center or a boundary place seems to have changed throughout the long history of this site. As will be elaborated in the next chapter, Abo was near a perennial spring located at one end of a low mountain pass between the Manzanos and Los Pinos hills, connecting the Rio Grande Valley and the eastern Great Plains (map 1). This place lay on a physical boundary on the landscape during the Archaic period. The spring may have made Abo an important stopover for travelers. Rock art near the spring

and along the banks of the nearby arroyos may have served several functions. The act of pecking the petroglyphs may have been a ritual in itself, perhaps of thanksgiving or self-identification of the traveler to supernatural powers. For the later Zuni and Tewa people, springs are dwelling places for supernatural figures, a religious concept that may or may not date to the Archaic period.⁶⁸ Another possibility is that the linear and spiral designs may have been maps of some kind. The best known examples of such graphic maps exist in Australian rock art. Edward Relph writes:

Many Europeans have spoken of the uniformity and featurelessness of the Australian landscape. The aborigines, however, see the landscape in a totally different way. Every feature of the landscape is known and has meaning--they then perceive differences which the European cannot see. These differences may be in terms of detail or in terms of a magical and invisible landscape, the symbolic landscape being even more varied than the perceived physical space. As one example, every individual feature of Ayer's Rock is linked to a significant myth and the mythological beings who created it. Every tree, every stain, hole and fissure has meaning. Thus what to a European is an empty land may be full of noticeable differences to the aborigines and hence rich and complex.⁶⁹

For the Australian aborigine, the landscape is a map of the travels of ancestral beings. Every feature, waterhole, tree, and rock is a sign of the presence or passage of such supernatural beings. Thus, the entire landscape and every object in it is a record of history, as Peter Sutton describes.

The Ancestral Beings or Dreamings, who carved forms out of the formless world and molded the shapes of the creeks and desert sandhills and rainforests also brought human sociality and culture. Thus, there is no geography without meaning or history.... The land is already a narrative--an artifact of intelligence--before people represent it.⁷⁰

Later Puebloan-period rock art at Abo becomes much more complex in iconography, technology, and structure. Most of the rock art at Abo was created during the periods when the pueblo was built and occupied. Due to the complexity and sheer

numbers of images, it is assumed that the rock art and its landscape acquired additional functions after the Archaic period. In reading Zuni, Tewa, and Hopi creation myths, Pueblo people have a geographic grounding in oral tradition comparable to the Australian aborigine; every mountain, mesa, spring, and rock evokes a narrative of how it came to be through supernatural acts. The Pueblo landscape is also a narrative, "an artifact of intelligence," as exemplified by the Zuni.

For them, certain features of the landscape, as well as images carved and painted on rock surfaces that are integral to that landscape, encode events that happened in the past. Rock art depictions in particular have the power to evoke that past; they serve as vehicles that bind together past and present, linking the ancestors and the myth time to contemporary Zuni life.⁷¹

Rock art images are "metonyms of narrative," as Young terms it, in which the image connects an oral tradition to the landscape in general and to the specific rock surface. The image reinforces the memory, evokes the story, and enriches the layers of cultural meaning, creating Ryden's "palimpsest" of implied landscape. This is not specific to the American Southwest; scholars working on rock art sites around the world have often reported connections between mythological narrative and landscape features.⁷²

After the abandonment of the village by its inhabitants, Pueblo people continued to return sporadically to Abo, notably military patrols tasked to guard the pass from Apache incursion during the eighteenth and early nineteenth centuries. These Pueblo warriors may have taken the opportunity to add to the palimpsest of images near the abandoned pueblo where they apparently encamped. But there are also a few Athabaskan images painted in the rock shelters near the Pueblo pictographs. Polly Schaafsma offers an explanation as to why this may be the case.

Relative newcomers to the Southwest in the sixteenth century, the Apaches and Navajo considered as sacred caves painted with imagery prior to their arrival and in turn made their own rock art in these same spots. Many eighteenth-century Navjao [sic] paintings

and petroglyphs are made over earlier Pueblo figures, sometimes even incorporating them.⁷³

Young recorded superimposed paintings in her survey of Zuni rock art. When questioned, her Zuni friends described a process by which the later paintings could be enhanced by absorbing, or possibly stealing, the power of the earlier paintings. This seems especially true in areas where more than one culture group co-exists.⁷⁴ This process operates in reverse as well; the Zuni are also known to appropriate images in the landscape even if they were not originally created by a Zuni artist.⁷⁵

Landscape is a medium in which humans encode cultural meaning and history. Abo's rock art is a palimpsest recording different cultural styles and time periods. The art is visual evidence of changing histories in the landscape, of changing cultural landscapes through history. The landscape itself is a cultural narrative. It will not be possible to reconstruct the Tompiro world model, but the Zuni conception of rock art in accordance with their world model offers some interesting comparative possibilities. One difficulty with these world models is that they are drawn from contemporary Pueblo people who are heavily influenced by Western concepts of space and history. These modern interpretations cannot be equated to prehistoric models of thought, so they are used only to suggest certain avenues of investigation.

Rock art can serve to mark places, sometimes centers, sometimes boundaries; Abo's functions may have shifted through time from Archaic boundary to Puebloan center to historic boundary. The value of this study of Abo's rock art is in the investigation of intercultural dynamics, for the forces that form and transform are often more visible at the boundaries than in the centers.⁷⁶ This tentative framework for the changing functions of Abo is built upon the archaeological and historical evidence present at Abo. In the following chapter, this sequence will be reconstructed in greater detail, from both archaeological evidence and historic documents.

ENDNOTES

- ¹Henri Breuil, *Four Hundred Centuries of Cave Art*, trans. Mary E. Boyle (Montignac, France: Centre D-Etudes et de Documentation Prehistoriques, 1952), *passim*.
- ²Margaret W. Conkey, "To Find Ourselves: Art and Social Geography of Prehistoric Hunter-Gatherers." In *Past and Present in Hunter Gatherer Studies*, ed. C. Shirire (Orlando: Academic Press, 1984), 259. Hereafter annotated as "Social Geography." See also Andre Leroi-Gourhan, *The Dawn of European Art: An Introduction to Palaeolithic Cave Painting*, trans. Sara Champion (Cambridge: Cambridge University Press, 1982).
- ³Conkey, "Social Geography," 259.
- ⁴Conkey, "Social Geography," 260.
- ⁵Brian L. Molyneaux, "Formalism and Contextualism: An Historiography of Rock Art Research in the New World" (Master's Thesis, Department of Anthropology, Trent University, 1977), 130.
- ⁶M. Jane Young, *Signs from the Ancestors: Zuni Cultural Symbolism and Perceptions of Rock Art* (Albuquerque: University of New Mexico Press, 1988), xvii.
- ⁷Polly Schaafsma, "Form, Content, and Function: Theory and Method in North American Rock Art Studies." In *Advances in Archaeological Method and Theory*, ed. Michael B. Schiffer (Orlando: Academic Press, vol. 8, 1985), 261. Hereafter annotated as Schaafsma, "Form."
- ⁸Henri Lefebvre, *The Production of Space*, trans. Donald Nicholson-Smith (Oxford: Blackwell Publishers, 1991), 1.
- ⁹Lefebvre, 1.
- ¹⁰Albert Einstein, "Foreword." In *Concepts of Space*, ed. Max Jammer (New York: Harper and Brothers, 1954, 1960), xv.
- ¹¹Lefebvre, 17.
- ¹²Lefebvre, 47.
- ¹³Lefebvre, 39.
- ¹⁴Lefebvre, 41-42.
- ¹⁵Lefebvre, 37.

¹⁶Lefebvre, 41-42.

¹⁷Yi-Fu Tuan, *Space and Place: The Perspective of Experience* (Minneapolis: University of Minnesota Press, 1977), 157-158. Hereafter annotated as *Space*.

¹⁸Tuan, *Space*, 91, 93. Specific Puebloan groups at Santa Ana, Hopi and the Tewa villages are cited as examples.

¹⁹Tuan, *Space*, 162-163.

²⁰Tuan, *Space*, 164.

²¹Conkey, "Social Geography," 269.

²²Mircea Eliade, *The Sacred and the Profane* (New York: Harper Torchbook, 1961), 20-22.

²³Carole L. Crumley and William H. Marquardt, eds., *Regional Dynamics: Burgundian Landscapes in Historical Perspective* (San Diego: Academic Press, 1987), 2. Hereafter annotated as *Regional Dynamics*.

²⁴Crumley and Marquardt, *Regional Dynamics*, 13.

²⁵Lefebvre, 41-42.

²⁶Edward Relph, *Place and Placelessness* (London: Pion, Ltd., 1976), 21-22; Young, 148.

²⁷Carole L. Crumley, "Toward a Locational Definition of State Systems of Settlement," *American Anthropologist* 78(1976): 67.

²⁸While she does not define this term, I take her to mean that this is a point where the cost of moving trade goods begins to outweigh any profit to be made from the sale. In other words, if the goods were to be transported further, the trader would lose more than s/he would gain in sale. A "break-in-bulk point," then, is a point where the trade goods would be sold to another group of traders willing to transport the goods further in a relay manner.

²⁹See Stuart J. Baldwin, "Tompson Culture, Subsistence and Trade" (Ph.D. dissertation, University of Calgary, 1988).

³⁰Crumley and Marquardt, *Regional Dynamics*, 9.

³¹John Justeson and Steve Hampson, "Closed Models of Open Systems: Boundary Considerations." In *The Archaeology of Frontiers and Boundaries*, ed. Stanton Green and Stephen Perlman, pp. 15-30 (Orlando: Academic Press, 1985), 17.

³²Ian Hodder discusses this process in his seminal study of West African cultures. Ian Hodder, "Boundaries as Strategies: An Ethnoarchaeological Study." In *The Archaeology of Frontiers and Boundaries*, ed. Stanton W. Green and Stephen M. Perlman (Orlando: Academic Press, 1985), 141-159 *passim*.

³³Kent C. Ryden, *Mapping the Invisible Landscape: Folklore, Writing, and the Sense of Place* (Iowa City: University of Iowa Press, 1993), 127.

³⁴Ryden, 130.

³⁵Ryden, 34. Ryden is describing the border on Route 101 between Connecticut and Rhode Island with all the signs and markers posted by government agencies, but signs are made by many cultures to serve very similar purposes.

³⁶Yi-Fu Tuan, *Topophilia: A Study of Environmental Perception, Attitudes, and Values* (Englewood Cliffs, NJ: Prentice Hall, Inc., 1974), 32. Hereafter annotated as *Topophilia*.

³⁷Tuan, *Space*, 91.

³⁸Alfonso Ortiz, *The Tewa World: Space, Time, Being, and Becoming in a Pueblo Society* (Chicago: University of Chicago Press, 1969), 19. Hereafter annotated as *Tewa World*.

³⁹Ortiz, *Tewa World*, 24; 141, note 6.

⁴⁰Ortiz, *Tewa World*, 14.

⁴¹Ortiz, *Tewa World*, 20.

⁴²Young, 97-100.

⁴³Young, 130.

⁴⁴Young, 158.

⁴⁵Tuan, *Space*, 91.

⁴⁶I am referring here to the growing body of literature linking specific rock art images to movements of light and shadow across a rock surface, or the link between an "abstract" petroglyph and the landscape view beyond. An example would be John M. Rafter's,

"More Sunlight/Petroglyph Interaction at Counsel Rocks, " In *Rock Art Papers* (San Diego: San Diego Museum Papers no. 27(1991), pp. 65-74) See also the American Rock Art Research Association's series of papers for a sample of recent work along these lines.

⁴⁷Young, 3-5.

⁴⁸Young, 148.

⁴⁹Young, 176.

⁵⁰Young, 176.

⁵¹Rick Dingus, "Places, Dreams and Journeys: Long-Term Contexts for Now and Later." In *Marks in Place: Contemporary Responses to Rock Art* (Albuquerque: University of New Mexico Press, 1988), 36.

⁵²Jack Steinbring, "Phenomenal Attributes: Site Selection Factors in Rock Art," *American Indian Rock Art*, 17(1992): 102.

⁵³Steinbring, 102-108.

⁵⁴Young, 174.

⁵⁵Ortiz, *Tewa World*, 15-19.

⁵⁶Yi-Fu Tuan, "Place: An Experiential Perspective," *The Geographical Review* 65 (1975): 161 paraphrasing Susanne Langer, *Feeling and Form* (New York: Scribner's, 1953) 91. Hereafter annotated as Tuan, "Place."

⁵⁷Yi-Fu Tuan, "Thought and Landscape, the Eye and the Mind's Eye." In *The Interpretation of Ordinary Landscapes, Geographic Essays*, ed. D.W. Meinig (New York: Oxford University Press, 1979), 96-97. Hereafter annotated as Tuan, "Thought."

⁵⁸Ryden, 27.

⁵⁹Polly Schaafsma, "Rock Art: Ideas in Time and Space." In *Marks in Place: Contemporary Responses to Rock Art* (Albuquerque: University of New Mexico Press, 1988), 1. Hereafter annotated as "Time and Space."

⁶⁰Steve Fitch, "About Being in Places." In *Marks in Place: Contemporary Responses to Rock Art* (Albuquerque: University of New Mexico Press, 1988), 61.

⁶¹Fitch, 61-62.

⁶²Schaafsma, "Time and Space," 3.

⁶³Schaafsma, "Time and Space," 4.

⁶⁴Young, 182.

⁶⁵Crumley and Marquardt, *Regional Dynamics*, 8, 13.

⁶⁶Carole L. Crumley and William H. Marquardt, "Landscape: A Unifying Concept in Regional Analysis." In *Interpreting Space: GIS and Archaeology*, ed. Kathleen Allen, Stanton Green and Ezra Zubrow (London: Taylor and Francis, 1990), 76. Hereafter annotated as "Landscape."

⁶⁷Fitch, 61-62.

⁶⁸Young, *Signs*, 174; Ortiz, *Tewa World*, 19.

⁶⁹Relph quoting A. Rapoport, "Australian Aborigines and Definition of Place." In *Environmental Design: Research and Practice*, ed. W.J. Mitchell (Proceedings of the Third ERDA Conference, Los Angeles, vol. 1(1972), 3-3.4), 15.

⁷⁰Ryden, 6 quoting Peter Sutton, *Dreamings: The Art of Aboriginal Australia* (New York: George Braziller, 1988), 19. Aboriginal art is being compared here to Archaic art in the strictest formal sense. This author is in no way implying Archaic people living in North America thought the same way as modern Australian aboriginal people.

⁷¹Young, 8.

⁷²Young, 150, 153.

⁷³Schaafsma, "Time and Space," 3.

⁷⁴Young, 185.

⁷⁵Young, 234.

⁷⁶Moore, 93.

Culture History of the Abo Region

Stretching from the PaleoIndian era to contemporary twentieth-century habitation, Abo's history can only be partially reconstructed from archaeological investigations and historical documents written by Spanish and American observers. The history of this region is generally organized into several time periods, corresponding mainly to the Pecos sequence but also including phenomena unique to Abo Pueblo.¹ No single chronological sequence has been established for the Abo region, nor have any of the proposed sequences been adhered to by the many scholars who have worked in this region.² In his dissertation, Stuart Baldwin focused on the Pueblo IV period, dismissing other time periods due to insufficient investigation. In her 1984 recording, Sally Cole discussed only the paintings. J.J. Brody provides the broadest treatment but dates the end of rock art creation with the abandonment of Abo Pueblo at approximately 1672. Both he and Schaafsma focused primarily on the Pueblo IV period due to the parameters established by the associated pueblo of Abo. But the time depth of cultural interaction recorded in rock at this site extends well beyond the chronological parameters of the associated pueblo ruins. Following is the chronological structure used here:

PaleoIndian	10,000 - 6,000 B.C.E.
Archaic (for Abo region)	6,000 B.C.E. - 1,000 AD
Basketmaker	1 - 700 C.E.
Pueblo I	700 - 900 C.E.
Pueblo II	900 - 1100 C.E.
Pueblo III	1100 - 1300 C.E.
Pueblo IV	1300 - 1600 C.E.
Pueblo V	1600 - ca. 1672 C.E.
Abandonment of Abo	1671 - 1673 C.E.
Pueblo Revolt	1680 - 1692 C.E.
Post-Revolt Presence	1692 - 1800 C.E.
Hispanic and American Presence	1800 - 1994 C.E.

PaleoIndian Period, 10,000 - 6, 000 B.C.E.

Identifiable PaleoIndian sites are either animal kill sites—usually mammoth—or temporary camps, defined by the presence of fire-cracked rock and PaleoIndian points such as Clovis or Folsom types. PaleoIndian sites have not been found at Abo, but many have been reported in the vicinity. Thomas Lyons found several PaleoIndian sites in his survey of the Estancia Basin, specifically along the northern and southern shorelines of prehistoric Lake Estancia where the Galisteo and Abo passes open onto the high eastern Plains (map 3).³ Because PaleoIndian sites cluster at the mouths of the mountain passes, specifically Abo Pass, Lyons suggests "Abo Pass was probably one of the most heavily traveled causeways during Big-Game-Hunting [Folsom Culture] times."⁴ This is due, he theorizes, to the fact that animals and humans would use the easiest passages across the short mountain ranges characteristic of central New Mexico. It would then follow that PaleoIndian people were present in Abo Pass, but that no specifically dated sites have yet been reported. PaleoIndian period sites have been located during archaeological surveys in the Rio Abajo area, the Jornada del Muerto—Mockingbird Gap—and west of the Rio Grande river banks near Socorro, New Mexico.⁵ In his archaeological surveys of the Abo Pass in the early 1980s, Stuart Baldwin did not find any sites dating from the PaleoIndian period but postulated their presence in the region due to their proximity in other survey areas surrounding this region.⁶ The scholarly literature, however, does not commonly ascribe rock art to the PaleoIndian period.

Dating the PaleoIndian period is a matter of some debate.⁷ Many scholars rely primarily on the closely reasoned and conservative chronological sequence proposed by Cynthia Irwin-Williams. She dates the beginning of Clovis culture to 9,500 B.C.E. This would coincide with a period of increased moisture in the southwestern region. Such additional moisture would promote a hypothetical population surge in big game animals, hence encouraging the presence of their human hunters.⁸ Mockingbird Gap site is the

nearest PaleoIndian site to Abo that contains substantial evidence of Clovis culture occupation (map 3). Located ten miles east of San Antonio and fifty miles southwest of Abo, this site is dated 9,000 - 6,000 B.C.E. and yielded one hundred-fifty Clovis points.⁹ Folsom points, dated 8,800-8,300 B.C.E., have been reported from Mockingbird Gap, the Lucy site, and Estancia Basin sites near Abo Pass (map 3).¹⁰ Thomas Lyons reports nine or ten Folsom sites clustered at the north and south ends of prehistoric Lake Estancia, near the mouths of the Galisteo and Abo passes (map 3).¹¹ Irwin-Williams dates the end of the PaleoIndian period to circa 6,000 B.C.E. with another climatic change causing the extinction of mammoth and other big-game animals upon whose presence the economy was hypothetically based.¹²

Archaic Period, 6,000 B.C.E. - 1,000 C.E.¹³

Archaic sites are more frequently reported by various scholars from the Abo Pass region as well as the surrounding areas. These sites are usually identified as rock shelters, lithic scatters and typological points. Baldwin reports evidence of an Archaic presence in Abo Pass, primarily in rock shelters, lithic scatters and rock art. He suggests that the cupules, or shallow cup-shaped depressions, found on boulders at Abo and other sites in the pass date to the Archaic period because they are associated with shelters that include lithic scatters characteristic of Archaic culture (figs. 1, 2).¹⁴ A survey of the Rio Abajo province reports sixteen Archaic sites; two sites are located just northwest of Cerro Indio, thirty-five miles southwest of Abo (map 4).¹⁵ Mockingbird Gap, Manzano Cave and the Lucy site also contain Archaic components in their cultural sequences.¹⁶ Wesley Hurt has reported Archaic remains, although no definite sites, near Quarai. He suggests that the Archaic peoples were attracted by perennial springs and dates the site's Archaic occupation from 6,000 B.C.E. to C.E. 900.¹⁷

Basketmaker Period, 1 - 700 C.E.

Basketmaker sites are generally Anasazi habitation sites with pithouse architecture and typological pottery, such as the Lino wares. The Mogollon phases, Pine Lawn and Georgetown, coincide with the Anasazi periods; only the nomenclature is different. The major differences between Anasazi and Mogollon surface finds are the pottery types: graywares for Anasazi sites north of Socorro and brownwares for Mogollon sites to the south.

While Baldwin includes this time period in his Archaic Horizon, Mary Jane Berman distinguishes it on the basis of architecture and pottery changes. In her synopsis of archaeological work carried out west of the Rio Grande, she discusses both Anasazi and Mogollon culture sites near the west bank of the river north and south of Socorro. For the Anasazi sites, she reports a mixture of Anasazi and Mogollon traits in Basketmaker sites. Contemporary with Basketmaker sites are Mogollon sites dating to the Pine Lawn (1-500 C.E.) and Georgetown (500 - 700 C.E.) phases. Brownware pottery, fired in an oxidizing atmosphere, appears among the Jornada Mogollon sites during the Pine Lawn phase. Pottery, fired in a reducing atmosphere to produce the characteristic gray wares, appears later in the Basketmaker III phase for the Anasazi areas. Concurrent with these developments in certain sites, Archaic traits linger in other areas until about 500 C.E.¹⁸

Pueblo I, 700 - 900 C.E.

According to the Pecos sequence, Pueblo I is the period of introduction or invention of above-ground dwellings fashioned of masonry construction and the beginning of the formalization of the subterranean kiva chamber. Originally defined for type sites in the San Juan Drainage, Pueblo I is not so clearly identified in the Abo region due to an apparent time lag in architectural developments. Sites identified as Pueblo I are usually dated by ceramics such as San Marcial Black-on-White wares.

Michael Marshall and Henry Walt include the Pueblo I period in their survey of the Rio Abajo province.¹⁹ Sites dated to this phase are sedentary villages on the banks of the Rio Grande with lateral sites upslope above both the west and east banks. Architecture consists of cobble-based jacal rooms conjoined in single rows. Ceramics for this phase are mainly brownwares, indicating a Mogollon population, but enough Cibola grayware is present to suggest co-habitation with Anasazi immigrants. A large concentration of Pueblo I sites cluster near San Acacia and near the confluence of the Rio Puerco and Rio Grande.²⁰

No sites in Abo Pass are dated to this period, but Franklin Fenega and Earl Green report a pithouse village with several storage pits near Gran Quivira.²¹ They also found on a pithouse floor what they termed a mortar slab made of blue-gray dolomite with a cup, one-inch deep and four inches across, produced by pecking.²² This mortar is remarkably similar to Baldwin's "Archaic cups" pecked into boulders at Abo sites (figs. 1, 2). Fenega attributes this pithouse village to Mogollon peoples based on the predominant presence of brownwares. Lino wares are also present but in low enough quantities to suggest only trade contact with the Anasazi, not co-habitation.²³

Pueblo II, 900 - 1100 C.E.

Pueblo II is characterized by the development of forms introduced in earlier phases. Pottery becomes more differentiated, and architectural forms evolve, particularly the subterranean kiva chamber. Stuart and Gauthier observe that cultural development in the Salinas area parallels that of the Rio Grande Valley but retains stronger Jornada Mogollon influences. These authors suggest that the Salinas populations were more conservative than their riverine relations.²⁴

The Pueblo II period sees a population increase in the Rio Grande Valley, possibly due to Anasazi immigration.²⁵ This is the period where Berman dates the majority of the riverine sites, indicating a higher population density, although not all sites were inhabited

at the same time. Populations on the Rio Grande aggregate into large villages during this period. Such aggregation indicates significant social changes and greater complexity in social structure.²⁶ At Gran Quivira, Alden Hayes points to a large, semi-sedentary population living in deep pithouses and using brownwares in the first half of the Pueblo II period. During the latter half, he notes that jacal above-ground structures are added to the architectural complement.²⁷

In the Abo region, Baldwin dates his Pithouse Horizon to the Pueblo II period based on architecture and ceramics. At Abo, Baldwin reports the presence of many pithouse structures, identifiable by single rows of stone slabs. He did not excavate any pithouses but collected Chupadero Black-on-White and Corona Corrugated ceramic wares from the area.²⁸

Pueblo III, 1100 - 1300 C.E.

After 1100 C.E., the Pueblo II populations coalesced into larger, fortified apartment complexes consisting of massive, contiguous masonry structures. The San Acacia Butte area, which had been abandoned during the Pueblo II phase, was resettled. For the Rio Abajo area, this period is distinguished by the prevalence of masonry architecture, conjoined apartments, beginnings of plaza organization for village planning and preference for elevated, defensible locations.²⁹ At Gran Quivira, there was a move from pithouses to above-ground connected stone rooms and the introduction of Chupadero Black-on-White wares.³⁰ Pithouses continued to be built and used contemporaneously with above-ground structures. The materials and construction methods conformed to general Jornada styles.³¹ Later architecture at Gran Quivira was built of limestone blocks. Pueblo Pardo, located three miles south of Gran Quivira, is a large site typical of this period. Approximately one hundred rooms and three kivas were constructed from limestone slabs broken from local outcroppings.³²

Several investigators have reported on excavations at Abo, dating sites to this period. Abo is a large complex of room blocks organized around plazas and located on both sides of Arroyo Espinoso. Mounds I and J have received the most archaeological attention, because they are located immediately adjacent to the historic Spanish Colonial mission church (map 5). Scholars such as Adolf Bandelier, Joseph Toulouse, Bertha Dutton, and Stuart Baldwin have surveyed or excavated these eastern mounds. Baldwin dates the beginning of Mound J to circa 1275 C.E., whereas Dutton dates the initiation of construction to circa 1150 C.E.³³ Baldwin also excavated four jacal rooms, distinguished by a double row of stone slabs, near LA Site 200, informally known as Tenabo. He found Glaze A wares and intrusive St. John's Polychrome wares made with Cebolleta Mesa area paste, thus dating the site from 1150 to 1275 C.E.³⁴

Located to the west across the arroyo, Mound B has also been investigated by Dutton, Jake Ivey, and Baldwin. Mound B is older than Mound J as was apparent to Bandelier when he visited the site in 1882.

The rocky bed of a small mountain torrent, called Arroyo del Empedradillo [Espinoso], separates the church and the ruins adjacent to it from another pueblo ruin consisting of several connected rectangles with faint traces of estufas [kivas] in their interior squares. These ruins are much more obliterated than those about the church; the mounds are lower and more flattened, and gave me the idea that they were the vestiges of an older pueblo of the same tribe. According to the size of the mounds and their number, this second village contained more people than the first. I cannot decide whether there were two pueblos of the Abo tribe successively inhabited, or whether there was but one, built on both sides of the arroyo.³⁵

Bandelier's latter suggestion is supported by Jake Ivey in his 1988 survey, who reports that Mound B was begun about 1100 C.E.³⁶

Sandal Cave, first announced by M.R. Harrington in 1928, is another Pueblo III rock art site in the pass region.³⁷ Harrington reported rock art images painted or carved into the sooty ceiling of the cave.

Pueblo IV, 1300 - 1600 C.E.

Pueblo IV is generally dated as beginning around 1300 C.E., and is characterized by large masonry pueblos and the introduction of glazewares. The date 1600 C.E. is chosen here as the phase's end point due to the changes wrought by the permanent presence of the Spanish colonists after 1598, thus representing a cultural horizon. Other scholars close Pueblo IV at 1700 C.E., the end of glazeware production, but this is an archaeological, not a cultural, horizon.

According to Marshall and Walt, the Pueblo population consisted of both indigenous Mogollon and Anasazi immigrants from the Basin and Range or Colorado Plateau areas.³⁸ The fusion of these cultures can be seen in the Piro and Tompiro peoples. During the Pueblo IV phase, there is a dramatic population increase in the Rio Abajo and adjacent uplands, possibly resulting from immigration. Populations continue to coalesce into larger, plaza-type villages. Some architecture is masonry, but there is a growing prevalence of puddled adobe construction in the Rio Abajo villages. Circular, rectangular and D-shaped kivas are all to be found in the Pueblo IV sites in these areas. Jornada brownwares and Elmendorf whitewares are succeeded by Rio Grande graywares and glazewares.³⁹

Much of the information available regarding the Pueblo IV period in the Abo Pass is derived from two sources: Spanish historical documents and the archaeological record. First to be contacted, the lowland Piro were described by an unnamed captain under Francisco Velazquez de Coronado in 1541, but this captain does not report going into the mountains to the east of the Piro.⁴⁰ Later explorers would estimate that some forty Piro pueblos with a population of approximately twelve thousand existed in the region between

the confluence of the Rio Puerco with the Rio Grande south to the northern tip of modern Elephant Butte Reservoir.⁴¹ During the Pueblo IV period, the highland Tompiro were visited by at least three Spanish expeditions. The first led by Captain Chamuscado and Fray Rodriguez visited five Tompiro pueblos in 1581-1582, reporting some 575 houses.⁴² In February 1583, Antonio de Espejo visited eleven Tompiro pueblos.⁴³ Don Juan de Onate was the last Spanish visitor at the end of the Pueblo IV period, scouting the Pueblo territories for his newly founded colony. He visited Abo Pass in 1598, reporting nine or ten Tompiro pueblos.⁴⁴ In 1601, Onate would revisit the pass region, this time with a military force which was ambushed by Abo warriors. The casualties recorded by Onate give some hint of the population of the pueblo at this time: nine hundred killed or wounded, and four hundred taken prisoner.⁴⁵ He is the first to name the largest Western Tompiro pueblo "Abbo."⁴⁶

Five archaeological sites have been reported in the immediate vicinity of Abo, all surveyed by an archaeological salvage team and stretching along ten miles of a pipeline lying on the south side of Abo Wash.⁴⁷ Abo (LA 97) lies approximately one-half mile north of the pipeline. Dutton determined that Mound B (on the west bank), like the later Mound J, may have been abandoned, then later reoccupied about 1425 C.E.⁴⁸ Tenabo (LA 200), located three miles southwest of Abo, is dated by tree-ring samples from a kiva roof to approximately 1460 C.E., showing that this pueblo is contemporaneous with Abo.⁴⁹ The presence of macaw remains and pottery indicate trade connections with Zuni, Gran Quivira and the Jornada Mogollon.⁵⁰ Large salt caches at Gran Quivira point to a salt trade with surrounding populations. Pat Beckett has suggested that Chupadero Black-on-White pottery was used to transport the salt, which accounts for the ware's widespread presence in the archaeological record.⁵¹

Gran Quivira is the best documented site in the Tompiro area. This pueblo's history is used to profile events occurring in this region during the Pueblo IV period. In

the analysis of their field work in the 1960s, Alden Hayes' team defined three phases of construction in Mound 7 at Gran Quivira:

- (1) Early Phase (1300 - 1400 C.E.): Between one hundred-fifty and two hundred rooms in five or six concentric arcs surrounding a single kiva, similar to Tyonyi in Frijoles Canyon.
- (2) Middle Phase (1400 - early 1500s C.E.): The northern half of concentric arcs is razed and a linear block of rooms is built extending from the southwest quadrant of the remaining arcs. Three kivas with painted walls were excavated. At the end of this phase, Mound 7 was apparently abandoned for fifteen to twenty-five years.
- (3) Late Phase (1545 - 1672 C.E.): Reoccupation and renovations gradually bury the circular arc portions of the earlier mound, resulting in two hundred rooms and five kivas circa 1600 C.E. Later, the kivas were unroofed and filled with trash, while a nearby room acquired painted walls, suggesting a kiva function.⁵²

While useful as a beginning point for the discussion of the history of the region, there are some methodological concerns with drawing too close a comparison between Gran Quivira and the Western Tompiro villages, including Abo.

Baldwin distinguishes two Tompiro groups during the Pueblo IV period. The Western Tompiro live in the Abo Pass and Chupadero Basin; the Eastern Tompiro, on Jumanes Mesa. The Southern Tiwa live in the eastern foothills of the Manzanos Mountains.⁵³ Population estimates from 1582 C.E. suggest that the Western Tompiro may have numbered approximately nineteen hundred, while the Eastern Tompiro numbered thirty-two hundred, comprising a total of over five thousand Tompiro by the end of the Pueblo IV period.⁵⁴ Baldwin found evidence of a population increase ca. 1275 C.E. in the Abo Pass and suggests that this was caused by immigrants from the Cebolleta Mesa area.⁵⁵

Baldwin distinguishes the western and eastern groups based on ceramic types and different metate forms. After 1300 C.E., the Western Tompiro cease making Chupadero Black-on-White and Corona Corrugated wares in favor of glazewares and Corona Plain. Meanwhile the Eastern Tompiro continue to make Chupadero Black-on-White--and its

successor, Tabira Black-on-White--throughout the Pueblo IV period. They switch from Corona Corrugated culinary wares to Corona Plain much later than the western peoples, circa 1460.⁵⁶ Glazewares do not seem to have been produced in any quantity in the Eastern Tompiro pueblos. Instead, most of the glazewares are imported from the Western Tompiro. This trade gradually increases in quantity throughout the Pueblo IV period, eventually constituting between forty to sixty percent of imported wares found in the Eastern pueblos.⁵⁷ Regarding other differences, the Western Tompiro, along with the riverine pueblos, adopt the slab metate circa 1300 C.E. The Eastern Tompiro adopt this form much later, about 1400 C.E., and even then use it concurrently with the older basin and trough forms.⁵⁸

The glazewares present in the Eastern Tompiro pueblos imply a trade relationship with the Western pueblos. Since very little pottery from the east is found in the Western pueblos, other products may have been traded. Baldwin hypothesizes that these products may have been perishable or semi-perishable. Such trade items could have included buffalo hides, jerked meat, tallow and salt exchanged for Western glazewares.⁵⁹

The presence of Abo-area glazewares in Rio Grande Valley sites dating after 1500 C.E. suggests that the Western Tompiro also maintained trade relationships with the Piro. From 1300 - 1525 C.E., the Piro traded more with Zuni and the Little Colorado pueblos. But after 1525 C.E., more Western Tompiro wares are found in Piro contexts than Zuni or Little Colorado wares. Logistically, the Western Tompiro are the middlemen between the Eastern Tompiro frontier posts and the lowland Piro, providing a link between the Plains and the Rio Grande Valley.⁶⁰ No Piro pottery has been found in Abo or Tenabo, posing the possibility that the Tompiro traveled to the valley for trade. Products for trade could have included salt, buffalo hides, jerked meat, tallow, and pinon nuts. The Piro may have traded surplus agricultural goods, raw cotton, turkey feather items, tobacco and obsidian to the Tompiro. Cotton rat skulls found at Tenabo may have been the remains of skin

bags given to Western Tompiro traders.⁶¹ Baldwin calculates that the Piro would have produced much more food than they needed while the Tompiro were more limited in agricultural potential.

Trade relations with Plains groups are not only documented through archaeology but also primarily through Spanish observations in the late Pueblo IV period. In 1583, Espejo records: "...the Maguas [Tompiro] province borders on the land of the so-called Cibola cattle [bison]. The natives clothe themselves with the hides of these animals, cotton blankets, and chamois skins."⁶² Spanish observers document trade fairs among the Tompiro in the sixteenth century. They list meat, hides and hide products, tallow, and bone products from bison as trade items. Drawing on Spanish observations and biological studies of bison, Baldwin suggests that such trade fairs probably took place in July, late November and early December.⁶³

Espejo's observations of 1583 were the first Spanish documents to mention bison products among the Tompiro and Piro. Seventeenth-century sources corroborated his observations. Obregon, reporting on the Espejo expedition, mentioned that the Tompiro carried bison hide shields. Fray Nicolas de Freitas observed that Gran Quivira "is most populous; people gather from all over to trade antelope skins and corn."⁶⁴ Possible trade items have been found in archaeological contexts dating to the fourteenth and fifteenth centuries. Bones of game animals have been reported in archaeological contexts in the Eastern Tompiro pueblos, including mule deer, white-tailed deer, pronghorn antelope, bighorn sheep and bison. Most of the bison bones were rib material, some scapulae and limb bones, which imply that killing and butchering took place away from the pueblos.⁶⁵ This could have been done by Tompiro hunters, or the already-butchered animals may have been brought in by Plains traders. Toulouse and Stephenson report bison bone and East Texas mussel shells from Pueblo Pardo. Mussel shells are also reported from Tabira.⁶⁶ Dutton found bison bone at Abo dating to the 1500s, while Toulouse reported

similar remains dating to the 1600s. Baldwin found a single bison bone and a freshwater pearl at Tenabo in a context dated from 1500 to 1550.⁶⁷ Bison would have been an important protein source for Pueblo people. Judging from the bone materials found, more pronghorn antelope than bison were brought into Eastern Tompiro pueblos, but bison meat made up fifty percent of the protein diet of these people due to the larger mass of this animal. Pronghorn are a close second in percentage of protein supplied and are still plentiful in the region today.⁶⁸

Pueblo V, 1600 - ca. 1672 C.E.

Sweeping changes in Tompiro material culture are reflected in the rock art during the Pueblo V era. Influenced by the Spanish colonization and Franciscan missionary efforts, the Tompiro adapted new forms in architecture, pottery, and agricultural food crops. Much of the documentation from this period is derived from historical Spanish records but also from the archaeological investigations conducted by Toulouse, Dutton, Ivey and Baldwin.

With the establishment of the Spanish colony, new political and economic pressures affected the Pueblo world. At Abo, the most immediate change was the establishment of the Franciscan mission in 1622 by Fray Francisco Fonte. He is probably responsible for the addition of the Spanish-style convento at the north end of Mound I to the west of the church (map 5). Some of the rooms may also have been intended for civil officials and travelers' lodgings.⁶⁹ In 1629, Fray Francisco de Acevedo assumed guardianship of Abo, which he held for nearly thirty years; he is usually regarded as the architect of the mission church, San Gregario de Abo.⁷⁰ He is also credited with building the mission churches at Gran Quivira and Tabira.⁷¹

In addition to Franciscan missionary efforts, Spanish imposition of a state-level economy on the Pueblo world also had a profound impact on the native culture. Baldwin posits the existence of a multi-component trade network stretching from the lowland Piro

to the Western Tompiro, the Eastern Tompiro and onto the Great Plains. Trade products would have included such items as pottery, obsidian, flint, turquoise, corn, cotton and cotton products, turkey-feather garments, tobacco, and salt. The Spanish interceded in this network, adding a new element to the traditional economic formula. Both Franciscans and civil authorities claimed the rights to labor and products of Pueblo people, thus interfering with the Pueblo capability to trade with Plains peoples whom the Franciscans proved unable to convert and settle permanently. For example, not only did Abo support the Franciscan mission of San Gregario de Abo, they also had responsibilities to *encomenderos*, military men granted rights to obtain tribute paid in labor and agricultural products. Around 1662, Francisco Gomez Robledo had *encomendero* rights to one-half of Abo's labor pool.⁷²

The decade of the 1660s was a period of turmoil and strife for the people of Abo and other pueblos. Competition rose to new heights between the church and state officials at all levels of Spanish government. The Franciscans tried to suppress the native expression of religion, gathering and burning ritual paraphernalia and kachina masks. This destruction and suppression possibly inspired the withdrawal of ritual activities from the pueblo proper to the surrounding landscape, such as the rock shelters one-quarter mile south of Abo Pueblo.⁷³

The friars also competed with civil authorities for Pueblo labor, often bringing charges against government officials before the church's Inquisition.⁷⁴ According to Nicolas de Aguilar, the friars tasked Pueblo people to cook, shepherd, gather wood and "pine-nuts, to weave, to paint, to make stockings and other things for the fathers to use and profit from." Pueblo people even hunted "prairie chickens" for the friars.⁷⁵ Captain Hurtado testified that the Franciscan fathers had the Pueblo people harvest enough pine-nuts in 1660 to sell to raise money to buy an organ for Abo's church, as well as altarcloths and other "ornaments."⁷⁶

One of Abo's political leaders during the 1650s was known to the Spanish as Don Esteban Clemente. He was a trusted ally of the Spanish, presumably acting as an intermediary between the colonial government and his people. To maintain good relations with the Apaches from the Siete Rios area, the Spanish provided Don Esteban with trade goods and the authority to transact business in the governor's name. However, Don Esteban shared the general Pueblo dissatisfaction with the grasping ways of Governor Lopez de Mendizabal during the latter's tenure from 1659 to 1661. As Spanish mismanagement and Franciscan religious persecution accelerated in the 1660s, Don Esteban was forced to side with more militant Pueblo factions against the Spanish, leading rebellions against the harsh conditions.⁷⁷ At some point between 1665 and 1668, he was hung for treason.⁷⁸

A Franciscan document provides evidence of when Abo was abandoned. The last mention of Abo as still occupied by Franciscan friars was included in Fray Alonso Gil de Avila's *Memoria* published in 1672 where he mentions that a military detachment had been assigned to defend the pueblo.⁷⁹ Based on his report, most scholars agree that Abo was abandoned by the friars and the majority of the native population in 1672 or 1673. Abo was certainly abandoned by 1679, as reported by Fray Francisco de Ayeta in his petition to the Viceroy of New Spain published that same year.⁸⁰

Many factors, both human and natural, seemed to have conspired against the Tompiro people. In 1583, Antonio Espejo had estimated the population of the Tompiro to be more than forty thousand, living in eleven pueblos. By 1629, Fray Alonso de Benavides reported fourteen or fifteen Tompiro pueblos but only ten thousand in population, a drop of seventy-five percent.⁸¹ Such a drastic change in population is attributed to many causes, including warfare and disease. Population movement is another factor. People simply left the pueblos under the direct influence of the Spanish, withdrawing to previously uninhabited areas such as the foothills of the Magdalena

Mountains near Magdalena, New Mexico (map 6). The Magdalena pueblos are estimated to have held one-third of the Piro population that had withdrawn from their ancestral homes in the Rio Grande Valley. They may also have contained Tompiro refugees. Other sites in the valley were reestablished as heavily fortified pueblos, such the Cerro Indio and Piedras Negras (map 6). Ceramics found at these sites include Abo glazewares in sufficient quantities to indicate heavy trade contact or the presence of Tompiro relations among their Piro neighbors.⁸² In the early 1670s, some three hundred families are reported to have abandoned Abo to live among their Tiwa neighbors at Isleta Pueblo.⁸³

Population movements would explain the ebb and flow of building efforts in Mound J at Abo Pueblo. Baldwin's excavations in 1981 and 1982 revealed that Mound J had been established in the early 1500s, just before Spanish contact.⁸⁴ Three rooms facing the plaza in the northern room block of Mound J provided evidence that they had been constructed and occupied from 1620 to 1650, then abandoned for a time. They were then reoccupied about 1660 and remained so until the pueblo was abandoned in the 1670s.⁸⁵

Abandonment of Abo Pueblo, 1671 - 1673 C.E.

When and why Abo Pueblo was abandoned play some part in the dating and function of the nearby rock art. Spanish sources credit the depredations of Athapaskan raids and frequent droughts in the seventeenth century for the failure of Salinas Pueblo economies and abandonment of the pueblos. Many scholars have supported this hypothesis. Bandelier, for example, reported "non-Pueblo points" in the area.⁸⁶ But drought and raids were undoubtedly part of the archaeological past. What concatenation of events in the seventeenth century forced the Salinas populations to return to the Rio Grande Valley? Tainter and Levine suggest that the abandonment will be better understood when more is known about interdependent relationships between "Spanish economic demands, religious persecution, subsistence change, labor scheduling, trade,

technology, community organization, native political change, climate and external relations."⁸⁷ Amy Earls elaborates:

. . . [As] the old trade patterns broke down and the Franciscans gained tighter control over food distribution, Athapascans [*sic*] found friendly barter inadequate. When drought swept New Mexico, conditions became intolerable for all people, the bartering relation ended altogether, and the raids became more frequent . . . The abundance of maize in Pueblo territory must have always been tempting to the Athapascans, but with the coming of the Franciscans the storing of it became more and more concentrated as well as tempting . . . Surprisingly, the two regions which suffered the greatest damage from the Athapascans between 1668 and 1680 were the Piro and Tompiro areas. The explanation probably lies in the fact that the Spaniards, after crushing the rebellions of these tribes [such as Don Esteban Clemente's], destroyed their alliances with the Apaches and used Piro and Tompiro warriors in campaigns against the Athapascans. Thus the Athapascans would have regarded their former allies as traitors and enemies to be destroyed with the Europeans.⁸⁸

Baldwin posits a slightly different view of the situation, based on trade economics. Plains peoples, named Jumanos by the Spanish, who had been the major eastern trading partners of the Tompiro, were gradually pushed south by encroaching Athapascans, eventually severing their trade connections.⁸⁹ The Athapascans replaced the Jumanos in the network, but other events conspired against the success of this relationship. Archaeological evidence and historical Spanish accounts corroborate what has been realized to be a world-wide phenomenon known as the "Little Ice Age." Beginning approximately 1300 C.E., a cooling trend in local weather patterns deepened to a maximum cold period between 1600 and 1750, followed by a warming trend. Because the Tompiro pueblos are within the modern altitudinal limits of the Upper Sonoran ecozone, but bordering on the Transitional, the colder weather patterns may have depressed the ecological zones. Thus the Tompiro would have been within the Transitional ecozone,

affecting their crop productivity. This may have encouraged the Tompiro to trade heavily with their lowland Piro relatives for agricultural products. The period of maximum cold between 1600 and 1750 C.E. contributed to the famines of 1658 to 1659, 1668 and 1670. The imposition of a state-level Spanish economy with tributes paid in food led to artificially-caused famines such as that of 1600 to 1601. Tributes in foodstuffs sapped internal reserves, thus weakening the Tompiros' ability to trade. Spanish demands for tribute paid in clothing items such as cotton blankets, hides and stockings struck at utilitarian goods that could have been traded for food. The net effect was that the Tompiro were impoverished and could not trade for what they needed.⁹⁰ The Athapaskans were also affected by the famines, as their attacks on the Tompiro pueblos coincided with the 1658 and 1668 famines.⁹¹ Further evidence of internal friction and strife is found in Spanish records of increasing accusations of witchcraft among the people of the Salinas Pueblos.⁹²

The date Abo Pueblo was abandoned has been a matter of some fervent discussion in the scholarly literature. Spanish manuscripts are the only historical documents of the period, and they do not precisely pinpoint the date when the population of the village left to join their relations and neighbors in the Rio Grande Valley. Minutes from a 1672 chapter meeting of Franciscan friars in the Salinas area list fathers attending from Abo Pueblo, from which it is inferred that at least some parishioners remained in the pueblo if the priests were still serving there. But by 1679, when Fray Francisco de Ayeta wrote his petition to the Viceroy of New Spain, Abo Pueblo had been abandoned.⁹³ Baldwin suggests that the people of Abo could have left all together or piecemeal over several years between 1672 and 1678.⁹⁴ However, the people of Abo probably began leaving somewhat earlier. Bandelier reports that marriage documents from the El Paso area reveal many Abo Pueblo people were living there in 1671.⁹⁵

The number of people who left Abo is another matter of debate. Fray Francisco de Ayeta reported that three hundred families left Abo before 1679, but Baldwin feels this is inflated. He points out that Ayeta's petition was a propaganda document asking the Viceroy of New Spain for military and financial assistance, trying to make a strong case for protection and continued Spanish control of the Salinas province. Baldwin suggests that the actual number of people leaving Abo before 1679 may have been three hundred *persons*, not families.⁹⁶ Earlier published reports on Abo have quoted Ayeta's figure of three hundred families, estimating a population of some eight hundred people present in the twilight days of Abo.⁹⁷

Pueblo Revolt, 1680 - 1692 C.E.

It has often been assumed in the scholarly literature that, once Abo had been abandoned by the Spanish priests and their parishioners, there were no Pueblo people living in the pass area. Many have quoted Spanish sources that the Tompiro and their Piro relatives fled with the Spanish in the Pueblo Revolt of 1680. Once the Tompiro joined their relatives in the Rio Grande Valley, the Spanish do not seem to have separately recorded their presence; all accounts name only the Piro. It is assumed that the populations fused by 1680.⁹⁸ In 1680, 317 "Piro" people retreated with the Spanish.⁹⁹ When the Spanish attempted a military reconquest, they attacked Isleta Pueblo on December 6, 1681, finding five hundred Isleta and Piro defending the pueblo. When the Spanish retreated on January 2, 1682, 385 "Isletans" went to El Paso with them. Piro people who did not go to El Paso probably took refuge at Isleta and Acoma, as well as in pueblos located in the Fra Cristobal range east of modern Elephant Butte Lake.¹⁰⁰ In the 1850s, boundary commissioner John Bartlett recorded the presence in El Paso of a Mexicanized population that spoke Spanish and remembered their Piro language only imperfectly. Bandelier visited the Piro people in 1883, noting that the descendants of Abo were living in Senecu del Sur, findings confirmed by J. Walter Fewkes in his 1901 report.

As Baldwin writes, descendants of the Tiwa Isletans, the Piro and local Mansos people lived in the Ysleta del Sur, Senecu del Sur and El Paso del Norte barrios of El Paso and Juarez.¹⁰¹ However, many Piro returned with the Spanish during the Reconquest.

Post-Revolt Presence, 1692 - 1800 C.E.

Don Diego de Vargas brought back one hundred refugees from Ysleta del Sur, Socorro del Sur and Senecu del Sur during his reconquest in 1692.¹⁰² There is a distinct possibility that Piro and Tompiro people were included in this group. They would have augmented the Piro population that had remained behind as refugees in other pueblos. Governor Vargas used Pueblo auxiliaries--which may have included some Piro/Tompiro warriors--in his campaigns against the Faraon Apaches in the Sandia Mountains in 1704. This practice was followed later by Governor Velez Cachupin during his first term in office, 1751 to 1754, and perhaps in his second term, 1762 to 1767.¹⁰³ According to Spanish manuscript sources, he

...maintained a continuous summer patrol of forty Indians from the six Keres pueblos [San Felipe, Santo Domingo, Cochiti, Santa Ana, Zia, and Acoma] and, when practicable, two squadrons of soldiers from the presidio [in Santa Fe]. These contingents guarded against the entrance into the Rio Grande settlements of Faraon and Natage Apaches to raid Albuquerque, Santo Domingo, and San Felipe. They were stationed at "Coara" [Quarai] and Tajique in the "ancient missions in the cordillera of the Sandia Mountains." Such outlying patrols were to inspect all the terrain in their vicinity and to reconnoiter the entrances used by the Apaches, to gain access to the Rio Abajo region.¹⁰⁴

These documents establish a Puebloan presence in the Salinas area, particularly in the pass regions which served as entrances for raiders into the Rio Grande Valley. Given Abo's proximity to one of the most heavily traveled passes from the valley to the plains, it is logical to conclude that these Pueblo auxiliaries did patrol in the entire Abo area, possibly camping in the pueblo ruins as did later American soldiers. Toulouse notes the presence

of Puname Polychrome and Acoma Polychrome sherds in his excavations of San Gregario de Abo, which indicates to him an eighteenth-century presence of Pueblo people.¹⁰⁵

Whether any of the Pueblo auxiliaries from the Keresan pueblos were descendants from Piro/Tompiro refugees is impossible to prove. Pueblo people, particularly warriors, were present in the Abo region in the mid-eighteenth century. It is at least possible that they were responsible for much of the warrior iconography in rock art panels located close to the modern highway.

Another warrior group may also have made their mark at Abo. It has long been assumed that the Tompiro of Abo abandoned the area to the Apache, who then maintained a presence in the pass region until they were expelled by Spanish homesteaders in the nineteenth century. Baldwin records an Apache presence in the archaeological sites of Abo and Tenabo, but such remains are tenuous. Dated broadly from 1675 to 1850 C.E., "Apache" buildings are described as rockshelters with drywall structures, two stone circles and one rock-lined cache.¹⁰⁶ The Apaches raiding the Rio Abajo region were entering through Abo Pass but stopped for a brief time during a truce with Governor Velez Cachupin from 1749 to 1754. They began raiding again after 1754, implying travel through the pass, and continued to be a problem as late as 1791.¹⁰⁷ Even in 1853, Brevet Major James Henry Carleton led an expedition into the Salinas area to scout for Apache Indians "who often infest that portion of the territory."¹⁰⁸

Hispanic and American Presence, 1800 - 1994 C.E.

Shortly after 1800, Hispanic homesteaders and ranchers returned to exploit the resources of the Salinas area. Bartolome Baca received the Torreon Grant which included the ruins of Abo in 1819.¹⁰⁹ A rancher, he employed some twenty-seven hundred herders to shepherd forty thousand sheep, three hundred mares and nine hundred cattle on pastures in the Manzanos Mountains.¹¹⁰ Due to its proximity to the Manzanos pastures and the presence of a perennial stream running near the pueblo ruins, Abo may have been

visited by these shepherds, some of whom were Pueblo people. This is a tenuous supposition, but there is a possibility that Pueblo people were in the Abo area in the early nineteenth century. Certainly there were Spanish shepherds, and Christian motifs are to be found in the rock art of Abo. Navajo raiders caused all Hispanic settlements east of the Manzanos to be abandoned between 1822 and 1833, save the town of Manzano. Shepherds continued to visit the water sources at Abo through the 1830s.¹¹¹ Baldwin found a significant Hispanic archaeological presence in Abo from 1850 to the present time.¹¹² Between 1865 and 1869, the Cisneros family arrived at Abo to homestead. Title to these lands was granted to Ramon Sisneros in 1892.¹¹³

Unfortunately, early American observers in the area focused primarily on the mission church ruins, failing to mention the rock art. Lieutenant J.W. Abert visited the ruins in November 1846, painting an image of the mission church, but did not mention the rock art at the site.¹¹⁴ He was followed by Brevet Major James Henry Carleton in December 1853, who measured and described the ruins of the church but also neglected to mention the rock art.¹¹⁵ The first American visitor to discuss the rock art was the indefatigable Adolph Bandelier. He surveyed Abo on December 31, 1882, taking measurements of and making notes about the mission church.¹¹⁶ After Bandelier, others visited the site of Abo, but none published a record of the images until Sally Cole's recording of the pictographs in 1984.¹¹⁷ After her work that summer with Polly Schaafsma, the next large-scale recording effort was this author's, in the spring of 1994, focusing not only on the paintings but also on the petroglyphs found in survey.¹¹⁸

No offerings or other evidence of recent ritual use of this site was noticed during the recording field work undertaken by this author in 1994 that would indicate a continuing Pueblo presence in the Abo area. However, this does not mean that the site is completely inactive. In 1908, Herbert Schweizer recorded the image of the sacred clown and serpent before it was vandalized. During a later visit, he noted that damage had been

done to the heads of these figures.¹¹⁹ Since this was the time when the railroad was being built in the pass, it is possible that native people, possibly Isletans, may have deliberately destroyed these images for reasons of ritual security. The descendants of refugees now living in El Paso have also visited Abo in recent years. A large committee of people from Ysleta del Sur visited the Salinas Pueblos on February 2, 1994, but they did not visit the rock art sites.

In conclusion, people have been living in or camping at Abo since the Archaic period. Hunters and travelers may have left their marks upon the landscape, but certainly the farmers of the Early Puebloan periods (Pueblo I - Pueblo III) were responsible for the increase in numbers and the change in iconography of rock art images at Abo. During the Late Puebloan periods (Pueblo IV - Pueblo V), Abo reached its greatest population level, so it is logical to seek rock art from this time frame. Even after the abandonment of the region, Pueblo people continued to foray into the pass, perhaps leaving images on the rocks to record their presence and the boundaries. Athapaskans, too, lived and camped in the area, leaving their marks. It is possible that even as late as the twentieth century, Pueblo people were still acting as caretakers for the rock art, even if this meant destroying sensitive images such as the sacred clown and plumed serpent. Now that the methodological and historical foundations have been laid, a stylistic and chronological framework for analysis of Abo's rock art must be built.

ENDNOTES

¹The Pecos sequence was an historical timeline created at the first conference at Pecos Pueblo in 1927. With some adjustments, this chronology is still the main framework for Anasazi studies.

²Joseph Tainter and Frances Levine, *Cultural Resources Overview of Central New Mexico* (Santa Fe and Albuquerque: Bureau of Land Management and U.S. Forest Service, 1987), 75.

³Thomas Lyons, "A Study of Paleo-Indian and Desert Culture Complexes of the Estancia Valley Area, New Mexico" (Ph.D. dissertation, University of New Mexico, 1969), 73, 80.

⁴Lyons, 82.

⁵Michael P. Marshall and Henry J. Walt, *Rio Abajo: Prehistory and History of a Rio Grande Province* (Santa Fe: New Mexico Historic Preservation Division, 1984), 12; Stuart and Gauthier, 163, 318; Tainter and Levine, 23; Mary Jane Berman, *Cultural Resources Overview of Socorro, New Mexico* (Albuquerque and Santa Fe: U.S. Forest Service and Bureau of Land Management, 1979), 9, 11.

⁶Stuart J. Baldwin, "A Tentative Occupation Sequence for Abo Pass, Central New Mexico" (National Park Service, Salinas National Monument, Mountainair, N.M., 1983, Xeroxed), 3. Hereafter annotated as "Tentative Occupation Sequence."

⁷Frank Hibben's work at Sandia Cave, and his proposal that Sandia Culture predated Clovis culture, is only one source of contention. Most authors cautiously mention Hibben's work in their synopses, but do not generally include Sandia culture in their historical sequences. Because this discussion is beyond the scope or purpose of this dissertation, Sandia Culture is not included as part of the historical sequence.

⁸Tainter and Levine, 12.

⁹David E. Stuart and Rory P. Gauthier, *Prehistoric New Mexico: Background for Survey* (Albuquerque: University of New Mexico Press, 1981), 163.

¹⁰Tainter and Levine, 13.

¹¹Lyons, 80.

¹²Tainter and Levine, 14. Tainter and Levine (page 21) describe the Tillery Springs site, a mammoth kill site that is dated by radiocarbon to 2,000 B.C., therefore pushing the survival and perhaps cultural dependence on mammoth well into the Archaic Period.

¹³Baldwin, "Tentative Occupation Sequence," 3. Baldwin freely acknowledges that no exact dates can be placed on the Archaic Horizon as he has defined it in his work because he has not excavated any of the sites he has assigned to this period. Therefore, he dates the period very broadly, but gives no reasons why.

¹⁴Baldwin, "Tentative Occupation Sequence," 3-4.

¹⁵Marshall and Walt, 18, 21, 28, 31.

¹⁶Tainter and Levine, 23; Stuart and Gauthier, 318-319.

¹⁷Wesley R. Hurt, *The 1939-1940 Excavation Project at Quarai Pueblo and Mission Buildings: Salinas Pueblo Missions National Monument, New Mexico* (Santa Fe: National Park Service, Divisions of History and Anthropology, 1990), 133.

¹⁸Mary Jane Berman, *Cultural Resources Overview of Socorro, New Mexico* (Albuquerque: United States Forest Service and Bureau of Land Management, 1979), 28, 30-32, 40.

¹⁹Marshall and Walt term Pueblo I the Tajo Phase.

²⁰Marshall and Walt, 47-49.

²¹Franklin Fenega, "Excavations at Site LA: 2579, A Mogollon Village near Gran Quivira, New Mexico." In *Pipeline Archaeology*, ed. Fred Wendorf (Santa Fe and Flagstaff: Laboratory of Anthropology and Museum of Northern Arizona, 1956), 226-232; Earl Green, "Excavations near Gran Quivira, New Mexico," *Bulletin of the Texas Archaeological Society* 26(1955): 182-185; Stuart and Gauthier, 321.

²²Fenega, 230-231.

²³Fenega, 232.

²⁴Stuart and Gauthier, 321-322.

²⁵Berman, 54. Marshall and Walt include Pueblo II sites in the later portion of their Tajo Phase.

²⁶Marshall and Walt, 77.

²⁷Alden C. Hayes, "The Jumanos Pueblos." *Exploration: Annual Bulletin of the School of American Research* (1982): 13.

²⁸Baldwin, "Tentative Occupation Sequence," 3, 5-6. Dittert and Plog date Chupadero Black-on-White wares from 1150 to after 1400, essentially Pueblo III.

²⁹Marshall and Walt, 95-96.

³⁰Hayes, 13.

³¹Ronald Ice, "A Report on 1964 Excavations at Gran Quivira" (National Park Service, Salinas National Monument, Mountainair, N.M., 1968, Xeroxed), 11.

³²Joseph H. Toulouse, Jr. and Robert L. Stephenson, "Excavations at Pueblo Pardo," *Museum of New Mexico Papers in Anthropology* 2(1960): 3-4.

³³Stuart Baldwin, "Preliminary Report on 1982 Excavations at the Pueblo of Abo, Salinas National Monument" (Santa Fe: Museum of New Mexico, Laboratory of Anthropology, Xeroxed, 1982), 1; Bertha Dutton, "Excavation Tests at the Pueblo Ruins of Abo," *Archaeological Society of New Mexico, Anthropological Papers* 6(1981): 193.

³⁴Baldwin, "Tentative Occupation Sequence," 3, 7-9.

³⁵Adolf Bandelier, *Final Report of Investigations Among the Indians of the Southwestern United States, Carried on Mainly in the Years From 1880-1885, Part II* (Cambridge: Cambridge University Press, Papers of the Archaeological Institute of America, American Series, volume IV, 1892), 272.

³⁶James Ivey, *In the Midst of a Loneliness: The Architectural History of the Salinas Missions: Salinas Pueblo Missions National Monument Historic Structure Report* (Santa Fe: Southwest Cultural Resources Center, Division of History, Professional Papers no. 15, 1988), 15.

³⁷Tainter and Levine, 35; Mark R. Harrington, "Sandal Cave: A New 'Book' of Southwestern Prehistory," *The Masterkey* 2(Summer 1928): 10. Harrington and his family discovered pottery, yucca fiber sandals, and rock art in this cave site in Nogal Canyon near the modern highway (about ninety miles southwest of Abo). Harrington suggests that there was a Basketmaker component, in addition to an Early Pueblo one, in the cultural detritus found in the cave. Tainter and Levine date at least one component to the Basketmaker period, but Berman dates it Pueblo III; Stuart and Gauthier agree, dating it either Pueblo II or III by the ceramics. Comparing the two rock art images Harrington illustrated to other rock art sites, this author agrees with the latter scholars, dating the rock art no earlier than Pueblo III. There may, indeed, be a Basketmaker component to the cultural debris, but the reported rock art is later.

³⁸Marshall and Walt, 135.

³⁹Marshall and Walt, 135-138.

⁴⁰Stuart J. Baldwin, "Piro and Tompiro Ethnography: First Draft" (Santa Fe: Museum of New Mexico, Laboratory of Anthropology, Xeroxed, 1981), 2.

⁴¹Berman, 77. Accounts in 1582 give these figures, which would have been reported by Captain Chamuscado's chronicler and Antonio de Espejo.

⁴²Albert H. Schroeder, "Pueblos Abandoned in Historic Times." In *Handbook of North American Indians: Southwest*, vol. 9, ed. Alfonso Ortiz (Washington, D.C.: Smithsonian Institution, 1979), 237.

⁴³Baldwin, "Ethnography," 21; Schroeder, 240.

⁴⁴Baldwin, "Ethnography," 21.

⁴⁵Schroeder, 240-241.

⁴⁶[John P.?] Wilson, "Abo" (Santa Fe: Museum of New Mexico, Laboratory of Anthropology, Typewritten manuscript report, 1970), 1.

⁴⁷These sites are LA Sites 200 (also informally known as Tenabo), 2543, 2546, 2541 (located above Indian Springs and considered part of Tenabo), and 2548 (located on the northern end of Tenabo's mesa and considered older in date).

⁴⁸Bertha P. Dutton, "Excavation Tests at the Pueblo Ruins of Abo," *Archaeological Society of New Mexico Anthropological Papers* 6(1981): 182-188; Bertha P. Dutton, "Excavation Test at the Pueblo Ruins of Abo, Part II" (Santa Fe: Museum of New Mexico, Laboratory of Anthropology, Typewritten Manuscript, n.d.), 3. The abandonment and reoccupation hypothesis stems from a short gap in the ceramic record.

⁴⁹Stuart J. Baldwin, "Tompiro Culture, Subsistence and Trade" (Ph.D. dissertation, University of Calgary, 1988), 66-68; Fred Wendorf, Nancy Fox and Orian L. Lewis, eds., *Pipeline Archaeology: Reports of Salvage Operations in the Southwest on El Paso Natural Gas Company Projects, 1950-1953* (Santa Fe and Flagstaff: Museum of New Mexico, Laboratory of Anthropology and the Museum of Northern Arizona, 1956), 221.

⁵⁰Baldwin, "Tompiro Culture," 256-257.

⁵¹Baldwin, "Tompiro Culture," 51.

⁵²Alden C. Hayes, ed., *Contributions to Gran Quivira Archaeology: Gran Quivira National Monument, New Mexico* (Washington, D.C.: National Park Service, Publications in Archeology 17, 1981), 1-2.

⁵³Baldwin, "Tompson Culture," 4.

⁵⁴Baldwin, "Tompson Culture," 248.

⁵⁵Baldwin, "Tentative Occupation Sequence," 3, 11. His suggestion is based on his examination of the ceramic evidence, where some examples exhibit paste composition characteristic of the Acoma Province around Cebolleta Mesa.

⁵⁶Baldwin, "Tompson Culture," 27. Regarding the date the Eastern Tompiro switch from Corona Corrugated to Corona Plain, Baldwin draws on Alden C. Hayes, Jon N. Young and A. Helene Warren, *Excavation of Mound 7: Gran Quivira National Monument, New Mexico* (Washington, D.C.: National Park Service, Publications in Archaeology 16, 1981), 64.

⁵⁷Baldwin quoting Hayes, Young and Warren, "Tompson Culture," 271.

⁵⁸Baldwin, "Tompson Culture," 34.

⁵⁹Baldwin, "Tompson Culture," 52.

⁶⁰Baldwin, "Tompson Culture," 229-230.

⁶¹Baldwin, "Tompson Culture," 214, 220-224.

⁶²Baldwin, "Ethnography," 23.

⁶³Baldwin, "Tompson Culture," 164, 185.

⁶⁴Baldwin, "Tompson Culture," 168-169.

⁶⁵Baldwin, "Tompson Culture," 88.

⁶⁶Baldwin, "Tompson Culture," 173.

⁶⁷Baldwin, "Tompson Culture," 173-174.

⁶⁸Hayes, Young and Warren, 11.

⁶⁹Ivey, 25, 55.

⁷⁰Alonso de Benavides, *Fray Alonso de Benavides Revised Memorial of 1634*, ed. Frederick Hodge, George Hammond, and Agapito Rey (Albuquerque: University of New Mexico Press, 1945), 264; France V. Scholes and H.P. Mera, "Some Aspects of the

Jumano Problem," *Contributions to American Archaeology and History* (Washington, D.C.: Carnegie Institution Publication 523, 1940), 281.

⁷¹Scholes and Mera, 281. These authors paraphrase Captain Nicolas de Aguilar's testimony to the Inquisition in 1663.

⁷²Tainter and Levine, 84.

⁷³J.J. Brody, *Anasazi and Pueblo Painting* (Albuquerque: University of New Mexico Press, 1991), 135.

⁷⁴Paul Kraemer, "New Mexico's Ancient Salt Trade," *El Palacio* 82(1976): 26-27; Charles W. Hackett, trans., *Historical Documents Relating to New Mexico, Nueva Vizcaya, and Approaches Thereto, to 1773: Volume 3* (Washington, D.C.: Carnegie Institution, Publication no. 330, 1937), 188-189; Paul Walter, *The Cities That Died of Fear* (Santa Fe: School of American Research, 1931), 45. Governor Lopez de Mendizabal, in office from 1659-1661, only exacerbated the situation by organizing a large-scale extraction of native resources--namely salt--for marketing in Mexico City. Salt was employed by the Spanish not only for table use, stock consumption and the curing of leather, but also for extracting silver from raw ore.

The method, called the patio process, had been earlier invented at Pachuco, Mexico, by Bartolome de Medina. In this process, the silver sulphide ore was mixed with salt and mercury, ground thoroughly in the old donkey-powered *arrastras*, then spread on patios to be heated by the sun for four to six weeks with occasional turning. The salt aided the amalgamation process by converting the silver sulphide to silver chloride, the latter compound being reduced to elemental silver by the sunlight (as in photography).

Governor Lopez de Mendizabal appointed Nicolas de Aguilar as alcalde mayor east of the Manzanos Mountains, a district which included all of the saline lakes. Aguilar employed Captain Andres Hurtado as his mining supervisor, making him responsible for overseeing the salt mining effort and loading of the wagons. According to Captain Hurtado, Governor Lopez de Mendizabal employed people from six Salinas pueblos mining and loading salt to fill nine wagons. These people also carried huge sacks of salt to a hacienda in Sevilleta, 24 - 30 leagues away in the river valley. Some of the Pueblo herders and drivers of the salt wagons were subsequently forced to go south to El Parral in Mexico with the salt wagon train, only to be left there to find their own way back, usually with the next supply train three years later. Some of the Pueblo people forced to carry the salt such a long distance suffered extremely from illnesses, convulsions and permanent incapacitation.

The notion that salt could be property controlled by a political body was

apparently vastly different from the native practices. According to the Tewa, the saline lakes were a gift from Old Salt Woman who wore white boots, a white manta and carried a soft white abalone shell. The lakes were never considered to be the private property of any pueblo, so many people had access to the salt beds, at least until the Apaches provided a barrier to eastward travel.

⁷⁵Hackett, 144. This is from Nicolas de Aguilar's testimony to the Inquisition on May 8 and 11, 1663.

⁷⁶Hackett, 192. The source is Hurtado's testimony to the Inquisition in September, 1661.

⁷⁷Tainter and Levine, 89.

⁷⁸John L. Kessell, *Kiva, Cross and Crown: The Pecos Indians and New Mexico, 1540-1840* (Washington, D.C.: U.S. Department of the Interior, National Park Service, 1979), 225.

⁷⁹Ivey, 232.

⁸⁰Hurt, 4.

⁸¹Amy Earls, "Raiding, Trading and Population Reduction among the Piro Pueblos, A.D. 1540-1680." In *Current Research on the Late Prehistory and Early History of New Mexico*, ed. Bradley J. Vierra and Clara Gaultieri (Albuquerque: New Mexico Archaeological Council, Special Publication 1, 1992), 13.

⁸²Marshall and Walt, 141.

⁸³Schroeder, 241.

⁸⁴Baldwin, "Preliminary Report," 2-3.

⁸⁵Stuart J. Baldwin, *Studies in Piro-Tompiro Ethnohistory and Western Tompiro Archaeology* (Santa Fe: Museum of New Mexico, Laboratory of Anthropology, Xeroxed Manuscript, 1990), 14.

⁸⁶Bandelier, 11.

⁸⁷Tainter and Levine, 74.

⁸⁸Earls, 16.

⁸⁹Baldwin, "Tompiro Culture," 276.

- ⁹⁰Baldwin, "Tompson Culture," 65-66, 274.
- ⁹¹Baldwin, "Tompson Culture," 278.
- ⁹²Tainter and Levine, 86.
- ⁹³Scholes and Mera, 283.
- ⁹⁴Baldwin, "Tompson Culture," 278.
- ⁹⁵Bandelier, 273. His source is a Spanish manuscript, the *Libro Primero de Casamientos del Paso del Norte*. He also states that he found the descendents of Abo at Senecu del Sur.
- ⁹⁶Baldwin, "Tompson Culture," 278.
- ⁹⁷A.G. Ely and J.K. Shishkin, "Historical Sites Inventory" (Santa Fe: Museum of New Mexico, Laboratory of Anthropology Site Files, 1965), 11; George Kubler, "Gran Quivira: Humanas," *New Mexico Historical Review*, 14(1939): 418; Wilson, 2.
- ⁹⁸Baldwin, "Ethnography," 29.
- ⁹⁹William L. Leap, "Who were the Piro?" *Anthropological Linguistics* 13(1972): 330.
- ¹⁰⁰Tainter and Levine, 91-92.
- ¹⁰¹Baldwin, "Ethnography," 29-31.
- ¹⁰²Oakah L. Jones, *Pueblo Warriors and Spanish Conquest* (Norman: University of Oklahoma Press, 1966), 38.
- ¹⁰³Jones, 128-129; Ivey, 236. Ivey assumes this is the case although Jones clearly does not imply that Cachupin followed the practices of his first term in office in his second.
- ¹⁰⁴Jones, 128-129. Jones is paraphrasing his translation of the *Copia de Ynstruccion que deyo Dn. Tomas Velez Cachupin, Gobernador del Nuevo Mexico a su sucesor Dn. Francisco Marin del Valle*, August 12, 1754, Provincias Internas 102, Expediente 2, Fojas 270 ff.
- ¹⁰⁵Toulouse, 100. He posits an eighteenth-century reoccupation of Abo by Pueblo people based on these sherds, but it is much more likely that they were left by Pueblo people camping temporarily at the site.
- ¹⁰⁶Baldwin, "Tentative Occupation Sequence," 3, 17-18.

¹⁰⁷Jones, 118, 122, 166.

¹⁰⁸James H. Carleton, *Diary of An Excursion to the Ruins of Abo, Quarra and Gran Quivira in New Mexico in 1853 under the Command of Major James Henry Carleton* (Santa Fe: Stagecoach Press, 1965, reprint), 7.

¹⁰⁹Ivey, 241.

¹¹⁰Tainter and Levine, 111.

¹¹¹Tainter and Levine, 241.

¹¹²Baldwin, "Tentative Occupation Sequence," 3.

¹¹³Ivey, 246, 258. The family lost title due to tax debts in the early twentieth century. In 1934, Federico Sisneros bought back all the family-owned interests, but the ruins of Abo were owned by Abundio Peralta from 1915. Peralta donated the ruins and pueblo to The University of New Mexico Alumni Association in 1937, where the properties were then shared between The University of New Mexico, the Museum of New Mexico and later granted to the State of New Mexico. The family appears to have changed the spelling of their name.

¹¹⁴J.W. Abert, *Western America in 1846 - 1847: The Original Travel Diary of Lieutenant J.W. Abert Who Mapped New Mexico for the United States Army with Illustrations in Color from His Sketchbook*, ed. John Galvin (San Francisco: John Howell Books, 1966), 56-57.

¹¹⁵Carleton, 21-25.

¹¹⁶Bandelier, 270.

¹¹⁷The only significant event involving the immediate environment is the construction of the Belen Cutoff, a branch rail line built along the south side of Arroyo de Abo in 1908, according to Tainter and Levine, 126.

¹¹⁸After the recording was complete in June 1994, I was on the site clearing up some minor discrepancies in the paperwork, when I discovered more Archaic rock art on the west side of Arroyo Espinoso, north of the Mask Site, LA 44066. These images were not recorded, hence they are not included in this study. I estimate that there are about one hundred images widely scattered in this area.

¹¹⁹Sally J. Cole, "The Abo Painted Rocks: Documentation and Analysis" (Grand Junction, CO: A Report Prepared for Salinas National Monument, 1984a), 7. Hereafter

annotated as Cole, "Abo."

Stylistic Analysis

Formal analysis is a useful tool for determining the mechanisms by which expressive or decorative effects have been attained as well as for discovering the internal logic of any given art work. It is an objective means for dealing with [non-Western] arts and has the capability for aiding historical and cross-cultural studies. Further, if an intimate relationship between form and content can be assumed, it follows that the formal character of an art work will have meaning for the society that uses it, and that analysis of form will always have the potential for specifying aspects of the symbolic value that an art may have to its users.¹

Formal analysis is but one tool "for determining the mechanisms" and "for discovering the internal logic" of works of art. Style in rock art has too often been defined as an overly simple framework constructed from formal elements and media. Formal, or non-mimetic, elements are an important part of style, but in order to build a sturdy methodological framework for rock art study, other elements must be considered. Such elements include form, material, technique, structure, and--most importantly--context. As discussed in Chapter 2, the context for rock art is the physical landscape which bears evidence of the cultural landscape. Rock art defines place and space in landscape.

Much of the literature on rock art styles has been written by anthropologists who have a somewhat different definition of style than art historians do. Art historical notions of style and visual analysis will form the framework for this study, drawing on the work of art historians and archaeologists for discussions of formalism and contextualism in rock art study. Following this, the formal element categories will be defined. Since element categories are only one component of the framework, material and technique will also be discussed. The context of these images will be constructed as the larger effort of this dissertation.

Why analyze style in Abo's rock art? When content is unfamiliar or meaning ambiguous, art historians rely on the analysis of form and context. Formalism is a highly developed vocabulary designed to describe works of art in terms of non-mimetic elements.

Pioneers in formal analysis Heinrich Wölfflin and Erwin Panofsky both advocated organizing subject material into categories for analysis based on the Kantian notion that such groupings are how all human consciousness constitutes its world. Which categories are chosen and how they are defined and prioritized is culturally defined, providing a sort of mental template which is then projected over the natural world. This mental template differs for every culture and time period. Alterations in the principles of this mental template would reflect changes in the topography of the physical world. This redefinition of the world should be visible in art.

Formal analysis identifies some of the elements of the cultural mental template, but it has its limitations. Often a motif is assumed to have "an intimate relationship"--in Brody's words--with content or meaning. But what appears intimate in a superficial examination has often been revealed as artificial under deeper scrutiny. To properly analyze rock art images, context is crucial to bind this whole framework together. On the physical level, a major advantage in rock art study is that most images are still contained in their original physical context. But on an intellectual level, all art--even rock art--is decontextualized. The intellectual landscape or mental template changes. Leonardo's Mona Lisa was not painted to hang behind bullet-proof glass in the Louvre; the painting's original context has been lost.² Rock art at Abo still occupies the same rock faces; most are still located where they were when the artist chose that surface for artistic endeavor. But the shape of the landscape, how it is conceived and used, has changed dramatically since the Archaic period, as was outlined in previous chapters. The landscape's context has been altered markedly over the millennia, from hunter-gatherer camps to travelers' byway to farmers' fields. While it is possible to change the landscape, by replacing a footpath with a sixty-foot wide, paved highway, a rail line and a natural gas line, for example, the function of the pass is still intact. Abo Pass connects the more populous Rio

Grande Valley with its business-oriented centers to the more agricultural and less populous Great Plains. Abo Pass remains a point of interface today.

Abo also has the advantage of possessing two rock art media, that of paintings and carvings, facilitating comparisons between them and between rock art and other works of art. Brody (1991) was the first to make an extended comparison between rock art and kiva murals, discussing them in terms of material, technique, iconography and structure. His insights inspire this research and thus should be briefly summarized here.

At the end of the Archaic period, the basic intellectual principles of Pueblo painting styles had been established in rock art, pottery, and probably also in wall murals.³ Due to their relative permanence, rock art examples are far more numerous than whole pottery vessels or extant wall murals. A longer period of time is represented in rock art so there is greater diversity in "meanings, purposes, ritual traditions, and activities" than in wall murals.⁴ Greater diversity in rock art can also be attributed to more individuals creating the images, drawing from diverse linguistic, cultural and historical backgrounds. Rock art and wall murals overlap in iconography, and somewhat in style, but the formal distinctions are great. The purposes of both pictographs and wall paintings relate to how the spaces were used and what cultural function these places served. To reconstruct such purposes and meaning, scholars must depend on ethnographic analogy and direct historical association.⁵

Style in Pueblo IV period rock art undergoes tremendous changes. Brody traces a decline in the number of pictographs in this period, while petroglyphs greatly increase.⁶ Subject matter also changes, seemingly linked more closely to kachina figures than in previous periods; in fact, Brody notes a lack of iconographic links to earlier periods of paintings or rock art. Rock art in the Pueblo IV period becomes more tightly organized, coming closer to the structure of wall murals, while the murals become more loosely organized, comparable to rock art. In wall murals, colors are more descriptive, according

to Brody, and color selection is more deliberately "coded" or symbolic than in earlier paintings.⁷

Prior to Brody's work, early American rock art scholars were primarily archaeologists who concerned themselves more with the identification of subject matter as traits or elements, such as mountain sheep motifs, and with tracking these elements over the North American continent. This focus on singular elements fractured stylistic complexes.⁸ Early research, then, tended to dwell on typology rather than style. The archaeological notion of rock art style was first used by Julian Steward in his work on rock art of California and neighboring areas, followed by Luther Cressman in his research on petroglyphs in Oregon. Robert Heizer and Martin Baumhoff were the first to connect rock art style to culture group, and their methodology was later followed, in modified form, by a whole generation of scholars, including Polly Schaafsma.⁹ Archaeological notions of style centered on the identification of characteristic motifs or patterns, then tracing links from one geographic region to another, and from one culture group to another.

Art historical notions differ from those of archaeologists in that the definition of style is somewhat more complex. Meyer Schapiro's work has influenced archaeological as well as art historical notions of style throughout the latter half of this century. He notes that:

... [S]tyle refers to the form elements or motive, form relationships, and the qualities present including an overall quality that we may call expression. Further, technique, subject matter, and material may be included in style definitions, but these are not as peculiar to the art of a period [or culture] as are its formal qualitative attributes.¹⁰

Schapiro adds "quality" and meaningful "expression" to formalist approaches. His work is also important for linking formalism and contextualism, a matter that will be discussed in greater detail below. What is important here is Schapiro's articulation of art historical

style as maintaining constant form, qualities and expression.¹¹ He also points out that it is commonly assumed that every style is unique to a culture and an historical period, that there exist only a limited number of styles in a culture at any given time.¹² This is based on the observation that non-mimetic formal characteristics are not "natural" but are, in fact, culturally defined and bear meaning.¹³

Style, as described by Schapiro, incorporates formal elements, cultural "expression," and subject matter. Content is an integral part of style. Form and content are linked through cultural convention, but their relationship is rarely a simple equation. Rather, the links between form and content are highly complex and prove at times to be quite fluid. Time and again, a motif that conveyed a particular meaning in a culture survives into a later period, to be repeated but with new content, having "outlasted" the original. As David Summers has observed, "...[U]nderstood relations of form and meaning, conventions embracing artist and audience at the deepest level, might have the most basic consequences for the definition and progress of a style."¹⁴ Thus the links between form and content must be carefully reconstructed rather than assumed in each case. Schaafsma has indicated the pitfalls of such assumptions in her critique of early researchers such as Garrick Mallery. To be useful, style must be defined on a local, rather than a continental, scale.¹⁵

Since the earliest definition of formalism within the field of art history, the goals and objectives for using the method have been constantly redefined. Initially, analysis of form was the key to open a locked door. Once entry had been gained, other methods would allow a broader understanding. Formal analysis made art history a universal discipline.¹⁶ Art historians were no longer limited to their own cultural tradition or immediate past history. Early scholars traced particular motifs across geographic, cultural, even temporal boundaries without any controlling comparisons to insure that the form continued to carry the same content. Form and content were assumed to enjoy "an

intimate relationship" and were inextricably alloyed together in the early models.¹⁷ But, as has since been discussed at length—and tacitly conceded by pioneers such as Heinrich Wölfflin—form and content vary tremendously even within closely controlled situations.

Form, in the sense intended by Wölfflin, refers to the non-mimetic elements of a visual image. A pioneer in art historical theory, Wölfflin proposed a critical analysis of line, shape, color, and texture, to name but a few of the many elements that can be analyzed in an abstract sense, dissecting an image into its smaller components without ever referencing content. When the same cluster of non-mimetic elements are shared widely among artists, they indicate a "collective spirit" for the culture or time period, thus accounting for differences in style.¹⁸ Indeed, formalism is the first method evoked to grapple with artistic objects of obscure origins. But as David Summers cautions, "formal analysis" is a method of description that raises more problems than it solves.

... [Formal] order implies both analysis and synthesis. It implies analysis because it requires that any work be resolved into some of the series to which it is seen to belong. But after such a seriation is completed, it is also necessary to reevaluate and characterize the work as a performance in its place and time, as a unique transformation of its precedent elements at the new level of understanding achieved by analysis. This higher level of synthesis, a view of the work through a glass of historical analysis, is inescapably critical¹⁹

Every work of historical formal analysis is in itself a product of history, of its place and time. The method of formal analysis must be used critically with full understanding of its shortcomings; it cannot stand alone but must be followed by other levels of analysis and synthesis.

Many key scholars in rock art study have been directly or indirectly influenced by formalist methods such as that developed by Wölfflin. Archaeology, a fledgling discipline concurrent with the development and refinement of art history, drew heavily on formal descriptive methods to evaluate many classes of artifacts, including cave paintings. Abbe

Henri Breuil, whose methodology dominated the field of rock art for some fifty years, organized European Paleolithic cave pictographs into categories of representational images—those recognizable to him—and abstract images. He defined style primarily on the basis of subject matter, medium and technique.²⁰ Like most formalist scholars of the early twentieth century, Breuil followed an evolutionary scheme, in which formal elements were assumed to change in a predictable manner through time, evolving from naturalistic to abstract elements.²¹ But there are at least two problems with Breuil's evolutionary scheme: (1) artistic elements are not biological units reproducing in a linear manner, and (2) he deals only with individual elements, never entire stylistic complexes.²²

Following Breuil's methods, one of the earliest American pioneers, Garrick Mallery, described his method of analysis thusly: "The present writer has been engaged ... in collating a large number of characters in a card-catalogue arranged *primarily by similarity in forms* and in attaching to each character any significance [content] ascertained or suggested."²³ His survey of the North American continent crossed innumerable cultural and linguistic boundaries, yet the forms with their associated content were assumed to enjoy "an intimate relationship."

Wesley Hurt, an early pioneer in rock art research in New Mexico, recorded the painted images at Abo in 1939. Attempting to fit non-western images into a "universal" language of analysis based on form, he organized the images into generalized formal categories, such as Circle series or Rectangular series.²⁴ For example, a circle with an interior cross would be classified in his Circle Series, in a subcategory as a variant with an interior cross. There are many criticisms of such a "universal" system, not the least of which is that assignment to a category is based on the recorder's subjective description of content. While one researcher might assign the circle with interior cross to the Circle Series, another with more ethnographic knowledge might assign it to the Flower Series. In order to employ such a "universal" analytical tool, the researcher is often forced to use

vague terminology that must be defined each time. This only adds to the cumbersome scholastic burden, the very problem these methods were intended to eliminate. Another problem with Hurt's model is that his "universal" scheme only addresses pictographs--not petroglyphs--which vastly outnumber paintings, even at Abo. Such "universal" methods have also come under fire recently because the images so categorized are considered independent of their context.

To consider a contextualist approach, a scholar must move beyond image or object to include space and structure and transform the concept of style into an expression of total stylistic configuration. The challenge in interpreting rock art is developing analytical methods able to mediate between a viewer's experiential realities and the scholar's analytical ones. Most of the successful examples explore the totality of an art tradition but never artificially encompass it.²⁵ As one rock art scholar states: "The art object cannot be simply a particular form that contains meaning; it must be considered as part of a greater cultural totality. And analysis must then be extended into the natural and cultural environment of which it is an integral part."²⁶

A pioneering effort in contextualist art history is the work of Erwin Panofsky. His three-tiered scheme has not only been highly influential in art history, but anthropologists--notably Polly Schaafsma--have used it in their analysis of rock art. His three tiers are: (1) the primary subject matter or pure formal elements, (2) secondary subject matter or "iconography in the first sense" where the formal elements are interpreted in a conventional manner, and (3) the intrinsic meaning, content or "iconography in a deeper sense," consisting of the "underlying principles which reveal the basic attitude of a nation, a period, a class, a religious or philosophical persuasion"²⁷ This third level of interpretation, focusing on the "intrinsic meaning or content," is intended to define art within its cultural and historical context, using the object as a template for the philosophical or social patterns of the day. In Panofsky's words:

The interpretation of the *intrinsic meaning or content*, dealing with what we have termed '*symbolical*' values instead of with images, *stories* and *allegories*, requires something more than a familiarity with specific *themes* or *concepts* as transmitted through literary sources. When we wish to get hold of those basic principles which underlie the choice and presentation of *motifs*, as well as the production and interpretation of *images*, *stories* and *allegories*, and which give meaning even to the formal arrangements and technical procedures employed, we cannot hope to find an individual text which would fit those basic principles ... To grasp these principles we need a mental faculty comparable to that of a diagnostician....²⁸

This third level, intrinsic meaning or content--later termed "iconology"--is intended to relate visual tradition to the broader cultural context in which the work was produced.²⁹

The notion of "symbolical values" is borrowed from the work of Ernst Cassirer to include within the interpretation of art an element critical in Panofsky's mind--that of the interpretation of art in light of the "essential tendencies of the human mind." As Keith Moxey, a critic of Panofsky's method, writes:

In Cassirer's theory of "symbolic forms," Panofsky found a means of putting together his theory of the way in which the formal qualities of the work of art interlock to control the relation of form and content with the desire to do justice to the content of the work in its historical context.³⁰

Ever since Panofsky first published this three-tiered scheme and defined the word "iconology," scholars have been debating whether or not it is really possible to interpret art on the basis of "intrinsic meaning or content," to reveal the "underlying principles" of any people, of any period in Western art, never mind non-Western art. However, once Panofsky's three-tiered scheme is stripped of its humanist bias, it is still useful.³¹

Following Panofsky's pioneering efforts, Meyer Schapiro was the first art historian to link formalist and contextualist methods. He was the first to define formal elements in two-dimensional art that also carry meaning--elements overlooked by earlier formalists. Throughout his highly influential 1953 essay, he makes a case that certain non-mimetic

elements in two-dimensional art carry meaning, such as the frame, margins, upper versus lower placement, right versus left, broad versus narrow, center versus periphery, corners, remaining space, directedness, symmetry versus asymmetry, and colossus versus miniature. What meaning these non-mimetic elements held for prehistoric viewers must remain a matter of conjecture, but, as modern viewers, we interpret prehistoric images based on our cultural definitions of each of these elements. Schapiro provides an example regarding the role of the frame: "Where there is no boundary of the field, as in cave paintings and unframed images on rocks or large walls, we center the image in our view [and photographs]"³² A question that begs to be asked is whether the prehistoric artist intended this quality of centeredness, and what did it mean to him or her and to the then contemporary audience? Schapiro also discusses how modern viewers read meaning into technical aspects, such as whether a petroglyph is roughly pecked or incised. These elements lend certain qualities to a work, but they can only be properly interpreted in context. As one rock art scholar has observed, "The study of form is an essential part of the analysis of rock art, but as Schapiro ... has pointed out, without the mediation of context, formal data are of low heuristic value."³³ Consequently, many rock art researchers have energetically sought appropriate cultures to provide context for interpretation of rock art, with varying degrees of success.

Just a few of the more successful examples of contextual studies of symbolic art include work by Joan and Romas Vastokas, Nancy Munn, Donald Weaver, and Nancy Olsen. Focusing on the Peterborough site in Ontario, Canada, the Vastokases linked the rock art images to those on birchbark scrolls created by the Anishanabe, which contain important concepts related to their religious tradition.³⁴ Nancy Munn studied sand drawings of Walbiri women, in which abstract symbols were used to denote elements of stories. Munn proposed that the abstract symbols must be studied in a structural--or contextual--method, to discover their function in society and cultural cosmology because a

single element can have heterogeneous meanings. Donald Weaver, Jr., wrote of the rock art at Willow Springs, Arizona, relating the petroglyphs to Hopi clan symbols and narratives regarding travel and clan relations. Nancy Olsen attempted a semiotic interpretation of Hovenweep rock art in light of Hopi and Zuni iconography. She concluded that the images have multiple functions, such as

regulating ownership and maintenance of land; identifying participation and validating hierarchical responsibilities of the priests and clan members, counting time, documenting events, oral tradition and histories of clans and societies, and commemorating portions of the cosmology³⁵

In all four examples, space and place are clearly demarcated with symbols, coupling and reinforcing cultural and spatial identity.³⁶ However, landscape does not play a large role in the above examples.

Thus far, this discussion has set aside one crucial element of context for rock art—landscape. Following a long and hallowed tradition in rock art scholarship, this dissertation is an effort to study rock art in terms of not only artistic but also landscape context. Efforts to associate rock art and landscape began in the last century, but really only gained broader support in the early twentieth century. Mallery was the first to associate rock art with nearby sites, thus giving the images at least a tentative cultural context. However, he did not truly consider landscape as shaping or being shaped by rock art. To him, landscape was merely a text bearing ethnographic traces.³⁷ Julian Steward's seminal work, published in 1929, was the first well-articulated study of rock art in space. Intending only to define "broad relationships," Steward categorized rock art images of California and neighboring areas into "component elements of design," then mapped "statistically significant" elements in their distribution through space.³⁸ While he notes that rock art is usually found on higher rock formations, he does not map the art in relationship to physical landscape. He emphasizes form and space over culture.³⁹ Design

clusters are hypothesized as the origin point, then linked to a cultural group.⁴⁰ Thus, as the design appears beyond the origin, this signifies that the culture is moving or spreading across the landscape. In other words, a particular form is mapped through space, leading to the assumption that the originating culture occupied the same space.⁴¹ Identification and interpretation of the design elements draws upon ethnographic analysis, but Steward seems untroubled by the high degree of chance that his ethnographic sources focused on the people who created the original images.⁴² Despite the many methodological pitfalls, Steward's work stands today as an important contribution to the study of rock art in landscape context.

Working in much the same geographic region as Steward, Robert Heizer and Martin Baumhoff took the next methodological step, interpreting rock art in terms of function as revealed by its placement in landscape. Their work used two approaches: (1) determination of style based on inspection, recording and collation of data, and (2) the determination of the purpose of the petroglyphs through careful analysis and linking the art to the subsistence patterns of Great Basin peoples.⁴³ Using various statistical methods, "significant" patterns were defined as styles, which were then mapped over space in a manner similar to that of Steward thirty-three years earlier. While there are numerous methodological problems with this study, what is important is that Heizer and Baumhoff attempted to interpret rock art in relation to game trails, "hunting blinds," village sites and remote areas. In many cases, they found that certain elements dominated in one cultural context but not in others. Images typical of rock art near village sites differed remarkably from those that were statistically significant at places remote from habitations.

Polly Schaafsma cites Heizer and Baumhoff's study as a major influence on her work, and she refines many of the methodological principles first proposed in their 1962 publication. She agrees that style incorporates recognition of significant patterns uniting several different elements into a symbolic complex. An example of this would be

Schaafsma's identification of a warrior complex in Puebloan rock art, involving symbols such as shield figures, four-pointed stars, eagles and eagle elements, and snakes. Often, she will also identify circle forms containing any of these symbols as shields, even though there are clearly no humans depicted holding them. She justifies this identification on the basis of iconographic context. But Schaafsma also suggests that cultures created recognizable patterns across the landscape where rock art is integrated in a non-random manner.⁴⁴ One avenue she suggests echoes the work of Heizer and Baumhoff, that of analyzing space to determine public versus private use.⁴⁵

Further refinement of rock art analysis in its landscape context can be found in the work J. J. Brody did in his analysis of Anasazi and Pueblo painting traditions. Brody suggests that the function of rock art can be glimpsed through the analysis of rock art iconography in the context of ethnographic analogy. In his comparisons between wall murals and pictographs, for example, Brody finds that the images differed only in matter of degree in color, material, technique, and composition. "Open air sites" may have served--or continue to serve--various purposes, such as being "a historically important place, a boundary marker, a shrine, a ceremonial site such as an 'outdoor kiva,' or a shelter for bored hunters and shepherders."⁴⁶ But identification of a rock art site as a shrine or ceremonial site cannot be based exclusively on the iconography, for many sites known to be secular in function contain sacred images. For example, some sheep corrals contain pictographs of identifiable kachina masks. Brody cautions: "Imagery alone can never tell us why art is made or what uses are made of an art site."⁴⁷ An example he cites is a comparison between the Willow Springs and West Mesa sites located in Arizona and Albuquerque respectively. Both sites contain similar images, yet Willow Springs is a record of clan visits while the Albuquerque petroglyphs were apparently created in homage to the spirits of dead ancestors; cultural context is crucial to the interpretation of these petroglyphs.⁴⁸ Brody further cautions that the past use of a place often differs from

the present use and the latter may give no clues whatever to the former.⁴⁹ Therefore, the purpose of rock art often relates to how places were used and what meaning was attached to that place by the originating audience, but reconstruction of that purpose and meaning must depend on ethnographic context as well as formal interpretation.⁵⁰

Brody has also suggested that at Abo, there may be different functions for each of the media found in the rock art there.⁵¹ Many of the paintings are clearly visible from the modern road and therefore were probably also visible from the prehistoric trail that may have existed near the banks of Abo Wash, whereas most of the nearby petroglyphs are placed on surfaces invisible from the same vantage point. This indicates a possible distinction made by the artists between public and private art. Schaafsma's discussion of public versus private functions in rock art, referenced above, focuses on rock art located a distance from a living or public space, remote and inaccessible, which is then interpreted to mean that such a place could have been the locus for ritual activities of a private or restrictive nature. Abo's rock art does not qualify as a truly remote or inaccessible location because all of the rock art is found between the public road and the pueblo. Some images seem to be intended for viewing while others are more hidden. This seeming connection between public paintings and private petroglyphs is attenuated, however, upon consideration of the rock art along the Arroyo Espinoso. The only pictograph found was a tiny mask or face within a small rock shelter on the mask site, a painting too small to be seen except at a close distance. However, some petroglyph panels are visible from the banks of the arroyo. There could be a link between iconography, medium, and function of place, which will be further explored in future chapters. However, Brody's cautions regarding linking iconography to purpose also apply to medium and function. To avoid over-determining what the function of each image or even medium may have been, more evidence is necessary.

It is possible, however, to begin the reconstruction of art's meaning by breaking the individual image down into formal elements, as articulated by Panofsky in his pre-iconographical level, then later reassembling it to gain greater insight into meaning or content.⁵² Traditionally, formal elements are organized into categories. Whether one is analyzing Renaissance paintings or prehistoric rock art of the American Southwest, one must begin by isolating formal elements and organizing them into categories. While there have been many efforts to create a universal language for the categorization of rock art, all have failed. Too many variables are involved that make each formal element different from one culture to the next.

Following the Kantian paradigm, the formal elements of Abo's rock art have been sorted into sixty-four categories (Table 1). These categories are the result of a long series of decisions based on reading, field experience and discussion with other scholars. The first list of elements was gleaned from the element categories used by the Archaeological Society of New Mexico's Rock Art Recording Field School at Three Rivers, New Mexico. These categories were clarified based on field experience at Abo. The nomenclature was then further refined in consultation with J.J. Brody, M. Jane Young and other scholars. There was a sincere effort to avoid interpretive nomenclature in so far as possible due to the likelihood of multiple meanings for each symbol. The more abstract images were rarely interpreted. For example, all the circle variations are defined in purely formal terms.

Table 1

Element Categories

<u>Element Name</u>	<u>Description</u>	<u>Representative Figure Number</u>
1. Arc	a short, curved line with blunt ends	3
2. Bird Track	three or four short blunt lines joining in manner resembling a bird's footprint	4
3. Bird, Flying	bird form with outstretched wings in dorsal or frontal view	5
4. Bird, Profile Flying	same as above but seen from profile, often with only one wing illustrated	6
5. Bird, Profile Standing	bird form with clearly depicted legs but without outstretched wings	7
6. Cross, Latin	of Christian origin, the lower leg of the cross is longer than the upper three	8
7. Circle, Concentric	nesting simple circle forms	9
8. Circle, Simple	simple circle form with no interior or exterior details	10
9. Circle, Disk Center	simple circle containing solidly infilled circular form measuring greater than 2.5 cm.	6
10. Circle, Dot Center	same as above but interior form is less than 2.5 cm.	
11. Circle with Exterior Rays	simple circle with exterior elements	11
12. Circle with Interior Rays	simple circle with interior elements that do not contact each other	12
13. Circle, Sectioned	simple circle containing interior lines arranged so that they break up interior space	13
14. Circles, Joined	multiple simple circles in contact	

Table 1, Continued

<u>Element Name</u>	<u>Description</u>	<u>Representative Figure Number</u>
15. Crescent	curved element thicker in center with pointed ends	14
16. Cloven Hoofprint	distinctive bilateral form similar to cloven hoof prints	
17. Disk, Simple	solidly infilled circular form greater than 2.5 cm.	15
18. Disk with Rays	same as above with exterior radiating elements	16
19. Dot	solidly infilled circular form less than 2.5 cm.	16
20. Dot Arrangement	isolated placement of dots, often repeated for emphasis	
21. Dragonfly	linear form with two cross arms, often with upper arm ending in dot form	17
22. Enhanced Pit	natural pit that has been deepened by pecking	1
23. Four-pointed Star	four triangular elements which are joined to each other at the base to form a star-shape	18
24. Fringed Line	curving linear form with several short lines pendant from one side	19
25. Graffiti, Historic	names, initials, or dates older than 50 years ⁵³	
26. Graffiti, Not Historic	names, initials, or dates less than 50 years	
27. Human Footprint, Naturalistic	five-toed print depicting curve of ball and heel	20
28. Human Footprint, Stylized	all other five-toed prints	21
29. Human Handprints	five-fingered print depicting different length fingers and curve of palm	18
30. Human Figure, Partial	torsos, arms or legs of human shape	22

Table 1, Continued

<u>Element Name</u>	<u>Description</u>	<u>Representative Figure Number</u>
31. Human Figure, Whole	complete figure	23
32. Line	simple linear form	
33. Lines, Joined	more than one line intersecting in otherwise indescribable fashion	5
34. Linear Area Pattern	pattern created by single meandering line or intersecting lines in such a way as to cover an area of rock face	24
35. Lizard	relatively naturalistic form with bent legs, long tail and ovoid head	25
36. Mask/Face, Flat	eyes, nose and/or mouth, usually enclosed in outline form, created on flat surface	26
37. Mask/Face, Corner	same as above but created around a corner	27
38. Meander, Curvilinear	linear form crossing the surface in an irregular curving manner	16
39. Meander, Rectilinear	same as above but in an irregular rectilinear manner	28
40. Meander, Mixed	same as both above, incorporating both curving and rectilinear movement	
41. Meander with End Details	any of three above with additional shapes added to the end of the line	14
42. Miscellaneous	any clearly identifiable form that appears as an isolated example, usually less than three examples on entire site	
43. Paint Smears	otherwise unidentifiable painted areas, may represent faded pictographs	
44. Pawprint, Three Digits	form composed of a central solidly infilled shape with three projecting blunt elements	

Table 1, Continued

<u>Element Name</u>	<u>Description</u>	<u>Representative Figure Number</u>
45. Pawprint, Four Digits	same as above but with four projecting elements	
46. Pawprint, Clawed	form composed of a central solidly infilled shape but with pointed projecting elements	29
47. Pawprint, Separated	same as above but with elements separated from a central shape	30
48. Pawprint, Six Plus	same as above but with six or more elements	31
49. Pawprint, Dot Arrangement	dots seemingly arranged to mimic pattern of animal tracks	32
50. Polygon with Rays	polygonal shape with projecting exterior elements	
51. Quadruped	four-legged animal shape	5
52. Quadruped, Partial	form reminiscent of four-legged animal but incomplete	33
53. Randomly Pecked Area	peck marks on surface of rock that do not conform to any recognizable form	
54. Rectangle	quadrilateral form with four approximately 90 degree angles	34
55. Round Form	circle containing recognizable complex elements	
56. Shield Bearer	same as above but with head and/or limbs projecting from edge	15
57. Double Shield Bearers	same as above but with more than one head and two legs	15
58. Spiral	curving line beginning in center or outer edge and coiling in a spinning motion	
59. Spiral with Ends	same as above but with other shapes appended to ends of form	35

Table 1, Continued

<u>Element Name</u>	<u>Description</u>	<u>Representative Figure Number</u>
60. Terrace, Whole	stair-step image with at least two levels depicted on both ends of a rectangular composition	36
61. Terrace, Half	same as above but with multiple levels depicted on only one side	
62. Unidentifiable	otherwise indescribable motifs	14
63. X	two short lines intersecting where two of the angles measure greater than 90 degrees	

While each symbol has been interpreted in various contexts throughout the Southwest, indeed the world, it must be borne in mind that apparently simple forms can be combined in myriad ways creating personalized, purpose-specific strings of code. Each form can, in fact, symbolize multiple ideas depending upon the visual, as well as cultural or personal, context. Such ambiguity of form is indeed the hallmark of some of the richer, more complex art traditions of the world. In his work among the Ndembu, Victor Turner provides an excellent example of the complexity of symbols. The structure and properties of symbols are dynamic, constantly changing through time as part of the social process. Turner proposes three classes of data relating to symbols: (1) external, observable form, (2) interpretation by specialist and layman, and (3) significant contexts articulated by the researcher. His example is the *mudyi* tree, native to the Ndembu lands, which exudes a latex sap when the bark is penetrated. That the sap is milky in color and viscous in a manner similar to milk is the external observable form. Laymen and specialists apply ever-increasingly complex meanings to this external form, from equating the sap to human breast milk and the breasts, linking the tree itself with social conventions in an ever-widening concentric arrangement: the ties between nurturing mother and child,

the lifelong social relationship between mother and child, the place of all mothers of the lineage, motherhood itself, tribal custom, unity, and continuity of Ndembu society.⁵⁴ Therefore the same symbol, the *mudyi* tree, can represent the sensory-related notion of breast milk or the abstract concept of Ndembu unity founded on motherhood.

Similarly complex symbolic ambiguity has been studied in Australia and the American Southwest. In her research on Walbiri sand drawings, Nancy Munn notes: "The proper functioning of some representational systems depends quite directly upon a rather wide variability in the specific meanings possible for each schema, i.e. upon a relatively high degree of category generality."⁵⁵ M. Jane Young also notes a high degree of ambiguity in rock art symbols for her Zuni interpreters. Because ambiguity is an important element in Zuni oral tradition, its presence and importance in visual art should not be a surprise.⁵⁶ In fact, such generality lends flexibility to oral and visual traditions in which rock art evokes different stories at different times, depending entirely upon a dynamic social context.⁵⁷ It is assumed herein that all Puebloan peoples employ ambiguity for comparable purposes in both oral and visual traditions and that this is a cultural trait predating European contact.

Much of the rock art recorded at Abo is considered Puebloan in style. Style, as discussed above, incorporates the formal elements of material, technique, and subject matter or iconography. Style also incorporates non-mimetic elements such as how the design space is used, how much negative space exists, and whether or not there are borders or frames. After a brief discussion of these formal elements, four major styles will be defined among the pictographs and petroglyphs of Abo.

The materials used in the rock art of Abo have never been specifically tested by objective means but have been compared to other media which have been rigorously analyzed. Almost all of the petroglyphs were created on exposed surfaces of Abo Formation Sandstone.⁵⁸ Two panels, loci CC and CD, are on a curious grainy green-gray

stone that seems remarkably different from the surrounding Abo Formation sandstone. The pictographs are, without exception, painted on Abo Formation Sandstone, usually in protected niches and recessed areas. No chemical analysis has been done on the paints from which the pictographs are composed. Cole suggests that the materials may be the same or similar to those listed in Watson Smith's careful analysis of the pigments found in the Awatovi murals:

Yellow-goethite or limonite
 Red-hematite or clay or sandstone containing hematite
 Red Ocher-iron oxide
 Brown-manganese dioxide with iron or ferric carbonate with impurities
 Blue (or Blue-Gray)-carbon with white siliceous material or clay (natural or artificial)
 Green-malachite or yellow iron oxide with carbon particles and other materials
 Black-charcoal, bone black, carbon-iron, manganese
 White-kaolin, silica and gypsum, calcium carbonate (chalk)⁵⁹

Smith mentions that a grayish green is obtainable by mixing yellow iron oxide with carbon particles. There is a light grayish-green used in the Abo pictographs, but this appears to be a naturally-occurring mineral substance easily obtainable in the eastern rock shelter of the south site (fig. 17). This substance may contain copper, giving it the light green color. This is the favored form of green used in most of Abo's pictographs.

Another pigment in question is the white paint used in many of the pictographs. At least two different values of white were observed in the 1994 fieldwork: the first was a slightly pinkish white; the second was a thick cream-colored pigment. It is quite possible that the first, slightly pinkish white is a kaolin or gypsum base with some contamination from red coming from over- or underpaintings or from the grinding, mixing, or even painting with a brush previously used for red paint. However, this slightly pink white is consistent throughout the more complex pictographs in both the western and eastern rock shelters (figs. 19, 37-39). The only exceptions are whole figures painted in the thick

cream pigment, which is much more heavily applied than the pinkish white, therefore indicating a completely different batch of paint--and possibly a different group of artists (figs. 37, 40-41). The cream paint could also be a kaolin or gypsum base; gypsum is more likely due to its easy availability in the Rio Grande Valley.

As first noted by Cole, there are rare cases in which pigments were mixed to create a brighter pink, orange, and yellow-green (figs. 17, 42). Since these are all mineral pigments which do not mix easily or evenly, such secondary hues are rare at Abo and, in some cases, appear to be the result of overpainting.

In several pictograph panels on the south site, earlier paintings have been covered with layers of white--or in one case, green--which then serve as the base for new paintings (figs. 17, 39). This layering technique is comparable to that used in kiva murals at Pottery Mound, Kuaua, and other sites. One possible explanation for the layering of pictographs at Abo may be that they were perceived as very similar to kiva paintings, thus subject to the same renewal process. Young offers other possibilities from her work on Zuni rock art. She found superimposed paintings to be common in the areas around Zuni. Interpreters often commented that the later layers of paintings were enhanced by the power of those that were earlier, or were a means of taking power away from older images. Young found this to be especially true in areas where more than one culture group co-existed, as would have been the case in the seventeenth through nineteenth centuries at Abo.⁶⁰

Recently, researchers of Paleolithic rock art have focused on paint technology with greater care than in years past, leading to the proposal of the notion of "technological style." In their 1996 investigations, Jean Clottes and his team have found three different recipes used by Magdalenian artists to create red and black paint involving different binders and extender minerals to save on the pigment minerals, and to make the paint easier to apply to the rock surface and to adhere better to the wall.⁶¹ Combining chemical

analysis with radiocarbon dating, Clottes has shown that some paintings were, indeed, painted with the same formulaic mix, thus presumably by the same group of artists, while other panels previously assumed to be composed of contemporaneous paintings were, in fact, painted over a period of time with several different batches of paint. At this point, it is too early to equate paint recipes with a specific culture group; in fact, Clottes goes to great lengths to point out that different formulas could refer to seasonal variations, that men versus women were doing the work, or that different ritual groups within the same band were responsible for different images. But as Meg Conkey observes: "The very activities that generated the imagery--the mixing of the pigments with minerals for extenders, and with organics or waters for binders, or the direct use of a crayon of pigment--are themselves patterned and stylistic"⁶²

In addition to material, technique is another distinguishing formal element of style. The vast majority of the petroglyphs, whatever their date, were pecked into the exposed faces of Abo Sandstone. Some petroglyphs, the enhanced pits, were pecked quite deeply into the surface, often deeper than one-half centimeter. However, most of the petroglyphs are shallower, just breaking through the dark outer layer of "desert varnish" or chemical deposits on the surface of the rock. Most of the petroglyphs are only as deep as the dark outer layer, as this "desert varnish" is probably softer than the interior heartrock.⁶³ The "enhanced pits"--so named because they may have begun as natural pits in the surface which a person then chose to enlarge or enhance by pecking--go more deeply into the surface, some more than two centimeters. Due to weathering of the exposed surfaces, it is not possible to tell whether direct or indirect pecking techniques were used, since both methods produce the same accuracy, depending on the shape of the stone tool being used.⁶⁴ Some of the petroglyphs occur on vertical cliff faces while others are created on talus slope boulders. There are rare examples of incised marks on boulders, but more common are modern glyphs created with metal tools such as pocket knives (fig. 43).

Some modern graffiti was carefully pecked, while others are abraded into the surface or spray painted.

Technique varies considerably more in the pictographs. Most of the paintings appear very precise in small details, indicating that the pigment was applied with brush-like instruments (fig. 44). In the case of the handprints, however, the paint appears to have been handled in one of two ways: by blowing or spraying around the hand reposing on the rock surface or by dipping the hand in paint, then laying it on the surface (fig. 37). Yet another application was noted in the case of the creamy off-white figures, where the pigment appears much thicker than on the other pictographs (figs. 40-41). Judging from the smoothly covered, even application and the marks in the paint, one can conclude that a large brush or other linear fiber capable of holding a great deal of paint was used.

Subject matter and structural elements are also used to distinguish style. Based on these and the above comments regarding material and technique, this study defines four major styles in the rock art of Abo:

1. Geometric Style--This style consists of petroglyphs only, created with a pecking or incising technique, employing relatively simple geometric figures such as lines, zigzags, circles, disks, dots. Structurally, these elements tend to occur in large groups, often covering the entire face of a talus slope boulder (figs. 45, 46). Some elements of this style may be Archaic in date, but this is problematic and uncertain, as will be discussed in Chapter 5 herein.
2. Early Puebloan Style (named "Rio Grande Style" by Schaafsma)⁶⁵--This style incorporates Brody's Monochrome Stick Figure Style.⁶⁶ Many of the petroglyphs and some pictographs belong to this style. The petroglyphs are all pecked into the surfaces of cliffs or talus slope boulders and generally have a wide range of subject matter. Structurally, their compositions tend to be accretional, with no discernible single intent behind the final results. Some pictographs are grouped in this style due to their simplicity relative to those of the next style (fig. 47). "Early Puebloan" is a term intended to connote Anasazi-style images dating from the Basketmaker through Pueblo III periods, 1 - 1300 C.E. Some pictographs consist of abstracted anthropomorphic figures, painted in red pigment, in active postures. Structurally, these elements tend to occur at or about eye level along relatively flat ledge faces in both shelters on the south site. The figures are less than ten centimeters tall and are currently difficult to distinguish due to overpainted graffiti (fig. 48).

3. **Late Puebloan Style**--Some of the petroglyphs achieve the same iconography and complexity of the pictographs and are much more complex than the majority of rock carvings (figs. 49-53). Some compositions are created by placing complex elements on the design surface so as to dominate the whole face, setting up a structural tension, which is unusual in comparison to the majority of petroglyph panels on these sites (fig. 26).

The pictographs show a similar increase in complexity in iconography, color palette, and scale. Two substyles have been noted by Brody among the Puebloan pictographs: the small polychrome figures and the large polychrome figures.⁶⁷ The two are distinguished primarily on the basis of size (smaller or larger than ten centimeters) but also on the complexity of iconography. The Large Polychrome figures tend to be more complex, carrying more paraphernalia, and wearing sashes, kilts, and jewelry, as well as elaborate headdresses. Many of the paintings are recognizably associated with kachina imagery (figs. 17, 44, 54). This style is dated roughly to the Pueblo IV period, although some elements do occur in late Pueblo III and continue after Historic contact, ca. 1300 - 1700 (and perhaps later).

4. **White Figure Style**--These are pictographs only, painted with the thick creamy off-white pigments. These figures tend to be very simple linear or geometric forms and have no interior details. Paint is applied with a fibrous brush (figs. 40-41). This style is dated well into the Historic period, ca. 1675 - 1875.

In addition to the four major styles, there are also several minor styles which will only be mentioned in their association with the above. These include Hispanic petroglyphs of Christian-style crosses, personal initials such as "FS," contemporary tool-made petroglyphs, and spray-painted or abraded graffiti.

Schaafsma, Cole and Brody all comment on the presence of Mogollon-style elements among the otherwise strongly Anasazi-derived art of Abo. Brody, for example, discusses the formal similarities between the monochromatic red stick figures of the Early Puebloan style and the earlier Mogollon Red Figure Style.⁶⁸ This notion of Mogollon influence, or even an earlier Mogollon presence, is supported by the discovery of Mogollon-style pithouses throughout the Abo Pass region, as discussed in Chapter 3 herein. The petroglyphs themselves also demonstrate strikingly Mogollon-type features.

Helen Crotty, an art historian, has been perhaps the most precise in distinguishing Mogollon and Anasazi styles in rock art; she defines style according to formal and structural elements rather than by subject matter alone. Referring to rock art sites such as Three Rivers, Capitan Mountain, and Hueco Tanks, Crotty describes the following as typical of Mogollon rock art before 1300 C.E.:

1. Use of the whole rock face
2. Bilateral symmetry
3. Continuous-line designs
4. Geometric animals with bent legs and nucleated eyes
5. Frontal views of humans with out-turned feet
6. Flat-topped faces or masks with noses, eyebrows, nucleated almond-shaped eyes and facial decoration.⁶⁹

Several petroglyph panels at Abo portray elements that incorporate the entire surface, creating visual tension between positive form and negative space, but this alone does not indicate a Mogollon authorship for these images. There is one design (locus A1) in which the artist used the entire face of the boulder to create an abstract geometric pattern virtually with one continuous line (fig. 24). There are very few animals depicted in the art of Abo, and none conform to the geometric styles evident at Three Rivers or other Mogollon sites. Some of the human figures, however, do portray out-turned feet (fig. 44). Many masks, in both pictographs and petroglyphs, illustrate the flat top, curving lower contour and facial decoration typical of earlier Mogollon images, so there is unquestionably a Mogollon influence in the rock art of Abo (figs. 17, 42, 44, 49, 53).

Most of the elements visible at Abo, however, are clearly derived from the Anasazi tradition. Referring to Pueblo IV rock art sites such as Comanche Gap, the Petrified Forest and various kiva murals, Crotty defines the Anasazi style as portraying:

1. Crowded, multiple images
2. Avoidance of bilateral symmetry
3. Frontal views of humans with knees and feet pointing in the same direction
4. Round shields on human forms

5. Arrow fletchings, not points, depicted at the top of quivers
6. Round faces or masks with dot eyes and mouths, ears and horned headdresses and
7. Conventionalized golden eagle tail feathers⁷⁰

Several panels in the BY locus are crowded with multiple images, possibly the result of many artists making additions in an accretional manner or possibly superimposing in a psychological--rather than physical--manner (figs. 50-52). As pointed out above, some human figures also have feet and knees pointing in opposite directions, but some also portray the Anasazi tendency to have them going in the same direction (fig. 44). There are several examples of round forms superimposing human figures in both pictographs and petroglyphs (figs. 15, 17, 55). No arrow quivers were observed in the iconography at Abo, but many faces or masks were tentatively recognized as such due to their round outlined forms (fig. 56). It is apparent that some of the iconography of Abo belongs to the Anasazi tradition.

Crotty agrees with Schaafsma that the art of the Abo Pass displays an blending of Mogollon and Anasazi traits; this is hardly surprising given the pass's location in the border region between these two archaeological culture areas (map 7).⁷¹ In fact, the very definition of Schaafsma's "Rio Grande Style" is an Anasazi-based art tradition that incorporates many elements from earlier Jornada Mogollon art traditions, including those found in Mimbres pottery and rock art designs. Schaafsma defines the Rio Grande Style as simpler than the Mimbres, with a dot or circle instead of almond-shaped eyes, less complicated facial decoration, rare depiction of eyebrows or noses, fewer decorated animal forms, more numerous one- and two-horned serpents, increased numbers of crosses or four-pointed stars, more stars with faces, stars with snake forms, and eagle feathers and claws; human figures tend to be more naturalistic, rather than having the boxy rectangular bodies typical of Jornada art.⁷² One interesting observation Schaafsma makes is that, in the Eastern Jornada Style, there is a tendency to depict masks or faces on a closely organized boulder group as though the forms were intended to be seen as a whole

although they are often on different rocks. Such dramatic viewpoints also seem to have been a factor in site selections at Abo (fig. 57).⁷³ Brody agrees that the pictographs, at least, have both Anasazi and Mogollon elements, but he suggests that the majority of the pictographs more closely resemble Pueblo IV kiva murals, such as those at Pottery Mound and Kuaua, in their technology, color palettes, iconography, and formal elements.⁷⁴

While Mogollon and Anasazi influences are clearly present in the rock art of Abo, not all of the images conform to those two traditions. The White Figure Style, designated primarily on the basis of paint and technique, remains unidentified. Cole suggests that these pictographs are examples of a degenerating tradition that occurred near the end of the occupation of Abo Pueblo in the seventeenth century. There are only a few images within this style so no firm identifications can be made, but neither should the differences between them and the other pictographs be ignored. All that remains of these figures is thick, cream-colored paint brushed on or applied in very heavy lines, zigzags, partial human figures and possible shield bearers (figs. 17, 40-41). As will be discussed in the next chapter, the White Figure Style paintings appear to be later than the Puebloan styles due to superimposition.

With many reservations, it is here suggested that the White Figure Style may be of Athapaskan origin. There are too few paintings at Abo to make any convincing arguments; however, there are several provocative details that might support this hypothesis. First, the White Figure Style occurs relatively later than the Puebloan Styles for reasons that will be explained in Chapter 5. After the Tompiro abandoned Abo in the early 1670s, the Spanish frequently reported that the "Apaches" were hunting and camping in the Salinas area.⁷⁵ Later Spanish and American documents indicate that the Mescalero Apache were living in the dry lands between the Rio Grande Valley and the Pecos River during the seventeenth through nineteenth centuries.⁷⁶ As Schaafsma points out,

however, little is known about these groups, and even less of their rock art.⁷⁷ Her comments about the entire Southwest certainly apply to the images at Abo.

What are presumed to be Apache rock drawings in the Southwest are scattered from Southern Arizona ... [to] West Texas. The work at these sites presents a rather miscellaneous collection of rock paintings and petroglyphs, obviously relatively recent in origin, but often so limited or undiagnostic in content and style that where other historic Indians are involved, especially in Texas and Chihuahua where Comanches ranged in the Historic Period along with the Apache, one cannot always be certain who made them.⁷⁸

Hueco Tanks, near El Paso, Texas, is one site where there is a relatively large concentration of pictographs that have been tentatively identified as Mescalero in origin.⁷⁹ As at Abo, figures exist in the Hueco Tanks panels that belong to an art tradition identifiable as non-Puebloan. Most of the pictographs are created with thick, white paint. The figures are often linear or geometric. Iconographic elements include horses, riders, round forms, shield bearers, small animals, mythical snakes, lizards, masks or faces, and hourglass designs.⁸⁰ Again, there are far too few figures at Abo to make any conclusive comparisons, so the discussion must be left in this tentative state. Perhaps further investigation of the rock art in the Abo Pass will reveal more examples of the White Figure Style, thus providing more data for comparison. Athapaskan peoples, as they came into areas previously inhabited by Pueblo people, may have respected the rock art, rarely painting over earlier pictographs but often leaving some small contribution to the overall composition. This may have been the case at Abo as well. This raises the intriguing possibility that Pueblo people were aware of Athapaskan paintings at Abo and may have created some of the Late Puebloan paintings in response to serve as boundary markers or cultural signposts. Those paintings most prominently displayed, such as the striped figure and plumed serpent, may have been created for this very purpose as such sacred clowns often serve to define social boundaries in Pueblo culture.⁸¹

Unfortunately, such interesting speculations must await objective date analysis of the paint components of the Abo pictographs. For now, scholarship must rely on relative methods. In the following chapter, the rock art of Abo will be compared with various other media from datable contexts with the intent of chronicling the four major styles found at Abo.

ENDNOTES

¹J. J. Brody, "In Advance of the Readymade: Kiva Murals and Navajo Dry Painting." In *Art and Environment in Native America*, ed. Mary Elizabeth King and Idris R. Taylor, Jr., pp. 11-22 (Lubbock: Texas Tech University, Museum Special Publications, no. 7, 1974), 11.

²David Summers, "'Form,' Nineteenth-Century Metaphysics and the Problem of Art Historical Description," *Critical Inquiry* 15(Winter 1989), 404. Hereafter annotated as "Form."

³J. J. Brody, *Anasazi and Pueblo Painting* (Albuquerque: University of New Mexico Press, 1991), 25. Hereafter annotated as *Anasazi*.

⁴Brody, *Anasazi*, 116.

⁵Brody, *Anasazi*, 129.

⁶Brody, *Anasazi*, 81.

⁷Brody, *Anasazi*, 105-112.

⁸Polly Schaafsma, *Indian Rock Art of the American Southwest* (Albuquerque: University of New Mexico Press, 1980), 5. Hereafter annotated as *Southwest*. Garrick Mallery, *Picture-Writing of the American Indians* (New York: Dover Publications, 2 volumes, 1972). Originally published as "Picture-Writing of the American Indians." *Tenth Annual Report of the Bureau of Ethnology to the Secretary of the Smithsonian Institution, 1888-1889* (Washington, D.C.: Government Printing Office, 1893). Mallery's work is the best example of early research concerned with continental scale and spread of specific traits or elements.

⁹Schaafsma, *Southwest*, 7.

¹⁰Polly Schaafsma, "Form, Content, and Function: Theory and Method in North American Rock Art Studies." In *Advances in Archaeological Method and Theory*, ed. Michael B. Schiffer (Orlando: Academic Press, 1985), 246 quoting Meyer Schapiro, "Style," In *Anthropology Today*, ed. A.L. Kroeber (Chicago: University of Chicago Press, 1953), 287-289. Hereafter annotated as Schaafsma, "Form" and Schapiro, *Style*.

¹¹Schapiro, *Style*, 287.

¹²Schapiro, *Style*, 288.

¹³Summers, "Form," 111.

¹⁴Summers, "Form," 112.

¹⁵Schaafsma, "Form," 252.

¹⁶Summers, "Form," 375.

¹⁷See Mallery, 1893 and also Julian H. Steward, *Petroglyphs of California and Adjoining States* (Berkeley: University of California Publications in American Archaeology and Ethnology, University of California Press, 1929). There are many others but these are two classic examples.

¹⁸Summers, "Form," 374.

¹⁹Summers, "Form," 400.

²⁰Abbe Henri Breuil, *Four Hundred Centuries of Cave Art* (Montignac, France: Centre D'Etudes et de Documentation Prehistoriques, trans. Mary E. Boyle, 1952), 21-23.

²¹Brian L. Molyneaux, "Formalism and Contextualism: An Historiography of Rock Art Research in the New World" (Master's Thesis, Department of Anthropology, Trent University, 1977), 49, 94.

²²Molyneaux, 70.

²³Mallery, 746. Emphasis added.

²⁴Wesley Hurt, Jr., "A Method for Cataloging Pictographs," *New Mexico Anthropologist* 3 (1939): 41.

²⁵Molyneaux, 125, 129, 131.

²⁶Molyneaux, 107.

²⁷Erwin Panofsky, *Studies in Iconology: Humanistic Themes in the Art of the Renaissance* (New York: Harper and Row, 1962), 5-7.

²⁸Panofsky, 14-15.

²⁹Keith Moxey, "Panofsky's Concept of 'Iconology' and the Problem of Interpretation in the History of Art." *New Literary History* 17(1985-1986): 266.

³⁰Moxey, 268.

³¹Moxey, 273.

³²Robert Innis, ed. *Semiotics: An Introductory Anthology* (Bloomington: Indiana University Press, 1985), 214. In actuality, frames do exist in all of these contexts, such as the edges of boulders or changes in the angle of a cave wall. Modern observers tend to ignore such large frames, but this does not mean the original artist or audience did. It is also possible that the frames may have changed over time due to breakage or weathering.

³³Molyneaux, 106.

³⁴Sally Cole, *Legacy on Stone: Rock Art of the Colorado Plateau and Four Corners Region* (Boulder: Johnson Books, 1990), 39. Vastokas and Vastokas use the name Ojibwa in their 1973 publication, but the more recently accepted term, Anishanabe, is used here.

³⁵Cole, 39-40. The above quote is from Nancy Olsen, *Hovenweep Rock Art: An Anasazi Visual Communication System* (Los Angeles: University of California, Institute of Archaeology Occasional Paper 14, 1985), 32.

³⁶Cole, 40.

³⁷Molyneaux, 62.

³⁸Julian H. Steward, *Petroglyphs of California and Adjoining States* (Berkeley: University of California, Publications in American Archaeology and Ethnology, 1929), 55, 177.

³⁹Molyneaux, 83.

⁴⁰Steward, 220.

⁴¹Molyneaux, 85.

⁴²Steward, 227.

⁴³Robert F. Heizer and Martin A. Baumhoff, *Prehistoric Rock Art of Nevada and Eastern California* (Berkeley: University of California Press, 1962), 7.

⁴⁴Schaafsma, "Form," 261.

⁴⁵Schaafsma, "Form," 262-263. Following Klaus Wellmann's hypothesis, Schaafsma also suggests that remoteness and inaccessibility of rock art images carry cultural meaning.

⁴⁶Brody, *Anasazi*, 130.

⁴⁷Brody, *Anasazi*, 132.

⁴⁸Brody, *Anasazi*, 135.

⁴⁹Brody, *Anasazi*, 133.

⁵⁰Brody, *Anasazi*, 129.

⁵¹Brody, Personal Communication, December 5, 1997.

⁵²Panofsky, 4.

⁵³This definition of historic versus non-historic is according to the guidelines of the Archaeological Society of New Mexico.

⁵⁴Victor Turner, *The Forest of Symbols: Aspects of Ndembu Ritual* (Ithaca: Cornell University, 1967), 19-21, 28. He defines a symbol as the smallest unit of ritual that still retains properties of ritual behavior.

⁵⁵Nancy Munn, "Visual Categories: An Approach to the Study of Representational Systems." In *Art and Aesthetics in Primitive Societies*, ed. Carol Jopling (New York: E.P. Dutton, 1971), 339.

⁵⁶Young, 124.

⁵⁷Young, 92.

⁵⁸Cole, 1.

⁵⁹Cole, 22 drawing on Watson Smith, *Kiva Murals at Awatovi and Kawaika-a with a Survey of Other Wall Paintings in the Pueblo Southwest* (Cambridge: Harvard University, Papers of the Peabody Museum of American Archaeology and Ethnology, vol. 37, 1952), 21-24.

⁶⁰Young, 185.

⁶¹Jean Clottes, "Paint Analyses from Several Magdalenian Caves in the Ariège Region of France," *Journal of Archaeological Science* 20(1993): 229.

⁶²Margaret Conkey, "Paleovisions: Interpreting the Imagery of Ice Age Europe." In *The Art of Interpreting*, ed. Susan C. Scott (University Park, PA: Papers in Art History from the Pennsylvania State University, vol. 9, 1996), 19. Drawing from Heather Lechtman,

"Style in Technology--Some Early Thoughts." In *Material Culture: Styles, Organization and Dynamics of Technology*, ed. Heather Lechtman and Robert S. Merrill (St. Paul: West Publishing Co., 1977).

⁶³C. Busby, *et al.*, "The Manufacture of Petroglyphs: Additional Replicative Experiments from the Western Great Basin," In *Four Rock Art Studies*, ed. C. William Clewlow (Socorro: Ballena Press, 1978), 99. Direct pecking involves applying the hammer stone to the creative surface; indirect pecking involves using a chisel-like tool on the design surface and striking this with a hammer stone. It had been thought previously that fine detail in petroglyphs was possible only through controlled indirect pecking, but researchers in the Great Basin have demonstrated that direct pecking methods can yield the same detail, depending on the shape of the hammer stone.

⁶⁴Busby, 92-93, 100.

⁶⁵This style coincides with Schaafsma's "Rio Grande Style," which in the opinion of this author was coined during Schaafsma's formulations regarding the origins of kachina imagery in Puebloan rock art. In publication and in presentations, she has stated that Hopi and Zuni examples would be included in this style. The name "Rio Grande" reflects her biases regarding the rock art she knows best, as well as the origin and spread of kachinas from east to west. To avoid these pitfalls, the term "Puebloan" is used here since I believe this to be what Schaafsma really means.

⁶⁶Brody, *Anasazi*, 121.

⁶⁷Brody, *Anasazi*, 120-121.

⁶⁸Brody, *Anasazi*, 120. Compare figures 51 and 54 to examples of the Mogollon Red Style illustrated in Schaafsma, *Southwest*, figs. 61, 142.

⁶⁹Helen K. Crotty, "Formal Qualities of the Jornada Style and Pueblo IV Anasazi Rock Art: A Comparison with Implications for the Origins of Pueblo Ceremonialism." In *American Indian Rock Art*, ed. Solveig A. Turpin (Austin: Joint Publication by University of Texas, National Park Service, American Rock Art Research Association, and Texas Archaeological Research Laboratory, vol. 16, 1990), 156.

⁷⁰Crotty, 159-160.

⁷¹Crotty, 159; Schaafsma, *Southwest*, 254.

⁷²Schaafsma, *Southwest*, 254.

⁷³Schaafsma, *Southwest*, 199.

⁷⁴Brody, *Anasazi*, 119.

⁷⁵The Spanish did not distinguish between many of the raiding groups, lumping them all together under the generic term "Apache." Since the actual tribal affiliation of these raiders is beyond the scope of this dissertation, they are here designated as Athapaskans, thus incorporating many of the newly arrived hunters-raiders in the Southwest by the seventeenth century. See Chapter 3 herein for a more complete discussion of the Spanish documentation regarding the presence of the raiders.

⁷⁶Morris E. Opler, "Mescalero Apache." *Handbook of North American Indians*, ed. Alfonso Ortiz (Washington, D.C.: Smithsonian Institution, vol. 10, 1983), 419.

⁷⁷Schaafsma, *Southwest*, 334.

⁷⁸Schaafsma, *Southwest*, 335.

⁷⁹W.W. Newcomb, Jr., and Forest Kirkland, *The Rock Art of Texas Indians* (Austin: University of Texas Press, 1967), 199-201.

⁸⁰See Newcomb and Kirkland, plate 127, 6-C, 6-D; plate 128, 6-E; plate 124, 1-A; see also Schaafsma, *Southwest*, plate 32.

⁸¹Alison Freese, personal communication, May 1992.

Chronological Analysis

Before analysis of rock art in the context of landscape can begin, one more element must be put into place. Thus far, the methodological and historical foundations have been constructed, and the different stylistic members have been defined. The chronology of the rock art is the next crucial element in this theoretical structure. One of the major goals of this dissertation is to trace the changing cultural landscape through time. To do so, the rock art must be dated, at least tentatively, in order to map the different chronological layers of the landscape in the computer models. It is one thing to identify a cultural landscape in one period, but another to track how it changes through time and from culture to culture, particularly in the case of a site such as Abo that can be inherited from one culture to another.

Perhaps the most urgent need in rock art studies--recording notwithstanding--is a reliable means of dating images that are either painted onto or pecked into rocks. Much effort is being expended in this area at present. Three researchers are working diligently to provide the necessary means. Alan Watchman is radiocarbon-dating pictographs and the deposits on top of them. Marvin Rowe is using accelerator mass spectrometry (AMS) to date paint samples. Ron Dorn is applying cat-ion ratio and radiocarbon processes to the "desert varnish" on petroglyphs. All three are undertaking double-blind experiments and are having some successes and, it must be said, some failures. One problem for petroglyphs and radiocarbon dating is the difficulty in determining the source of datable radiocarbon in the varnish layer. Older carbon can be "inherited" from the rock, whereas younger carbon can have contaminated the surface after the creation of the petroglyph.¹ New advances are announced at every conference, but much more research must be done before any of these processes will become generally accepted by the scholarly community.

This is exactly the same trial process to which radiocarbon, dendrochronology and archaeomagnetic dating have been subjected, with the same breathless anticipation.

This is not to say that current methods of dating are useless, but they do involve long sequences of deductions which can easily be derailed by personal emotions.

Radiocarbon or cat-ion ratio analyses would provide absolute dates, replacing those derived through relative means. Relative methods for dating rock art include superimposition, patination, evolution of recognized styles, and ethnographic analogy.² The art historical method relies heavily upon style definition, its evolution, and the superimposition on older styles of those that are more recent. Style, as pointed out by Schapiro, can be used as a criterion for dating because images are "formulated in both structural and expressive-physiognomic terms" specific to culture and time period.³

For rock art, researchers often look to other datable media for comparison, identifying stylistic or "iconographic similarities and differences" to suggest chronological relationships.⁴ To date the rock art of Abo, media for chronological comparison include kiva murals, pottery, and, in some cases, tools. In addition, changes in the element inventory indicate a new cultural presence, the Spanish, dating from the beginning of the seventeenth century. Some Puebloan images are superimposed by a different artistic and technical tradition dated after 1672 when the area was abandoned to Athapaskan raiders. However, some large, complex paintings or petroglyphs may have been executed by Pueblo artists returning to Abo well into the eighteenth century. The destruction of one pictographic panel in the West Shelter of the South Site may indicate the area remained in active native use well into the twentieth century.

There are many problematic issues involved in using elements in kiva murals to date similar images in rock art, only one of which is proving a relationship between the people of Abo and surrounding mural-producing pueblos, particularly Gran Quivira. Scholars have long linked the eastern Tompiro and the western, following the bureaucratic

practices of the Spanish administrators. This idea is supported in several documents, including trial transcripts in 1663 in which the defendant explicitly stated that the people of Abo and those of "Humanos" were of the same nation.⁵ However, Baldwin found enough differences during his survey work in the early 1980s to make the argument that these two pueblos were not so similar. Speaking from a strictly archaeological standpoint, he saw "substantial differences" between Abo and Gran Quivira, enough in his opinion to "invalidate" any interpretive connections.⁶ Cole agrees, stating that the murals of Mound 7 were not as stylistically similar to Abo's rock art as murals found at Pottery Mound and Kuaua, but she concedes that this may be due entirely to the poorly preserved fragments at Gran Quivira.⁷ Brody seems to disagree, finding enough artistic similarities to make reasonable suppositions. He writes:

... [The] murals at Las Humanes were unframed, asymmetrically composed, and quite casually organized ... the similarities in size, scale, proportion, and iconography between the Las Humanes murals and many pictures at Abo and other Tompiro open-air sites suggest a regional style that blurred distinctions between wall paintings and rock art.⁸

Abo's pictographs have been the subject of intense interest since Bandelier's visit in 1882 when he suggested that at least some of the paintings were historic in date. Many scholars have since added their opinions regarding the dates of the pictographs. Following a discussion of methodology, observations by early visitors and late investigators shall be summarized to provide a basis upon which to build an analysis. Compiling information from previous scholars, comparisons to other media such as kiva murals, and this author's observations during fieldwork in 1994, the following will suggest a tentative chronology for the rock art of the Archaic, Early Puebloan, Late Puebloan, and Historic periods, including the Athapaskan artistic tradition. Once this chronological framework is in place, it will be possible to trace how the rock art of Abo possibly indicates the changing cultural landscape through these time periods.

Style, as discussed in Chapter 4 above, is fundamental to an analysis of chronology. Four major styles were identified on the basis of material, technique, physiognomic features, and content. In terms of chronology, it is only rarely possible to date a style by superimposition, where older styles underlie newer figures. This was the case in only a few pictographic panels from Abo (figs. 18, 39, 42).

Patination is a technique often used for the relative dating of petroglyphs. Establishing chronology by patination requires four assumptions: (1) a darker layer or patina occurs on the rock surface at the time the artist chose to create an image; (2) this patina develops at a relatively constant rate over long periods of time; (3) once an image is pecked through this patina, exposing the lighter heart rock, the newly revealed surface will repatinate at the same rate as the original surfaces in juxtaposition; and (4) the process of repatination has occurred evenly over that single surface of the rock. Much debate has centered on the reliability of patination as a method for the relative dating of rock art. But different surfaces of the same rock often have several values of patination, not to mention the differences over a larger site with varying rock surfaces and exposures. Patination is useful in only a limited sense. For the purposes of this dissertation, differences in patination are mentioned only among images on the same surface of a boulder or rock ledge. It is assumed that one surface has been subjected to the same forces that create--or perhaps even strip--patina. Also, this process really only served in comparing the patina of historic petroglyphs to those that are obviously older (fig. 45).

Since superimposition and patination are applicable in a few instances too isolated to be generalized for the entire site, other methods must be used to date the rock art of Abo. Style evolution is useful when considering a broad geographic region. The rock art at Abo does seem to relate to stylistic changes happening in the greater Anasazi world. Distinct differences among Archaic, Puebloan and Historic rock art are easily detected at Abo. Ethnographic analogy may prove to be the most appropriate method currently

available. Comparisons between the rock art and images in other media, which have been reliably dated via radiocarbon or dendrochronology, can be drawn. Using the dendrochronology dates for kiva murals, for example, and stylistic comparison to the rock art helps roughly date the latter. Kiva murals, pottery, and tools have proven useful in dating rock art elsewhere.

Early observers used many of these methods in their published analyses. While there were at least two earlier American visitors, as discussed in Chapter 3 above, Bandelier was the first to mention the pictographs of the South Site, which he saw during his visit in 1882. As he did with the pueblo ruins, he suggested dates when he wrote:

They [the pictographs] are mostly human figures, and their colors lead me to suspect that they date from the historical period, for the yellow looks like chrome-yellow, and the green is far too bright not to be some paint unknown to the primitive Pueblo Indian. Some of the figures are interesting; for example, a man in yellow, with a round cap on his head.⁹

One hundred years after his visit, Cole took issue with Bandelier's snap judgment regarding the pigments and whether they were known to "primitive"--by which he meant pre-contact--Pueblo Indians. However, Bandelier should not be dismissed so quickly. Many rock art observers have commented on how pigments fade over time. In one hundred years, it is conceivable that Bandelier's "chrome-yellow" could have lost some of its high chroma, becoming the duller pigment recorded by Cole in 1984 and by this author in 1994. Bandelier specifically mentions the yellow man with a round red cap on his head (fig. 44). As discussed in Chapter 3 herein, Pueblo warriors were in the Abo Pass area well into the eighteenth century and shepherds utilized this area as late as the early nineteenth century, so they had at least an opportunity to create rock art at Abo within one hundred-twenty years of Bandelier's visit.

A note must be added here regarding Bandelier's credibility as a recorder. In comparing figures 44b to 44c, it becomes obvious that Bandelier did not render all of the

now-visible details of this figure in his watercolor painting. He may have recorded the details in his field drawings, and created the painting at a later date, but he did not render details that were clearly visible in 1994. For example, he does not include any of the jewelry elements nor the embroidery details still visible at the hem of the otherwise invisible kilt. The kilt itself was probably painted in a fugitive pigment which has since weathered off the surface. There are two possibilities for such omissions: (1) Bandelier did not observe these details for whatever reasons, or (2) they were added after his visit in 1882. Due to the intensity of the visible pigments, the latter seems more likely. The only way to solve this question is to carbon-date the pigments, a solution some years in the future.

After Bandelier's visit in 1882, the next professional recording effort was carried out by Wesley Hurt in 1939. Like his predecessor, Hurt focused only on the pictographs, but noted several features pertinent to this discussion. He posited a pre-contact date for all the pictographs due to the absence of horses or other designs of obvious European influence, but he admits the possibility that the artists may have deliberately excluded such foreign images based on "ceremonial selectivity."¹⁰ He also observes that the "realistic" polychrome figures (Late Puebloan Style herein) are earlier than the cream-colored figures (White Figure Style herein) based on superimposition.¹¹ The field data for the present study agree with his observations.

Many people have visited Abo since 1939, some even recording the pictographs and perhaps the petroglyphs, but the next published reference to Abo's chronology is in Polly Schaafsma's 1972 synthesis of the rock art of New Mexico.¹² She suggests fourteenth or fifteenth century dates for most of the rock art at Abo, and specifically the pictographs. She arrives at these dates based on her assessment of close similarities among the rock art images of the Piro, Tompiro and Jornada Mogollon, as well as a comparison to kiva murals.¹³

Schaafsma returned to Abo to help her colleague, Sally Cole, fully record all of the pictographs in 1984. Cole dates most of the pictographs to the Pueblo IV period, approximately 1300-1672 C.E., but notes that certain "Mogollon affinities" point to an earlier date of inception for rock art at Abo.¹⁴ She suggests the Pueblo IV period based on stylistic affinities to elements in the Kuaua murals and Mogollon images.¹⁵ Since Helen Crotty has revised the dates of the Kuaua murals in her 1995 dissertation; however, this weakens Cole's argument. While she does acknowledge that some paintings could have been created by travelers after 1672, Cole disagrees sharply with Bandelier's historic dates, as was mentioned above. She argues that since a great variety of color is noted in kiva murals, "the colors at Painted Rocks [Abo's South Site] are too varied for the prehistoric Pueblo Indians, and, therefore, must date from a period following Spanish contact."¹⁶ The door should not be closed so quickly or firmly. One hundred years had elapsed since Bandelier's observations in 1882, and the "chrome-yellow" pictographs he specifically names as examples had been vandalized and perhaps even repainted, as discussed in Chapter 4. It is also possible the pigment itself changed in value, perhaps through repainting or fading from a higher to lower chroma. In short, Cole missed the point about the chrome-yellow and brilliant green.

Cole agrees with Hurt's assessment of a pre-contact date for the rock paintings due to the absence of European influences or as an example of artistic resistance. She also agrees with the relative dating of the polychrome figures being earlier than the cream-colored figures but points out that the issue is more complex than Hurt suggested.

It was noted in the present study that the thickly painted designs do represent the most recent art and are somewhat atypical of the usually carefully executed Rio Grande Style art. However, a number of elements at Painted Rocks may have been painted with the same thick pigment, and the latter represent typical Rio Grande Style elements. An example is a red and white-striped bird at Panel 10 [fig. 50]. The atypical elements may merely represent a period of decline in the ceremonial usage of the site.¹⁷

She agrees that the White Figure Style is later due to superimposition, but suggests that it represents a ritual decline, a point discussed below.

J. J. Brody has been another frequent visitor to Abo, recording the pictographs in the 1950s.¹⁸ In his synthesis of Anasazi and Pueblo painting, he makes several pertinent comments regarding the chronology of Abo's rock art. He agrees with Cole that the pictographs largely date to the Pueblo IV period, specifically the fifteenth through seventeenth centuries, based on comparisons with the kiva murals of Kuaua, Pottery Mound, and historically known kachina figures.¹⁹ However, he does not include the smaller, red, active figures in the eastern shelter of the South Site in such comparisons (figs. 48, 58). He suggests that these figures are stylistically indeterminate but that they resemble the much older Mogollon Red Style pictographs.²⁰ There is a similarity in the scale, pigment and active posture of these simple figures, but he suggests Abo's figures are more recent. They are more complex, engaging in narrative relationships, which is not typical of the Mogollon Red Style; therefore he dates them to a much more recent time period, probably Early Puebloan.²¹ More importantly, Brody also suggests that the small-scale red figures are contemporary with the heavily repatinated petroglyphs "which resemble thirteenth century or even older Mogollon rock pictures from western New Mexico."²² This Mogollon influence is supported by the presence of pithouses in the region as already discussed in Chapter 3 above.

Of all the scholars who have recorded and published their findings on Abo, only Brody mentions the petroglyphs, although even he does not illustrate them in his 1991 publication. Most attention has been focused on the pictographs. However, the petroglyphs constitute the bulk of the imagery at Abo, numbering nearly two thousand in comparison to approximately three hundred pictographs. Much information can be gleaned from the petroglyphs themselves and in comparing them to their counterparts in pictographs, kiva murals, pottery, and tools. As discussed in Chapter 4, Brody has

suggested there may be different functions for each rock art medium at Abo, which will be further explored in Chapter 6.

Both Baldwin and Brody have commented that Archaic elements are present in the petroglyphs of Abo. Brody did not illustrate those to which he referred, but Baldwin was more specific. Scattered throughout the Abo site are numerous talus slope boulders, and some bedrock slabs, with deeply pecked pits in their surfaces (figs. 1, 2). During fieldwork undertaken for this study, the pits were thought to be natural indentations in the rock surface which were then enhanced by pecking; this is no longer thought to be the case. These pits tend to be broad rather than deep, rarely going more than an inch into the surface. Locus CH has a number of such pits that appear to be randomly placed (fig. 1). Baldwin noted in his field work that many of these boulders with pits were associated with rock shelters and Archaic lithic scatters. Therefore, he postulated an Archaic date for these forms, suggesting that they may have functioned as food processing mortars, using for cracking open pine nuts.²³

Archaic Period rock art is usually identified by its association with lithic scatters dated between 6000 B.C.E. and C.E. 1000. Such rock art has been termed the Great Basin Abstract Style by Julian Steward, nomenclature that has been retained by later scholars. This style consists of "[d]esigns ... pecked in heavy, clear lines through the black patina on small scattered boulders, and two distinct types of decoration are present" consisting of both curvilinear and rectilinear forms.²⁴ Great Basin Abstract Style figures are usually large, often involving the entire design field. The elements are simple in geometric terms, but are joined or repeated in such a fashion as to become visually complex. Schaafsma gives the following general description:

Designs ... include rakes, dot complexes, repetitious linear motifs, zigzags, circles, and one-pole ladders. Occasionally, elements follow boulder contours and in doing so enhance the shape of the

rock. The designs are heavily patinated ... [A]t the latest they are Basketmaker II in date [in the Galisteo Basin area; 400 C.E.].²⁵

Baldwin's suggestion that the pits functioned as mortar holes is supported by stone slabs found in archaeological sites. Hurt found two sandstone slabs during his excavations at Quarai whose surfaces are covered with several randomly placed pits just like those found at Abo (fig. 59). He also found another stone slab with a broader concave pit pecked into the surface, which he identifies as a grinding basin (fig. 60). A dolomite slab with a comparable concavity was found by Franklin Fenega in a pithouse near Gran Quivira.²⁶ These objects are obviously tools used in household processes, but, in formal terms, the enhanced pits in their surfaces are indistinguishable from those found on talus slope boulders near Abo. The petroglyph pits could, indeed, have been created during a shelling process, since pine nuts are known to have been harvested in abundance in the Abo vicinity well into the historic period.

However, this mundane function does not explain petroglyphs such as the large disk on locus CH which has a slightly deeper concave pit in its center or precise arrangements such as those found on locus CI (figs. 1, 2). On locus CH, a shallowly pecked disk measures twenty-two centimeters in width, forming a virtually perfect circle. It is possible that this is another grinding basin like that found at Quarai (fig. 60), but the disk's edges are very cleanly and carefully pecked. Such crisp edges could not occur in a mechanical process where a pestle stone is randomly struck on the surface in grinding food. The form seems more deliberate. This impression is enhanced by the placement of a slightly deeper concavity in the exact center. Because the entire surface of the boulder now has the same value of patina, there is no way to tell if the center concavity was created earlier or was contemporary with the larger disk. On locus CI, forty enhanced pits form a hollow rectangle bisected by a deeply pecked rectilinear meander incorporating two more enhanced pits (fig. 2). Just outside one corner of the rectangular arrangement is another pit with a curling extension (near the mugboard) that measures eleven centimeters.

The enhanced pits seem to be too precisely placed to be simple food processing mortars. Based on the presence of the rectilinear meander, there may be another, more esoteric explanation for their creation. Due to the simplicity and abstraction of design, the uniform patina and lack of other evidence, it is also possible that Baldwin is correct; these may be Archaic in date.

This lack of corroborating evidence makes the enhanced pits difficult to date. Baldwin dates them as Archaic due to their proximity to lithic scatters and shallow rock shelters that could have served as camp sites. However, seed and nut processing was hardly restricted to Archaic peoples. Fenega's dolomite slab was dated by the presence of nearby pot sherds to Basketmaker or Early Puebloan, approximately 750 to 950 A.D, while Hurt's "nutting stones" were found in a room dating to the Historic period, indicating a very broad time frame for such formations.²⁷

The enhanced pit with the curling extension on locus CI resembles several such marks on sandstone slabs found by Hurt at Quarai in 1939 (figs. 2, 59, 60). This curious form appears several times at various scales in Abo's rock art and was classified in field work for this study as an unidentifiable form. A talus slope boulder located near locus CI has several comparable forms deeply pecked into its top (fig. 46). The patina is uniform across the entire surface so the petroglyphs do not appear to be recent. They are deeply pecked into the surface, with the pit portions measuring two to five centimeters deep. Due to their depth, degree of weathering, lack of difference in patination, simplicity of design, and the tendency to cover large portions of the design surface, these may be Archaic in date. Their abstract quality makes it difficult to identify their content. The only comparable forms thus far located are figures found in Mogollon rock art, identified by Schaafsma as tadpoles, or possibly a vegetable form such as is found in the Pottery Mound murals.²⁸ However, this comparison is unreliable, based solely on similar—but not identical—formal characteristics, and the dates vary widely.

On the north site and sparsely scattered throughout the other sites are talus boulders with very deeply pecked petroglyphs. They are so old that individual peck marks have been obliterated by weathering. They are often filled with lichen, or have repatinated back to the same value as the original surface of the boulder (fig. 16). An example is locus DU, a talus slope boulder of Abo Sandstone with three figures: one large rectilinear meander, one short or partial rectilinear meander, and a disk with rays. One could postulate that these petroglyphs are old, possibly Archaic in date, due to the abstract simplicity of these forms, the dark patina and the heavy growth of lichen. However, other panels are not so clear.

When the author first visited the rock art at Abo, some pictographs and petroglyphs seemed to be distinctly different from the character of Pueblo rock art. This first impression was strengthened during field work. In Chapter 4 above, the White Figure Style was tentatively identified as Athapaskan, based on differences in material, technique, subject matter and superimposition over what were obviously Puebloan paintings. Certain petroglyph panels also appear non-Puebloan, the best example being locus CF found on the north site (fig. 45). Even if radiocarbon dating did work on petroglyphs today, this panel would still be difficult to date with precision. There is very little patina on the rock surface. All of the petroglyphs are of the same value, with the exception of the initials "FS" carved near the middle of the large rectilinear meander in the center (fig. 45b). These initials were probably carved by a grandson of Federico Sisneros.²⁹ These late twentieth-century initials are just a shade lighter than the remaining images, which really only indicates that patina is not a reliable chronological indicator in this instance.

Dividing the design field on locus CF are several long simple lines with other elements in between, including arcs or a rectilinear meander (fig. 45b). Floating in between these dividing lines are two large geometric rectangular forms with highly stylized abstract designs in their interiors. One characteristic of the Archaic period Great

Basin Abstract Style is large, simple, often-repeated abstract forms that define the design space as these do. The remainder of the design field is filled with flying birds, masks or faces, a lizard, a hand print, and a shield-bearer (fig. 45b). None of these motifs are typical of the Great Basin Abstract Style but are of the Late Puebloan style. The large framing lines are no more deeply pecked nor patinated than the Puebloan motifs. Due to the lack of any other chronological indicators, the possibility must be entertained that the large framing elements are not Archaic in date but perhaps Historic and of Athapaskan origin. This cultural attribution is strengthened when locus CF is compared to accepted Athapaskan sites, such as the rock art near Arroyo Hondo in Taos County.³⁰

In summary, insubstantial evidence of Archaic period rock art can be found within the current boundaries of the Abo Unit of the Salinas Pueblo Missions National Monument. This does not preclude the existence of rock art of this period in the surrounding area, however. Abo's famous perennial spring, located less than three miles west-southwest of the current boundaries of the park, was not included in this survey. However, as discussed in Chapter 3 above, Archaic hunters camped in the area, probably focusing on the spring.

Early Puebloan period rock art, on the other hand, is prevalent throughout the site. A distinguishing characteristic of the shift from Archaic to Anasazi styles in rock art is the gradual change in the thirteenth century from geometric designs to representational forms. Early human and animal images tend to be small, simplified and casually placed within the design field. A similar shift in style is particularly visible in Fourmile Polychrome wares, dating to the later 1200s.³¹ Thus the ceramic record reveals the same developmental process as the rock art. This style incorporates Brody's Monochrome Red Figure Style, pictographs consisting of abstracted anthropomorphic figures in active postures painted in red pigment.³² Structurally, these elements at Abo tend to occur at or about eye level along relatively flat ledge faces in the two shelters where they are located. The figures are

less than ten centimeters tall. Many of the petroglyphs and some of the pictographs also belong to this Early Puebloan style. The petroglyphs are all pecked into bedrock surfaces or talus slope boulders and generally tend to have a wide range of subject matter. Structurally, their compositions are often accretional, with no presently discernible single intent behind the final results. Some pictographs are grouped in this style due to their simplicity relative to those of the next style. "Early Puebloan" is a term intended to connote Anasazi-style images dating from the Basketmaker through Pueblo III periods, 1 to 1300 C.E.

People were living permanently in the Abo Pass region as early as the Pueblo II period. As discussed in Chapter 3 above, Baldwin reported several pithouses at Abo, which he dated to this time period. Slightly earlier sites were excavated near Gran Quivira by Fenega which he attributed to the Mogollon, based on ceramic evidence. Extrapolating from the archaeological record, scholars suggest that the population in the pass region was a mixture of Anasazi and Mogollon peoples during the Pueblo II period.

Locus ET, panel 11 provides several good examples of Brody's Monochrome Red Figure style (fig. 48). As can be seen best in the computer enhanced image, there are a number of small scale anthropomorphs engaged in very active postures (fig. 48b). In most cases, the only remaining pigment is red, although some figures do still bear a trace of white. Other more fugitive pigments were evidently used but have weathered away, leaving no trace.

Yet another panel in the same shelter, ET 16, also portrays anthropomorphic figures in active poses, but the palette used by these artists has become somewhat more complex and the iconography more varied (fig. 58). There are partial anthropomorphs, usually painted in red or white, as can be seen in the computer enhanced image (fig. 58b). There are also several abstract linear and circular forms. Most distinctive are a shield figure--a motif appearing in Anasazi rock art by the end of the Pueblo III period--and the

only known flute player at Abo.³³ This panel is also a good example of the accretional character of the Early Puebloan style. There is no singular composition; the design field seems crowded with abstract and representational figures that do not often appear to relate in a narrative manner.

This accretional character is also plainly visible in the petroglyphs of this style. Several good examples are to be found on the north site, along the vertical face of an exposed layer of sandstone bedrock (figs. 50-52). These panels include anthropomorphs—some with masks or animal heads—masks or faces, paw prints, human hand and foot prints, abstract lines, circles, and dots. Many of these figures are joined together with curvilinear meanders which are lighter in patina than the other petroglyphs, indicating perhaps that later artists not only added designs of their own, such as four-pointed stars, but also connected older images. In comparison to similar panels in Mesa Verde, the majority of these figures are probably earlier than 1300 C.E.³⁴ This period is assigned partially due to the absence of complex, masked figures resembling historic kachinas and also the lack of detailed shield figures. However, there could be another explanation for the absence of these subjects. The artists of the historic pueblo could have avoided such ceremonial imagery on the north site due to its proximity to the pueblo and the mission church, the ruins of which are easily visible from these panels.

Some pictographs and petroglyphs are dated to this period due to their relative simplicity in comparison with later examples. Two examples of linear designs are probably Early Puebloan because they are less elaborate, more sparse in detail, and, in the case of the pictograph, more conservative with paint (figs. 25, 47). Locus A, panel 1 is also dated Early Puebloan due to its strong similarity to one-line textile designs in Mogollon rock art such as is found at the Three Rivers site in southern New Mexico (fig. 24). Another textile design is the pictograph at locus EV (fig. 47). Now badly weathered, the narrow concentric arcing white lines form a visually complex motif.

If one compares the white linear textile pattern at locus EV to a later pictograph, such as locus DS 8, one sees greater complexity in the design, a change in the figure-field relationship and a much more extravagant use of paint in the latter (cf. figs. 39 & 47). Red and yellow bands form rectangles of color which are interspersed with blank areas where the natural, highly colored background sandstone is left exposed. One white band and two vertical lines tie the textile design together. A number of other pictographs appear on the same panel: three hand prints, one partial hand print, one whole anthropomorph, a pair of fringed legs which may be remnants of another anthropomorph, and three masks.³⁵ The different values of red pigment used in this panel indicate that various batches of paint were used. The red fringes on the leggings, the red ear bob of the mask at the top edge and the red elements in the central masks appear to be of the same value, mixed according to very similar recipes. The red bands in the textile design are lighter, while the red hand prints (one whole, one partial) are the lightest of the three values. This would indicate that these pictographs were painted by several groups of people, possibly at different times. As Jean Clottes has discussed, the various paint recipes indicate different technological styles, therefore different artists, but there is no way of proving relative chronology without some other means, such as superimposition.³⁶ Due to similarities in material, technique, and content and the increased sense of figure-field relationship, the majority of the pictographs in this panel are dated in this study as Late Puebloan; the white stenciled hand prints and three white dots arranged as the eyes and mouth of a face or mask located to the right of the sign board are the exceptions. Two of the white hand prints are superimposed over older pictographs on this panel, thus indicating that they were created later. However, hand prints cannot be used to date rock art styles since they do not reveal who the artists were, whether they were Pueblo people claiming authorship or Athapaskan latecomers establishing dominance in newly acquired territories. As described in Chapter 4 above, the Late Puebloan Style is characterized by

both petroglyphs and pictographs achieving the same level of complexity. The artist established a structural tension across the design surface, unusual in comparison to the majority of petroglyph panels on these sites. Some of the elements are recognizably associated with kachina imagery. This style is dated roughly to the Pueblo IV period, although some elements do occur as early as late Pueblo III and continue after Historic contact, possibly as late as the early nineteenth century.

Complex masks are among the many elements typical of the Late Puebloan style. Three probable masks occur in locus DS 8: one yellow, inverted triangular form with several short red lines protruding from the top; a second in the center composed of a red square in the face region, flanked at the top and bottom by a red arc and a yellow semi-circle; the third at the top edge composed of a central green rectangle topped by a red band, framed on the bottom by a yellow semi-circle and displaying two red pendant elements on the sides of the green rectangle. The last two masks in particular are more complex than Early Puebloan examples. While it may be impossible to identify each mask, the anthropologist Elsie Parsons offers some tantalizing information that certain colors serve different symbolic functions. For example, various Pueblo people paint hunters' faces red, while at Hopi, the faces of deer hunters are painted yellow. Rabbit hunters have white stripes over a red base and a red line under the eyes. In the early twentieth century, Laguna warriors requested that they be painted like "War Brothers," that is, with alternating bands of black and red.³⁷

Petroglyphs achieve a level of complexity equal to these pictographs. Locus U3 depicts two very different masks, both based on the flat-topped, U-shaped form (fig. 49). The mask or face on the right has dot-eyes and mouth, two curving, horn-like appendages, and three vertical lines ending in knobs. It also has one arm, one leg with an over-sized foot and a hollow rectangle attached to the outer edges. On the left is what is quite probably a mask with highly stylized features.³⁸ If this petroglyph is compared to a

masked figure depicted on a Tabira Black-on-White sherd found at Gran Quivira, it becomes obvious it represents a mask.³⁹

The archaeologists who found the Tabira sherd suggest a remote connection between this abstract five-pointed design and the Hand Kachina known in the modern western pueblos, although the only basis for formal comparison is that the central design has five appendages.⁴⁰ Another possible interpretation is that this symbol may instead refer to the agave plant, which is characterized by stiff, thick, projecting leaves. According to Schaafsma, the agave plant is a symbol used by Pueblo people as part of a larger complex of war-related imagery.⁴¹ Whether this masked figure is related to war-imagery or other symbolic ceremonies is difficult to say. As to the date of locus U3, the petroglyphs have virtually no patination whatsoever, appearing much fresher than the majority of petroglyphs surrounding this locus. The Tabira sherd is broadly dated between 1545 and 1672, but there is no proof of contemporaneity between the petroglyph and pottery sherd. However, these petroglyphs could easily date as late as the seventeenth century, to the last decades of habitation of Abo Pueblo; they could also post-date the abandonment.

Crotty has suggested another possible interpretation for all U-shaped, flat-topped masks. In her dissertation, she illustrates seven objects known as Soma'koli shields.⁴² These mask-like objects are carried like shields by the seven Tewa chiefs during curing ceremonies at Hano on Hopi's First Mesa. They are credited with curing sore eyes.⁴³ Also known from Zuni curing ceremonies, these forms are identified by their ovoid, flat-topped, noseless faces, almond-shaped eyes with pupils, rainbow-striped chins, and horizontal divisions using various geometric designs. Comparable images appear at several loci at Abo (cf. figs. 42, 49, 53). Crotty suggests that these Soma'koli forms may explain some of the mask shapes in Jornada art as well, but she makes no chronological or developmental connections.⁴⁴ According to Parsons, the Hano Tewa claim to have

brought the "Shumaikoli" shields or masks with them on their westward journey from the Galisteo Basin.

Perhaps the most striking mask or face forms are found in the southern portion of the west site (fig. 26). On a large boulder face neatly bisected by a natural crack are two pecked masks or faces. Due to their figure-field relationship and the balanced composition, these may be Late Puebloan. They have some patina, so they do not appear as recent as Locus U3 (cf. fig. 49). The right mask is a virtually perfect circle shape, while the left is a more vertical ovoid. Both have almond-shaped eyes and open, rectangular mouths displaying teeth. The left figure's mouth tilts at a forty-five degree angle while the right one is horizontal in relation to the rest of the face. The open, toothed mouths seem to indicate some degree of ferocity. Curving arcs that define the eyebrows of both images are joined by short vertical lines to curving arcs separating the eye and mouth regions.

These masks face due south towards the modern road and railroad below the site. The boulder on which they are pecked is located on the left side of a small, square alcove. Other petroglyphs in this alcove include a flying bird and a four-pointed star. All of these motifs are typical of Late Puebloan rock art and kiva murals. Due to their twin nature, fierce appearance, and juxtaposition to birds and stars, one possible interpretation for these two masks/faces is that they represent the Twin War Gods, prominent figures in the mythology of all the historic pueblos. In her study of murals in the Southwest, Crotty comments that the Twin War Gods seem older than kachinas in the Southwest. She sees a change occurring at about 1400 C.E. or later in Puebloan iconography from twin figures and shield-toting warriors to kachinas and more subtle war-related symbols, such as snakes, lightning, star-faced beings, and four-pointed stars.⁴⁵ Brody questions the tentative identification of these twin images as the War Gods. Their identity would be clearer if they possessed double lines trailing from their eyes, and wore skullcaps. He suggests the arcs on the lower portions of the faces may be an indication of face paint.⁴⁶

Schaafsma has investigated the prevalence of war-related imagery in rock art for twenty years. It is one complex of images that is characteristic of her Rio Grande Style. A catalog of war iconography includes shield bearers, shields (round forms herein), warriors carrying weapons, the weapons themselves such as spears, clubs and axes, but also stars, star-faced beings, star-headed snakes, rattlesnakes, horned serpents, eagles, eagle feathers and/or claws, plus other animal patrons of war including mountain lions and bear.⁴⁷ Parsons noted in her research on Pueblo ceremonialism that war chiefs in the western pueblos would paint white zigzags on warriors, symbolizing lightning. According to the Zuni, when war chiefs die, they became "Lightnings, most potent of rain spirits."⁴⁸ Rectilinear meanders in the rock art may then be associated with war. Dragonflies are associated with hunting and game animals. The Zuni word *soma'koli* means "dragonfly," the same word associated with the mask-shields carried by the seven Tewa chiefs at Hano.⁴⁹ According to Parsons, several examples of Puebloan oral literature make convoluted metaphorical connections between war, hunting, and fertility. Dragonflies are commonly identified as fertility symbols, but, in rock art or kiva murals, they also appear with iconography more normally associated with war. Therefore, dragonflies seem to have some association with hunting and war, at least in the oral literature. The same seems to hold true in the rock art of Abo as can be seen in locus DY3 (fig. 17). Six dragonflies are clearly associated with masks/faces, shield bearers, and a polychrome zigzag which may represent a plumed serpent.

Mask forms often appear in juxtaposition with round forms, four-pointed stars, or shield bearers (fig. 42). Locus ET 14 has a particularly elaborate mask form with some similarities to the *soma'koli* forms described by Crotty. To the right of the elaborate plumed mask is a yellow disk with some red horizontal lines still visible through a later layer of cream-colored paint. There also appears to be a smaller red disk at the top, perhaps the head of a shield bearer. To the left is another round form, also superimposed

by later paintings. In this case, a white figure has been covered with a later white round form, then a red circle. Various yellow, white and green details (possible paraphernalia for a shield bearer) are still visible.

Shield bearers are by no means rare in the rock art of Abo. As discussed above, shield bearers appear in Anasazi rock art before the end of the Pueblo III period, prior to 1300 C.E., but become prevalent during the Pueblo IV period. Many of the Abo examples are part of the Late Puebloan Style and seem to date to the Pueblo IV period, if not to the Historic period. Locus AR portrays two shield bearers, so-called because a circular form takes the place of the figure's torso (fig 16). Legs, arms and heads protrude from the circle's edge. One shield bearer has just one head, two arms and two legs while the figure in the upper right corner is a double figure, possessing two heads and four legs, but only two arms. Also appearing on the same rock face is a short curvilinear meander and a couple of dots. Due to the compositional tension across the design space and the relatively simple details of the shield bearers, this panel is probably Late Puebloan.

Another shield bearer appears in the east shelter of the south site at Abo and probably post-dates European contact (fig. 61). Barely discernible now due to wind erosion, this figure seems to have been painted only with red pigment. All that is visible now is the outer circumference of the head, two vertical lines, concentric circles with both interior and exterior designs, then two short legs and feet which appear to float below the shield. A kilt or other garment may have once been painted in a fugitive pigment, no trace of which remains today. To the right of the figure is a curving vertical linear form with a D-shaped loop at the top, possibly depicting a European-style saber. This panel is probably from the Historic period, as both figures are painted in the same pigment.

Located near a large rock shelter on the North Site, locus BY7 contains a precisely pecked shield bearer with a solidly in-filled disk shield, a single leg, and an animal-shaped head topped with an elaborate feather headdress (fig. 55). This style of feather headdress

is often seen in kiva murals and on historic kachinas.⁵⁰ A similar headdress appears on the head of a human figure depicted on a sherd of Tabira Black-on-White ware found at Mound 7 in Gran Quivira.⁵¹ This shield bearer seems later than other Late Puebloan style figures due to the finer draughtmanship and lack of patina, so it could easily date into the Historic period. A relatively realistic sharp-beaked flying bird appears on the same panel.

Shield bearers also appear in the Pottery Mound kiva murals.⁵² In several cases, portions of the heads and legs are still visible. Many also appear to be carrying other weapons. The designs on the shields vary considerably but include a four-pointed star with a feather headdress, two eagle feather fans or tails, or the curving spikes Schaafsma identifies as symbolic of the agave plant, an important symbol to modern war societies.⁵³

Shields and a shield bearer appear also in the kiva murals of Mound 7 at Gran Quivira, also known as Las Humanes Pueblo. Dated to the fifteenth century, the human carries a shield with black, white and red details, while the entire figure, including the legs, is outlined in white.⁵⁴ This figure stands on a multi-colored band, probably a rainbow. Another round form appears in the same kiva on an earlier layer, but whether it is a shield or not is questionable since there is no human figure behind it.⁵⁵ Due to the extreme fluidity of metaphorical figures in Pueblo oral literature, it would be folly to assume all circular shapes have the same interpretation.

Shield bearers are often associated with symbols such as horned serpents or snakes like those found at Los Lunas and Tenabo.⁵⁶ At Pueblo Blanco, located in the Galisteo Basin, an enormous horned serpent is superimposed over an anthropomorphic figure enclosed within two concentric circles, often interpreted as a shield.⁵⁷ It is possible to date these images, at least roughly, by comparison with kiva murals, particularly those at Pottery Mound. Horned serpents appear twice in Pottery Mound kiva murals, dated

approximately 1390 to 1490 C.E.⁵⁸ One horned serpent is portrayed with its muzzle touching the head of a bowing human figure; two dragonflies appear in the background.⁵⁹

Another figure from Pottery Mound displays a geometric face or mask in the familiar U-shape form, and wears a headdress fashioned in part from a rattlesnake.⁶⁰ Locus AE, on the west site of Abo, is a gigantic boulder with rock art on five faces. On its slanting top is a whole complex of petroglyphs, including a mask form with the same slanting, toothed mouth seen on the left face of Locus M3, and further down the slope appears a spiral design with a triangular end possibly symbolizing a rattlesnake with its distinctive triangular-shaped head (figs. 36, 56). These two images may be connected as part of the complex of war imagery. Due to the iconography and the design structure, these figures are probably Late Puebloan.

A third fragment from Pottery Mound dated to the fifteenth century may depict what Crotty has suggested is a shield, based partially on the detailed depiction of an arrow quiver fashioned from a mountain lion skin.⁶¹ Crotty posits further that shield bearers were typical war-related imagery before 1400, whereas she detects a shift in iconography after that date. With the consolidation of kachina imagery in pottery, murals, and rock art, war-related imagery becomes more subtle and indirect, focusing less on shield bearers and more on eagles, shields, rattlesnakes, and star beings.

Four-pointed stars and star beings occur with some frequency in the rock art of Abo. One such star being is depicted at locus BY1, the northernmost tip of the large bedrock ledge on the North Site (fig. 18). A four-pointed star with a clearly defined face in the interior is pecked through the black patina just to the right of a realistic human hand print. Four-pointed stars are associated with snakes, arcs and other motifs on locus O1 (fig. 14). While it is difficult to date locus O1, locus N2 is definitely historic (fig. 43). Located quite near locus O1, this petroglyph has been cut into the sandstone surface with a metal tool. Four lines intersect to form an asterisk pattern which is then surrounded at

the cardinal points with four-pointed stars, again cut with a metal tool. The only possible source for a metal blade hard enough—and common enough to use for cutting into a rock surface—would have been a European one; therefore the petroglyph at N2 is clearly Historic. A pictographic four-pointed star is painted at the far east end of the east shelter of the south site (fig. 62). This four-pointed star is directly below a masked being that will be discussed below.

According to Parsons, stars are associated with war. All stars, but especially the Morning and Evening stars, falling stars and comets, have a place in the oral literature of several pueblos and are often linked to the Twin War Gods. The Morning Star is also sometimes associated with hunting.⁶² Four-pointed stars appear on shields and in association with horned serpents in Pottery Mound murals, dated from 1390 to 1490.⁶³ Star faces also appear on Tabira Black-on-White sherds dated from 1545 to 1672.⁶⁴ Similar figures appear in modern Hopi ritual costume.⁶⁵ Many more general examples occur at Abo, and their relationships to one another and to the landscape will be more thoroughly examined in Chapter 6 herein.

Several rock art panels deserve special attention due to their striking iconography and compositional clarity. A pair of warrior figures, one carrying a shield, are dated to the Late Puebloan period due to their similarity to warrior figures in the Pottery Mound murals (fig. 38). The first figure stands vertically holding a small shield and a war club. His face, the feather in his hair, his kilt or loincloth and his club are all painted in red hematite, while his hair, torso and legs, as well as the shield, are painted in the pink-white pigment favored by the Late Puebloan artists at Abo. Below this figure's feet is a horizontal figure painted in a very similar manner but possessing no weapons and no apparent head. This pair appear to engage in a narrative relationship, depicting the outcome of a battle. Both figures have a red stripe running down the center of their torsos. The stripe is most obvious on the horizontal figure, but it can also be seen below

the shield of the vertical anthropomorph. Such bisected, bi-chrome anthropomorphs appear elsewhere at Abo and in the murals of Mound 7 at Gran Quivira.

In the east shelter of the south site, there are two panels with similar bisected bi-chrome anthropomorphs (figs. 63-64). Locus ET10 is a very small panel inside a natural alcove. Yellow, red, and green pigments remain. Only one half of the figure is still visible; the remainder may have never been painted or was done in a fugitive pigment. Locus ET11 contains another vertically bisected bi-chrome figure painted in red and white, plus three more anthropomorphs painted in pink-white with red stripes running vertically down their torsos. All of these figures are located below a large area of pink-white that has been painted over an older figure only faintly visible. Both the white of the superimposing layer and that of the anthropomorphs appear to be the pink-white favored by Puebloan artists, in contrast to the cream-colored pigment preferred by later artists.

Similar anthropomorphs were found in Room 12 of Mound 7 at Gran Quivira, murals Crotty dates to the early seventeenth century.⁶⁶ Of the six anthropomorphs preserved on this fragment, one is depicted with a white body and a vertical stripe running down his torso, while the figure to the left is painted red and yellow, and divided vertically. These figures are more complete than other anthropomorphs, with feathers attached to their heads, various other paraphernalia, plus facial features, hair and what appear to be moccasins. Crotty also compares these figures to bisected bi-chrome figures at Pottery Mound.⁶⁷ Those at Gran Quivira, however, seem much closer in style and perhaps time.

Another panel of special note is located just east of the west shelter (fig. 17). Locus DY3 is in an alcove now well hidden with brush and large boulders. This is a panel that has attracted several different artists, since it has been repainted and renewed more than once. Older figures are hidden below a layer of green or red. On top are two large diamond shapes (possible four-pointed stars), three green and three orange dragonflies,

the green body of a plumed serpent, a red and yellow mask, an anthropomorph with an elaborate red, yellow, and white striped kilt, and a red and orange-striped panel that may be a highly stylized bird. These paintings are located on the upper, inward-sloping portion of the alcove, while several shield bearers in red and white march or dance across the ledge below. Due to overpainting, it is now impossible to tell if the plumed serpent was ever horned, but comparison to the plumed serpent in panel DS5 suggests that possibility (fig. 65). As discussed above, shield bearers, four-pointed stars, serpents, masks, and also dragonflies often occur, both in visual art and in oral literature. All of these images at DY3 may date to the Late Puebloan style, before the abandonment of Abo Pueblo. The only exceptions may be some, but not all, of the shield bearers below, since the white pigment used has a slightly different value than is commonly found in most of the other pictographs.

Three other pictographic panels may also have some connection to the war-related image complex, although they are not typical of the iconographic inventory. The first locus contains the large yellow figure described by Bandelier as known locally as "El Capitan" (fig. 44). Four pictographs occupy different panels on the overhead sloping ceiling of this shallow shelter located between the west shelter and the ravine to the east. Two of the pictographs are masks with the majority of the lower faces painted yellow with red eyes or headdress and red stripes on the cheeks. The remaining two figures are large anthropomorphs wearing elaborately detailed jewelry, headdresses, and kilts with tasseled sashes. These are the largest of the painted figures at Abo, El Capitan measuring 1.25 meters. Without doubt, these figures are Puebloan, possibly dating before the abandonment of Abo in 1672. Due to their similarities to figures in the seventeenth century Kuaua murals, they are probably not pre-contact but rather date to the Historic period. An interesting point is the absence of obvious ceremonial symbolism, as if the

artist(s) were deliberately avoiding the controversial exposure of non-Christian religious knowledge.

Bandelier did a watercolor painting of the largest figure after his visit in 1882, however he did not depict the jewelry nor the embroidery details of the kilt. He left the legs indistinct in the watercolor, whereas the pictograph's details are quite clear (fig. 44c). There are two explanations for this, as mentioned above: (1) Bandelier did not accurately record all of the details, or (2) the figure was repainted after his visit in 1882. This figure has been heavily scratched with some sort of metal-pointed tool, causing much of the yellow pigment to flake.⁶⁸

The presence of traits thought to be diagnostic of either the Anasazi or Mogollon artistic traditions are a matter of debate when considering the rock art of Abo. In the two anthropomorphic figures at locus DW, one figure is depicted with its legs and feet pointing in the same direction, as is seen in the Kuaua murals, Navajo sandpaintings, and earlier Anasazi images. The second larger figure has knees and feet pointing in opposite directions, a trait commonly thought to derive from a Mogollon heritage. These figures are painted with the same value of pigment and by the same technique. Indeed they could arguably have been painted by the same artist or at the same time by two artists. As Crotty has pointed out in her discussion of kiva murals, the directions in which the feet are pointing are not diagnostic of any cultural heritage.⁶⁹

The second unusual figure is located just beyond the West Shelter going toward the ravine that separates the two shelters (fig. 23). Locus DX consists of a single red anthropomorph with several pairs of parallel white streaks in the manner of body paint. The figure is also wearing a white arrow point as a neck pendant and carries a red and white bag in one hand and several small linear objects in the other. Rising from the top of the figure's head is a small circular hoop. Measuring twenty centimeters, it belongs to the Large Polychrome class of the Late Puebloan style. This figure may have some

connections to modern Pueblo practices. According to Parsons, arrow points are sometimes worn for defense against supernatural powers. Laguna war chiefs are known to have worn arrow points in a bag around their necks for defense.⁷⁰

The third anthropomorph is located directly above the red four-pointed star previously discussed (figs. 54, 62). This figure is one of the small number of images that easily compare with modern depictions of kachinas and other supernatural beings. In fact, it closely resembles figures in the Kuaua murals. It has the same static pose, bent elbows, enlarged head, elongated torso, negligible feet, and attention to ritual paraphernalia as is seen in those seventeenth-century murals. Measuring twenty-eight centimeters, this figure is also one of the largest, most detailed paintings found at Abo. It is well hidden, painted underneath a horizontal sandstone ledge; only the four-pointed star directly below gives any indication of its presence. Due to the deliberate juxtaposition of these images, there may be some connection between war iconography and that of fertility and rain. The figure holds in one hand a crescent-shaped object outlined in white and painted in red, yellow, and green. In the other hand is a green tube-like object with a spray emerging from its top. The figure's head is also elaborately painted, with red and white bands for the headdress; the face is green with an arc of yellow and red running up the center, the whole outlined in white.

While it is difficult to isolate and date many elements of the Late Puebloan style, there is one style that is clearly separate and more recent than the majority of the petroglyphs and pictographs. The White Figure Style is distinguished by its thick cream-color paint generously applied with a fibrous brush, forming large, simple geometric shapes or sprayed around a hand to create a negative hand print (figs. 20, 37, 39, 40-42). In several panels, the cream-color pigment appears only in round, isolated dots floating against a background of Late Puebloan paintings (figs. 20, 42, 58). This pigment superimposes older Late Puebloan paintings in two panels, DS8 and ET14 (figs. 39, 42).

Cole offers the explanation that these may represent a later, degenerate style of Pueblo paintings completed in Abo's twilight years. In Chapter 4 herein, another possibility was offered; they may represent paintings done by non-Puebloan peoples living in the Abo Pass region after the Salinas Pueblos had been abandoned, dating well into the Historic period, approximately 1675 to 1875. The obvious attribution would be to the Athapaskan hunters and raiders upon whom is blamed the collapse of the entire Salinas expansion. The pigment is quite comparable to that used in several paintings at Hueco Tanks tentatively identified by Klaus Wellmann as Apache.⁷¹ As has been pointed out by one rock art scholar, Athapaskan art looks very similar to the Desert Archaic or Desert Abstract styles proposed by Wellmann. Without the human form, it is very difficult to separate Apache art from Archaic period hunter-gatherer art.⁷² As to why Athapaskan art superimposes Late Puebloan art, Schaafsma offers an explanation: "Relative newcomers to the Southwest in the sixteenth century, the Apaches and Navajo considered as sacred caves painted with imagery prior to their arrival and in turn made their own rock art in these same spots."⁷³

While the Pueblo people may have retreated to the Rio Grande Valley, it is evident that they did not abandon the Abo Pass region entirely. Spanish documents indicate that Pueblo auxiliaries patrolling the Abo Pass throughout the eighteenth century and shepherds in the early nineteenth century had the opportunity to add, renew or destroy images at Abo. Bandelier recorded the sacred clown and plumed serpent in watercolor during his visit in 1882 (fig. 65). In comparing his painting to the currently visible image, several differences are notable (cf. 65b & 65c). Besides the already mentioned damage to the heads, he paints the legs in an entirely different position, while the arm and torso with its thick black waist band is the same. The figure's feet simply trail away. The plumed serpent at its side appears to wear a feather headdress but it is impossible to tell in the

photographs whether any of the projections is a horn. The serpent's tail appears to be superimposed by later paintings in Bandelier's version.⁷⁴

In 1908, Herbert Schweizer visited Abo and recorded this panel. He described the figure as stepping out of a pot-like element which was certainly not visible in 1994.⁷⁵ When Schweizer returned shortly thereafter, he recorded that the figures had been vandalized between his visits to the site. As was mentioned in Chapter 3 above, the railroad through the pass was being built in 1908. It may not be coincidental that the destruction is contemporaneous with mounting public presence in the area.

What is known is that the site was visited in 1908 by persons who seem, in this author's opinion, to have carefully and deliberately "beheaded" these two prominent figures (fig. 65). During field work for the present study in 1994, the damage to the heads of the sacred clown and the plumed serpent appeared to be quite deliberate since it is restricted to the removal of the heads, as if destroyed by those who cared about the images rather than by those who were acting out of ignorance or racism. Crotty noted that in certain instances at Pottery Mound and Kuaua, "the heads of some anthropomorphic figures had been deliberately defaced or obliterated before the application of the succeeding coat of plaster."⁷⁶ Such "beheading" of painted figures may have been standard practice in later Pueblo art.

Of the 343 panels recorded in the 1994 field work, 195--or fifty-seven percent-- have been tentatively dated. Few images can be comfortably defined as Archaic. Baldwin's hypothesized "nutting" mortars may indeed be Archaic, but they could just as easily be much more recent. Most of Abo's rock art falls within the Early or Late Puebloan periods. Several elaborate, carefully executed images are defined as Late Puebloan in style and date, leaving open the possibility that they could date to the Historic period, perhaps as late as the eighteenth century. The White Figure Style paintings definitely post-date the Late Pueblo period, and it is proposed that they could be attributed

to Athapaskan or Plains peoples. The remaining forty-three percent of the panels cannot be dated for several reasons: (1) lack of diagnostic features; (2) confusing mixture of what appear to be many different styles; or (3) problematic superimposition or patination. However, there remains enough information to formulate hypotheses and models to test ideas discussed in previous chapters about the interaction of rock art and landscape. The following chapter will build upon all of the work accomplished thus far, connecting style, date, landscape features, and known, historical events into logical models. These models will illustrate how rock art may have served several cultural functions and remained as visual traces of a cognitive spatial template. Such functions may have included the cultural use of art to mark a place, center or boundary in the landscape. Chapter 6 will map the rock art in relationship to the landscape and suggest possible interpretations based on iconography and context.

ENDNOTES

- ¹Ron Dorn, "A Change in Perception." *La Pintura* 23(1996): 11.
- ²Michael Bilbo, "A Proposed Rock Art Chronology for the Jornada Region." In *Recent Research in Mogollon Archaeology*, ed. Fred Plog, Dave Batcho and Barbara Kauffman, pp. 294-360. (Las Cruces, NM: The University Museum, New Mexico State University Occasional Papers, no. 10, 1982), 294.
- ³Schapiro, *Style*, 290.
- ⁴Helen K. Crotty, *Anasazi Mural Art of the Pueblo IV Period, A.D. 1300-1600: Influences, Selective Adaptation, and Cultural Diversity in the Prehistoric Southwest* (Ph.D. dissertation, University of California, Los Angeles, 1995), 21. Hereafter referenced as Crotty, Dissertation.
- ⁵Hackett, 143.
- ⁶Baldwin, "Tentative Occupation Sequence," 3.
- ⁷Cole, "Abo," 41.
- ⁸J. J. Brody, "Site Use, Pictorial Space, and Subject Matter in Late Prehistoric and Early Historic Rio Grande Pueblo Art," *Journal of Anthropological Research* 45(1989): 26.
- ⁹Bandelier, 276-277.
- ¹⁰Hurt, *Abo*, 6.
- ¹¹Hurt, *Abo*, 5.
- ¹²Polly Schaafsma, *Rock Art in New Mexico* (Santa Fe: Museum of New Mexico Press, 1992, rev. ed.). Hereafter referenced as Schaafsma, *New Mexico*. This text was revised, edited and re-released in 1992. I reference the 1992 edition, but her ideas about Abo's style designation and chronology do not change from the first to the second edition.
- ¹³Schaafsma, *New Mexico*, 98.
- ¹⁴Cole, *Abo*, 42. These "Mogollon affinities" seem to include figures with their feet and knees pointing in opposite directions and ovoid, flat-topped mask faces. By referencing an earlier inception date, she is referring to petroglyphs observed but not recorded during her field work.

- ¹⁵Cole, *Abo*, 41-42.
- ¹⁶Cole, *Abo*, 22.
- ¹⁷Cole, *Abo*, 25.
- ¹⁸Brody, personal communication, April 1994.
- ¹⁹Brody, *Anasazi*, 117-119.
- ²⁰Brody, *Anasazi*, 120.
- ²¹Compare figures 54 and 56 to Schaafsma, *Southwest*, fig. 61, 142.
- ²²Brody, *Anasazi*, 120.
- ²³Baldwin, "Tentative Occupation Sequence," 4-5.
- ²⁴Schaafsma, *Southwest*, 36.
- ²⁵Schaafsma, *Southwest*, 47.
- ²⁶Fenega, 230-231.
- ²⁷Fenega, 232.
- ²⁸See Schaafsma, *Southwest*, fig. 158; Hibben, fig. 76.
- ²⁹Ernestine Sisneros, personal communication, June 1997. Federico Sisneros was a long-time resident and self-appointed guardian of Abo.
- ³⁰Compare figure 34 to Schaafsma, *New Mexico*, fig. 105.
- ³¹Crotty, Dissertation, 344, 353-354.
- ³²Brody, *Anasazi*, 121.
- ³³Crotty, Dissertation, 143-144.
- ³⁴Compare figures 29-31 to Schaafsma, *New Mexico*, fig. 95 and Schaafsma, *Southwest*, fig. 146.
- ³⁵A constant issue in analyzing rock art is the choice of nomenclature. I have attempted to eliminate as much subjectivity as possible in nomenclature but some is inevitable. A

common problem is the distinction between masks and faces. When the human head is shown in profile, the face is very clearly depicted. This can be seen in one pictograph panel in the West Shelter of the South Site and in the warrior figures of the Pottery Mound murals (see Hibben). But when the human head is depicted frontally, it becomes confusing. The decision as to whether a mask or painted face is depicted is an arbitrary one. If the image is strongly geometric, with large blocks of color or design, and usually lacking some, if not all, facial features, it is termed a mask in this study. Therefore, the images in DS8 are masks. Compare these to the carved face on a river cobble illustrated on the cover of Gordon Vivian's *Excavations of a 17th Century Jumano Pueblo: Gran Quivira*, where all pertinent facial features are clearly depicted, although they are stylized.

³⁶Clottes, 229.

³⁷Parsons, 395.

³⁸I would like to thank Nick Abdalla for suggesting this alternate interpretation for what I initially read as a plant motif.

³⁹See Hayes, Young and Warren, fig. 118.

⁴⁰Hayes, Young and Warren, 89.

⁴¹Polly Schaafsma, "War Imagery and Magic: Petroglyphs at Comanche Gap, Galisteo Basin, New Mexico" (Paper delivered at the Fifty-fifth Annual Meeting of the Society of American Archaeology, Las Vegas, Nevada, 1990), 10. Hereafter annotated as Schaafsma, "War Imagery."

⁴²Crotty, Dissertation, 341, fig. 85.

⁴³Elsie Clews Parsons, *Pueblo Indian Religion* (Chicago: University of Chicago Press, 1939, 2 volumes), 920.

⁴⁴Compare to Schaafsma, *Southwest*, plate 21.

⁴⁵Crotty, Dissertation, 333.

⁴⁶Brody, personal communication, November 24, 1997.

⁴⁷Schaafsma, "War Imagery," 3.

⁴⁸Parsons, 396, 170.

⁴⁹Parsons, 184, 191. The Tano were invited to live at Hano in the late seventeenth century in order to protect the Hopi pueblos from outside enemies

⁵⁰Compare figure 28 to Hibben, figs. 42, 103, 104.

⁵¹See R. Gordon Vivian, *Excavations in a 17th Century Jumano Pueblo, Gran Quivira* (Washington, D.C.: National Park Service, Publications in Archaeology, no. 8, 1964), fig. 42.

⁵²See Hibben, figs. 103-104.

⁵³Schaafsma, "War Imagery," 10. The Kwan Society at Hopi specifically uses the agave plant as a symbol for warriors.

⁵⁴See Peckham, fig. 26.

⁵⁵See Peckham, fig. 29.

⁵⁶See Schaafsma, *Southwest*, figs. 237, 208.

⁵⁷See Brody, *Anasazi*, fig. 93.

⁵⁸Crotty, Dissertation, 126-127, 53-54.

⁵⁹See Hibben, fig. 42.

⁶⁰See Hibben, fig. 55.

⁶¹Crotty, Dissertation, 148. For the figure, see Peckham, fig. 38.

⁶²Parsons, 181.

⁶³See Hibben, figs. 34, 103-104, 105; Brody, *Anasazi*, fig. 84.

⁶⁴See Hayes, Young, and Warren, fig. 119.

⁶⁵See Brody, *Anasazi*, fig. 39.

⁶⁶Crotty, Dissertation, 66-67. For an example of Archaic Period Great Basin Abstract Style, see Schaafsma, *New Mexico*, fig. 105.

⁶⁷Crotty, Dissertation, 266. She compared my figure 68 to Hibben 1975: fig. 16, a scene Hibben interprets as girls dancing while holding macaws.

⁶⁸Since I recorded this image in 1994, a young couple decided to record their everlasting love by inscribing it in black spray paint within feet of this pictograph. According to the

date so obligely left by the young lovers, this occurred in February 1996; I saw it in June.

⁶⁹Crotty, Dissertaton, 155, 355.

⁷⁰Parsons, 332, 483.

⁷¹Compare figure 44 to Schaafsma, *Southwest*, plate 32.

⁷²Michael Bilbo, "A Proposed Rock Art Chronology for the Jornada Region," in *Recent Research in Mogollon Archeology*, ed. Fred Plog, Dave Batcho and Barbara Kauffman (Las Cruces: University Museum, New Mexico State University, Occasional Papers number 10, 1982), 306.

⁷³Polly Schaafsma, "Rock Art: Ideas in Time and Space." In *Marks in Place: Contemporary Responses to Rock Art* (Albuquerque: University of New Mexico Press, 1988), 3.

⁷⁴As an aside, he also neglects to include all of the paintings now currently visible on the panel. I speculate that this may be attributable to his lack of attention to detail, or, more likely, the paintings were renewed after his visit.

⁷⁵Cole, "Abo," 7.

⁷⁶Crotty, Dissertation, 15.

Computer Models

The previous chapters have provided the foundation and framework for the analysis of the rock art near Abo Pueblo. Chapter 2 laid the theoretical groundwork while Chapter 3 established the historical elements of the foundation regarding the interrelationships of rock art and its surrounding landscape. Chapters 4 and 5 developed the stylistic and chronological framework, decisions which were crucial for computer analysis. Now the analytical structure needs completion. Three models were created, focusing on chronological, iconographic, or directional parameters. After a short discussion of the assumptions and limitations of these models, a description and analysis of each will follow. Finally, future research needs will be briefly outlined.

As was discussed in depth in Chapter 2, rock art and landscape interrelate in complex and culturally determined ways. Rock art shapes landscape by marking important points but the land also influences the art. Practical features such as the exposure of suitable rock surfaces and their proximity to travel routes or resting places partially account for the location of specific images. Rock art also plays a culturally-determined role in denoting places, centers, and boundaries. To reiterate, places are loci in space determined by the focus of human experience and passion. Centers are a special category of place, attaining a higher qualitative degree of importance. Boundaries are mental lines drawn to circumscribe space, which can manifest on the landscape in the form of the "edges" of culture areas. Rock art may have served all of these functions at Abo.

Pictographs and petroglyphs can mark a place in space, serving to record or intensify human experience in that locus. Places and their special significance can be--but are not always--inherited from one culture or time period to another. The accumulation of rock art images may be a multi-cultural and/or multi-temporal palimpsest. A rapid accumulation of one art style in a given time period may indicate an increased degree of

importance attached to that place, perhaps indicating the creation of a center. Crumley points out that what is a center in the microcosm may be a boundary in the macrocosm.¹ It was previously suggested that Abo may have played this dual role throughout much of its history, varying from boundary to center to boundary. In Chapter 2, scale was discussed as one determining factor in the identification of a site as center, place or boundary. The field work which provided the database for this dissertation was conceived on a relatively intimate community scale. Such propinquity is typical of most initial rock art recording efforts. However, due to this intimacy of scale, any conclusions about Abo's role as both a center and a boundary must remain tentative. Still, even at this proximate scale, cultural vicissitudes are clearly visible in the rock art. To illustrate these phenomena, models were created using database and geographic information systems (GIS) software. These models were designed to demonstrate the flexibility of GIS analysis, wherein new conditions are added to preceding ones. For example, the chronological model considers only the dates of subject panels, while the iconographic model incorporates both temporal and pictorial parameters. The directional model examines chronology, iconography, and orientation.

Three Models

In the introduction, three questions were posed: (1) does a discernible pattern exist in Abo's rock art that changes through time? (2) do specific images occur often enough to define a culturally-determined pattern in terms of iconography? and (3) does the iconography have any connection to the directional orientation of the rock surface chosen by the artist? Following these initial guiding questions, three models were created. The first was a chronological model, plotting dated loci across the landscape. Using both database and GIS software, loci from each of four periods--Archaic, Early Puebloan, Late Puebloan, and Historic--were mapped in relationship to each other and to the arroyos. There were 163 loci mapped via Global Positioning Satellite (GPS) technology, with 343

panels recorded. Due to the tentative nature of the chronology proposed in Chapter 5 above, only 195—or fifty-seven percent—of the total 343 rock art panels were analyzed in these models. Therefore, all the maps created from the main database utilized less than fifty-seven percent of the total number of panels.

Due to the Environment Planning and Programing Language (EPPL) software requirements, certain key loci were assigned artificial coordinates. In some areas, panels were so close to one another that it was impossible to map them separately with the GPS field unit. This occurred at the north site at locus BY, which contains some fifty-six panels, as well as in the shelters of the south site. The west shelter is locus DS while the east is locus ET. Because of the configuration of the rock shelters, it was impossible to accurately map each panel. In order for the GPS field unit's antenna to communicate with orbiting navigation satellites, it could not be under the overhanging rock, but rather further out of the shelter. Since the point coordinates recorded would be those of the antenna's location, this would have resulted in even greater inaccuracies in the readings. In these circumstances, therefore, points at the ends of the shelters where the sky was visible were accurately recorded by GPS. Approximate coordinates were later created for the intermediate panels, expressly so that they could be plotted in EPPL. These are most noticeable on the maps where several points form perfectly straight lines at locus BY or ET. With GPS technology, it is possible to map points accurately to within one meter, but the maps created are more easily read if the points are somewhat further apart. Absolute accuracy is sacrificed, but what is gained is the ability to plot every intermediate panel in the denser loci with some slight approximation, thereby creating maps useful for interpretation.

A series of logical steps was performed in order to plot each map. First, a master database was created for the entire site, incorporating individual loci, panels, GPS coordinates, style, time period, and rock art elements. Several smaller databases were

created from the master such that loci were sorted by chronological period, iconographic element, or directional orientation. For example, a database was created for all panels dated to the Late Puebloan period, which were separated from those dated to either the Late or Historic Puebloan, and the Historic Athapaskan periods. Several secondary databases were then created and imported into the EPPL software.² A sample log of the analysis process appears as Appendix B. The end results of this process in the first model are maps of loci dated to the subject periods. Not surprisingly, most of the rock art panels are dated to the occupation period of Abo Pueblo. By the Late Puebloan, and certainly in the Historic period, much of the rock art was created facing towards Abo Wash, which, at that time, may have been a well-traveled road through the canyon.

The second step was the creation of a model in which specific rock art iconography was prioritized over other parameters. Schaafsma has cited Abo's pictographs as an example of her hypothesized Puebloan complex of war imagery, including shield bearers, four-pointed stars, horned or plumed serpents, snakes, zigzags, birds, and masks.³ To understand the interpretations drawn herein, it would be useful to summarize Schaafsma's hypothesis regarding such a war-related complex. In a paper focusing on the Comanche Gap site, she lists several diagnostic motifs defined as forming an iconographic complex: "...specifically shields, shield-bearers, and various other warriors *per se*, plus stars, and animal patrons of war..."⁴ In describing some of the Comanche Gap petroglyphs, she elaborates:

Over half [of the prominent shield-bearers] are decorated with sky elements such as four-pointed stars and eagle feathers and claws ... Bordering zigzags probably signify the sun's rays ... Bear paws, snakes, circles and sharp curved elements are other designs featured on shields.⁵

Other "warrior" figures at Comanche Gap have four-pointed stars in place of a more human-shaped head; they brandish weapons and display bird motifs on their chests. There

are also many four-pointed stars associated with the warriors, or depicted isolated from other figures. Some are found in association with horned serpents.⁶ Many of the shields carried by human figures possess motifs Schaafsma interprets as having sun, star and eagle attributes. Zigzag lines forming the borders of some shields may represent the sun's rays, which might allude to the myths of the Twin War Gods, who were thought to be children of the Sun, and carried sun shields. Solar iconography may also include concentric circles and eagle symbols.⁷ Schaafsma also cites Parsons as a source linking snakes to the war-imagery complex.⁸ Many of Schaafsma's comparisons draw on Hopi or Zuni sources, such as the relationship between snakes and warrior iconography in the Hopi Snake-Antelope society ceremonies. While these comparisons are informative, they must be made with reservation. In light of the presence of the Hopi-Tewa of Hano village on Hopi's First Mesa, Hopi and Zuni sources have more direct connections with the iconography of Comanche Gap than with other Rio Grande sites or with Abo.

Schaafsma's analysis of the war complex has never extended beyond the two-dimensional surface. In other words, the diagnostic symbols usually appear on the same surface or locus. Comanche Gap, in particular, has several large petroglyphs representing densely concentrated symbols whose compositions are more concise and refined than those occurring at Abo. Most of the same war-related symbols appear in the rock art of Abo, but not with the same obvious precision. They are often spread across rock faces, or across several loci. Is it possible that such symbols functioned in a linked manner, shaping the landscape into a medium of cultural expression? If elements do not appear on the same panel, do they appear in close proximity to one another? If so, this may indicate a deliberate effort to shape space in a culturally meaningful manner. To test this hypothesis, five meters was arbitrarily chosen as the proximal visual distance between loci. In the rocky and often steep terrain at Abo, this distance seemed to be the maximum distance a viewer could see to connect various loci, but this is a purely subjective supposition. To

plot the maps for this model, numerous databases were created in the same manner as the chronological material above. Database software possesses the capability to search for individual loci with certain conditions. For example, several databases were created of all loci dating to the Late Puebloan or Historic Puebloan periods and containing Schaafsma's war complex imagery such as shield bearers.⁹

Following Schaafsma's hypothesis regarding an artistic expression of the Puebloan war symbol complex, there were two conditions for this model: (1) that the locus contained at least one element catalogued by Schaafsma, such as shield bearers, round forms, masks, flying birds, snakes, zigzag lines, or four-pointed stars, and (2) that all pertinent images be dated to the Pueblo IV or Pueblo V periods. Each element was mapped separately using the databases created in DBase then converted in EPPL. All elements were mapped using the arroyos as a general reference. The arroyos serve a key role in all of the models.

The third model involved the consideration of whether directional orientation was linked to iconography in a particular period. For this model, the following conditions were established: (1) only loci from the west site were considered, (2) only Early Puebloan period panels were included, and (3) all rock art elements were analyzed. The west site was chosen because all the loci coordinates were mapped by GPS rather than created by artificial means. A greater variety of elements also appear on this part of the site. The Early Puebloan period was chosen as a parameter because no other period provided enough data for a comparison. Only twenty-two panels fit the criteria, so the sample size was again small. Ten panels faced skyward while twelve were oriented to every direction on the compass. For the Late Puebloan panels, very few faced upward while the vast majority faced varying directions. Once narrowed to a smaller database, two subsets of data were distinguished by directional orientation. Two databases were created for EPPL analysis.¹⁰ Panels oriented to the sky were considered as the first

group; all other panels were a second group. Again, the arroyos were considered a key element in this model because the artists seem to have distinguished between intended audiences.

Assumptions and Limitations

To develop the models, certain assumptions and limitations had to be made. The models assume that the arroyos were a focus for travel, therefore roads may have existed along the banks of Abo Wash, Arroyo Espinoso and Canyon Saladito (map 1). Virtually all rock art sites reported in the pass by various field workers are located along the length of these three drainages. A question to be asked in future research is why more rock art exists in the Canyon Saladito and Arroyo Espinoso than along Abo Wash.

Several limitations must also be acknowledged for these models. The first is the size of the site recorded for the current study. In response to legal and logistical constraints, the 1994 field work was confined to the arbitrary boundaries of the Abo Unit of the Salinas Pueblo Missions National Monument. Rock art was clearly visible on the talus slope boulders located on private land beyond the western border of the Abo Unit. Rock art, primarily petroglyphs, has also been reported at thirty-four other locations in the Abo Pass region. The rock art recorded for this study is estimated to be approximately one-tenth of the total. Therefore, any conclusions stated in this dissertation must be considered tentative due to the small sample size, statistically speaking, and are subject to revision once more rock art has been recorded and analyzed.

Due to the intimate scale of this study, certain factors have already been determined, whereas at a regional scale there would have been more variables. For instance, virtually all of Abo's rock art faces towards either Arroyo Espinoso or Abo Wash, hence towards hypothetical roads. A physical reason for such a phenomenon is that the best suitable rock surfaces in this geographic area are located on bedrock exposed by

arroyos. A cultural reason may have also existed for the connection between the rock art and the arroyos, such as the use of images to define frontiers or boundaries.

Chronological Model

The first model prioritizes only one parameter: chronology. Six chronological maps were created, plotting loci dated stylistically as discussed in Chapter 5. They are the Archaic, Early Puebloan, Late Puebloan, Late or Historic Puebloan, Historic Puebloan, and Historic Athapaskan periods. Each will be analyzed individually before comparisons are made.

Only eight loci are dated to the Archaic period (map 8). They are widely scattered, with three located on the north site, one in the west, and four between the two shelters of the south site. The primary reason there are so few loci is due to the problems of dating petroglyphs. As discussed in Chapter 5, it is difficult to ascertain whether a geometric style petroglyph was created by Archaic, Puebloan, or Athapaskan artists; therefore they were not included in the database for the Archaic map. Without exception, all eight loci contain geometric-style petroglyphs usually consisting of rectilinear or curvilinear meanders, enhanced pits or cupules, circles and disks.

As discussed in Chapter 3 herein, Baldwin speculated that Archaic peoples may have visited the Abo Pass for two reasons: (1) the convenience of inter-regional travel and (2) the reliable spring located 2.75 miles west-southwest of the current boundaries of the Abo Unit. Just over half of Abo's Archaic loci are found between the shelters in a dry stream bed that contains flowing water only during periods of heavy rain or snowmelt. This ephemeral water course opens onto Abo Wash so that the rock art faces the perennial stream and hypothetical road possibly used by Archaic hunters and gatherers.

Considerably more loci date from the Early Puebloan period (map 9). According to Ivey and Baldwin, Pueblo people began building at Abo during the Pueblo III--what is

referred to herein as Early Puebloan--period.¹¹ More people living in the pass meant greater opportunities to create rock art for myriad purposes and functions.

The rock art panels dated to this period are evenly spread throughout the site, but do occur in slightly higher concentrations on the west and south sites. Two physical factors may account for this: (1) visibility to and from the roadways along the arroyos and (2) exposure of large, smooth rock surfaces. Exclusively petroglyphs, the images on the west and south sites include paw prints of various shapes, bird tracks, dot-style masks/faces, and many unidentifiable or indescribable forms. The cluster of loci on the west site are focused along an exposure of enormous vertical cylindroid boulders breaking away from a bedrock layer of Abo Sandstone. A wide variety of petroglyphs occur on both the stream and top faces of these boulders; thus, they face the sky as often as the arroyo. The large cluster on the south site occurs between the two shelters in the same dry stream bed as the Archaic figures. Reasons for this association could include: (1) the availability of smooth rock surfaces, (2) the suitability of the surface combined with the directional orientation, (3) the association with water, at least on occasion, or (4) a continuation of an esoteric tradition unfathomable to modern thought. There is a concentration of Early Puebloan panels on the north site in locus BY, but they are scattered along the bedrock face rather than occurring in significant clusters. Interspersed with these panels are a roughly equal number of Late Puebloan panels, although the two styles are freely intermingled. The iconography is similar to that discussed on the west and south sites. The more rapid accumulation of rock art during the Early Puebloan period seems to indicate that Abo changed from an Archaic place to a center.

The Late Puebloan period was a time of great construction and expansion at Abo Pueblo, which is taken to reflect a growth in population and perhaps also in trade. Not surprisingly, the majority of rock art panels are dated to this period (maps 10-11). However, as was discussed in Chapter 5 above, it is difficult to separate pre-contact from

post-contact figures in the Late Puebloan style, particularly in the pictographs (map 11). There is a large concentration of Late Puebloan loci on the north site, which would have been easily visible from the pueblo, while the other loci are widely scattered down the west site and throughout the southern shelters. The mask site, located across the Arroyo Espinoso due west of the north site, is also dated to the Late Puebloan period. The shallow cave at this site contains the only pictograph outside the shelters on the south site. All of the remaining mapped loci on the west bank of Arroyo Espinoso within the park boundaries are petroglyphs also dated to the Late Puebloan period. The continuing accumulation of images during this period indicates that Abo remains a center, at least in the microcosm.

As detailed and visually interesting as the Late Puebloan images are, some figures categorized within this style appear more historical in nature. Several panels in both shelters contain elaborately painted, detailed images which could date either before or after European contact. Without empirical data, it is currently impossible to be more specific about the chronology of these images. Some of the pictographs are easily visible from the arroyo banks, while others are carefully hidden (figs. 39, 54). This attribute of visibility seems to be a factor in the function of the rock art and the site, as will be discussed below.

An ephemeral Pueblo presence in the Abo area during the eighteenth and early nineteenth centuries is supported by potsherds found by Toulouse. Spanish documents also record the assignment of Pueblo military auxiliaries to Quarai to patrol the entire Abo pass region during the early 1750s. There is a probability that these Pueblo warriors used the ancient roads along the arroyo banks and camped in the abandoned village, leaving the sherds Toulouse reported from his 1940 excavations.¹² After 1819, shepherds working for Bartolome Baca may have also encamped in the ruins and created rock art on nearby boulders.¹³

There are only nine clearly dated Historic Puebloan panels at Abo (map 12). These few panels are evenly divided between the north site, particularly the BY locus, and the south site, including two petroglyph and two pictograph panels (figs. 23, 61). Although few in number, these images pose very interesting questions. For example, locus ET4 is dated to the Historic Period due to the depiction of an apparently European-style saber painted with the same pigment as the shield bearer to the left (fig. 61). This particular panel is easily visible from the banks of the Abo Wash where the aboriginal route is presumed to lie. But not all of the images are so easily visible because they are either turned away from the road, such as those at locus DK, or they are very small scale, such as those at locus DX (fig. 23). Their subject matter also differs. Both pictographs from DX and ET4 are related to warrior iconography, as discussed in Chapter 5, but the loci visible from the Arroyo Espinoso have a very different content. The iconography of the images at locus AL on the west site and the BY panels of the north site seems more metaphorical, not quite so clearly connected to war as are shield bearers, swords and red-bodied figures wearing arrow points. Locus AL displays what is clearly a flying eagle in the upper portion of a tall, narrow panel. Below is an unmistakable rendering of a rattlesnake, complete with triangular head, forked tongue and enlarged rattles. A small, simple circle near the right center edge completes the composition. This panel is dated to the Historic Period because of the lack of patina on the petroglyphs and the more refined draftsmanship. Schaafsma has clearly linked eagles and rattlesnakes to the Pueblo war complex, but these particular images could just as easily represent completely different concepts; ethnographic context is crucial to making any distinction. The BY panels contain an enormous variety of images, including paw prints, quadrupeds, one split-hoofed bovine, and a possible rider mounted on a fantastic creature. None of these images are easily interpreted, but their haphazard composition appears to be an accretion of images over time, suggesting highly idiosyncratic content and function. Such change in

iconography between the sites may be explained by different functions or audiences.

Panels located on the south site face foreign travelers and invaders who may have entered the region along the east-west route, whereas the north-south arroyos may have supported less foreign and more local traffic; therefore the rock art may have served a different audience. A dual function could be hypothesized for some of these panels. The more private panels may have been created for many purposes, including continuing to indicate that Abo is still an important center, but the more public panels may have been intended to serve as boundary markers. There is the intriguing possibility that there may be a link between the eighteenth century Pueblo warriors and the pictographs of shield bearers and weapons clearly visible to travelers on the banks of the Abo Wash. However, it is far too early, and the database is too small, to draw any substantive conclusions.

Some of the foreign travelers along the arroyos would have been Athapaskan or other Plains dwellers who also left their marks on the landscape. As many as fifteen panels in the southern shelters contain possible Athapaskan, or at least non-Puebloan, paintings (map 13). However, as with the Archaic period, this rock art is difficult to definitively identify and date. So the sparsity of mapped loci reflects more the difficulties of relative dating than a lack of Athapaskan participation in the creation of rock art. All the loci plotted on map 13 are found in the two shelters of the south site and consist entirely of pictographs. However, as was pointed out in Chapter 5, these images often occur on or near Late Puebloan images, suggesting an aggressive relationship between the two artistic traditions. As the Athapaskan images often superimpose or juxtapose Puebloan images, this may be a case of co-opting the site or the power of the earlier paintings for political and/or religious reasons. Such a relationship may indicate that both cultures were using these images to mark a cultural boundary on the landscape.

When selected periods are plotted on the same map, interesting clusters appear (map 14). Most of the later rock art loci cluster on the north and south sites. One faces

the pueblo; the other is oriented towards the east-west road possibly used by both local and foreign traffic. Another possible explanation for clusters in these two regions could be phenomenal attributes. Both the north and south sites possess several of the attributes that Steinbring considers equal in importance to iconography in rock art. Both are prominent rock surfaces, and each contains shelters. Both sites are associated with environmental extremes, facing onto perennial streams in an otherwise arid environment. Both places are higher than surrounding surfaces and seek visibility, both away from and towards their exposures. This would coincide with modern Pueblo thought related by Ortiz regarding native emphasis on high and visible places.

In addition to the iconography, such visibility may also be a clue to the role of rock art in shaping landscape. There may be a link between iconography, medium and visibility which may indicate the function of certain images. As was briefly discussed in Chapter 4, some panels seem to have been created with the intent of being visible to passersby, while others are quite hidden. Brody has suggested that there may be a discernable difference between the paintings usually being more public, while the petroglyphs are commonly invisible at a distance and, therefore, perhaps created for more private reasons. It is true that on the south site, the images most visible from the arroyo are the pictographs, but this does not hold true for any other site. On the north and west sites, it is the rock carvings that seek visibility. It is here suggested that different iconography and media served the same functions at different times. Any links between iconography, medium and function must be further explored in future research.

Any conclusions stated here must remain tentative until more information is available, but certain important ideas may guide future research. A better means of identifying and dating Archaic rock art needs to be found before any substantive conclusions can be made. The accretive, Early Puebloan compositions suggest idiosyncratic content and function. Late Puebloan figures, as well as those that are

Historic, tend to be quite visible to passersby or carefully hidden, suggesting completely different functions for images at these places in the landscape. There may be a connection between the late war images and the Pueblo auxiliaries, as will be discussed in further detail below. It is also significant that the later rock art seeks visibility, either from the pueblo or from east-west travelers through the pass.

Iconographic Model

The second model has two parameters: (1) chronology, Late Puebloan in this instance, and (2) iconography, specifically those elements catalogued by Schaafsma as the Pueblo war complex. As for the chronological model discussed above, separate databases and map layers were created to test Schaafsma's hypothesis regarding war-related symbols forming an iconographic complex. Each element was mapped separately, using the databases created in DBase then converted in EPPL. Each element was then mapped in layers over the site, using the arroyos for reference. In the final map, it becomes obvious that these elements cluster at certain key points on the landscape (map 15), suggesting some support for Schaafsma's hypothesis. There are clusters at the BY, DS, and ET loci. The BY panels display masks, birds, and four-pointed stars, but not the entire war-related complex. Later images include snake-like meanders and shield bearers juxtaposed near the Late Puebloan panels mapped at this site.

The other two loci occur in the shelters of the south site. Most of the motifs, such as birds, four-pointed stars, round forms, and masks, appear throughout the panels of loci DS and ET, although only the eastern shelter contains a shield-bearing figure. There are a number of shield bearers at locus DY3, which could be either Puebloan or Athapaskan in origin. None of the panels, nor the entire south site, portray images of the same density of symbols as seen in the Comanche Gap examples cited by Schaafsma. The association of key motifs here at Abo seems looser, more informal, perhaps indicating an accretive

process in which many artists over time added the disparate elements, in contrast to the petroglyphs of Comanche Gap that appear to be the work of a single artist.

The significant clusters in the shelters of the south site are hardly surprising, since it is probably these pictographs and locus M that inspired Schaafsma to include this site in her description of a war complex manifest throughout Late Pueblo rock art. Many of the paintings in the shelters plotted on map 15 are undoubtedly Pueblo in origin, while others may be Athapaskan, including shield bearers, the element most logically associated with the so-called war complex. As suggested in Chapter 5, these particular panels may represent a case in which Pueblo and Athapaskan artists are deliberately superimposing or juxtaposing paintings for various reasons. These reasons may include a cultural notion that paintings incorporate power. Therefore, to add or overlay a painting is to absorb or steal that power. Such an assumption can only be substantiated in an ethnographic context. What the geographic information systems analysis has highlighted is that the majority of these paintings group together and face the largest water course through Abo Pass on the banks of which may have been an ancient road. Therefore, these surfaces may have been chosen for paintings to inform travelers of those people living in or claiming the pass as cultural property. The reader is reminded of the Pueblo military auxiliaries posted in the pass during the mid-eighteenth century. These men would have had specific reasons to warn enemies away and to stake a claim to both political and spiritual power within an area they probably regarded as ancestral land. Rock art may have been used here to define a cultural boundary or to claim cultural ownership, either of which was recorded in Spanish documents as being contested between at least two different groups of people.

Directional Model

The third model employs three parameters: (1) chronology, (2) iconography, and (3) directional orientation. For this analysis, Early Puebloan panels on the west site were selected as the test data. The Early Puebloan period was chosen because of the existing

distribution of panels facing both skyward and to all directions. Late Puebloan panels are more unevenly distributed, with only four facing upward, and twenty-four oriented to other directions. The west site was chosen to avoid panels assigned approximate coordinates. To reduce the number of variables, only two orientations were considered: up, and outward in all directions. In a query of the master database, only twenty-two panels on the west site were dated as Early Puebloan. No doubt more images dating from this period exist on the west site but are intermingled with Late Puebloan figure to such a degree that to include them would have promoted too many inaccuracies. Of these twenty-two panels, ten faced upward, while the remaining twelve were oriented outward to various directions (maps 16-17). Since all of the visual elements were considered in this model, the final stage of the analysis was a comparison of top versus directional panels to discern differences in iconography. The following are the results:

Question 1: What motifs appear only on top but not on panels facing other directions?

<u>Element</u>	<u>Loci</u>
Flying Bird	AJ
Sectioned Circle	DE
Joined Circles	AI, BK3
Disk with Rays	AH
Deerprints	AH
Rectangle	AG1

Question 2: What motifs appear on panels facing all directions but the zenith?

<u>Element</u>	<u>Loci</u>
Partial Standing Bird	AV
Simple Circle	AV
Circle with Dot Center	Q
Circle with Interior Elements	CY2
Dragonfly	BK2
Pits	AB

Question 2: continued

<u>Element</u>	<u>Loci</u>
Handprints	Q, S3, W3, E2
Clawed Pawprint	A1
Polygon with Rays	AE5
Quadruped	F2, AV
Partial Quadruped	AV

Question 3: What motifs appear on both the tops and on panels facing other directions and in what ratio?

<u>Element</u>	<u>Top</u>	<u>Directional</u>
Arc	3	6
Birdtrack	6	2
Cross	1	1
Concentric Circle	2	4
Circle with Extensions	3	7
Simple Disk	9	19
Dots	8	4
Naturalistic Footprint	10	8
Geometric Footprint	9	8
Whole Anthropomorph	2	6
Line	1	2
Linear Area Pattern	1	3
Lizard	1	1
Flat Mask/Face	1	1
Meanders (various)	7	6
Three-toed Pawprints	6	5
Four-toed Pawprints	6	19
Pawprints with 6 or more	2	3
Pawprints with Separated Toes	6	6
Random Pecking	5	4
Rectangle	1	2
X	1	2

Although any conclusions remain tentative, several patterns are suggested.

Significant motifs on the skyward-facing panels are birdtracks and dots. There is also a depiction of a flying bird oriented upward, which does not appear in other Early Puebloan panels. It is too soon, and the motifs too few in number, to suggest any

directional pattern such as is described in Zuni cosmology. However, this pattern could guide future research when the rest of the rock art in the Abo Pass is recorded.

Analysis of the panels facing other directions yields more results. The significant motifs on these include arcs, concentric circles, circles with extensions, and simple disks--all circular motifs that, in later Puebloan art, are thought to connote celestial bodies. There is no pattern in the specific direction each element faces; instead, these motifs are oriented all around the compass. This data could also be explored more fully in the future. Other significant motifs include complete anthropomorphs, four-toed pawprints and linear area patterns such as in figure 24. Due to the tentative nature of the stylistic and chronological identifications, the data available for this model are too few to provide substantive patterns applicable to the entire region. However, this preliminary analysis has provided two significant patterns for future research.

The analytical structure is complete. First came the methodological and historical foundations, followed by the stylistic and chronological framework, which was finally crowned by the computer models described here. As was illustrated in the chronological model, rock art seems to define Abo as a center in both the Early and Late Puebloan periods. The images perhaps also serve as boundary markers during the Late Puebloan and Historic Periods, whether created by Puebloan or non-Puebloan peoples. Much work remains to be done, as will be discussed in more detail in the following chapter.

ENDNOTES

¹Crumley and Marquardt, *Regional Dynamics*, 2.

²DBase Databases Created for Chronological Model:

Archaic:	archaic.dbf
Athapaskan:	athapask.dbf
Early Puebloan:	earlypb.dbf
Historic Puebloan:	histpb.dbf
Late or Historic Puebloan:	latehist.dbf
Late Puebloan:	latepb.dbf

³Schaafsma, "Form," 261.

⁴Schaafsma, "War Imagery," 3.

⁵Schaafsma, "War Imagery," 7.

⁶Schaafsma, "War Imagery," 7a.

⁷Schaafsma, "War Imagery," 10.

⁸Schaafsma, "War Imagery," 12. She cites Elsie C. Parsons, *Pueblo Indian Religion* (Chicago: University of Chicago Press, volume 2, 1939), 622.

⁹DBase Databases Created for Iconographic Model:

Four-pointed stars:	4pt.dbf
Flying Birds:	bird.dbf
Dragonflies:	dfly.dbf
Masks:	mask.dbf
Round Forms:	rnd.dbf
Shield Bearers:	rndfig.dbf
Spirals with Ends:	snake.dbf
Meanders with Ends:	zap.dbf

¹⁰DBase Databases Created for the Directional Model:

Upward:	top.dbf
Directional:	west.dbf

¹¹Ivey, 15; Baldwin, "Tentative Occupation Sequence," 3, 7-9.

¹²Toulouse, 100.

¹³Ivey, 241.

Conclusions

What has been accomplished in the preceding chapters is only the beginning. In considering the relationship between rock art and the landscape, there are many more possibilities to explore when analyzing rock art with GIS software. Rock art is a trace on the landscape, a manifestation of a cognitive concept or template. It is the visual evidence of how the landscape was perceived, whether in marking a place, a center or a boundary; the images function in all of these roles. Place is marked by rock art to record or intensify human experience, to express a deeper meaning, but also to hold the viewer's attention. Place is a locus in space around which is focused human passion or need. Rock art is used to shape space, comparable to architecture. Rick Dingus describes the importance of line-of-sight placement of rock art sites, suggesting that such an alignment is similar to how canyons link to the river, or how nerves are connected to the spinal cord. More rock art is easily visible from Abo's west and south sites. The sites recorded for this study are only a fraction of the number reported by survey teams in the past.

Sometimes the form of the land itself will shape the art. Abo has many features that may have served as focal points in the landscape, such as the perennial spring, the arroyos and lower elevations for travel between two mountain ranges. Phenomenal attributes of the site may have increased its value to the artist. As was discussed in Chapter 6, the rock art of the later periods, particularly the historic, was intended to be highly visible, both towards and away from their exposures. This was particularly true for the south site pictographs which faced Abo Wash and Chupadera Mesa. Prominence is another attribute of certain areas of Abo. Alfonso Ortiz and M. Jane Young both wrote of the importance of high places for modern Pueblo people, a concept that may have been passed down for many centuries. The rock shelters themselves may have drawn attention, not necessarily for shelter but as semi-enclosed spaces which could serve many purposes.

The final phenomenal attribute discussed previously was that of environmental extremes. Water flows in two perennial streams whose confluence is at the southwest corner of the site. This source of water in an otherwise arid environment may have attracted people and livestock to this area for generations. Archaeologists have found evidence of both the Puebloan and the Spanish presence--probably encamped warriors and shepherds--near the water sources during the eighteenth and early nineteenth centuries.¹

Rock art is not a mute record of human passages. As Young has so eloquently described, sometimes the images are metonyms of narrative, calling to the mind of a knowledgeable person stories, myths, parables, history. This history is inscribed in space, what Lefebvre would term representational space, through the petroglyphs and pictographs. Each culture, each period, has its own unique code to inscribe upon the landscape and the rock faces. This space is a complete text in every time period; new images enrich and embellish it. They create a deeper, richer texture of visual stimuli, but also serve as symbols of oral histories to be told and retold. Their presence would indicate that this point in space had meaning, therefore functioned as a place.

Art marks place, but it can also mark a center. Any of the above-named attributes could serve to draw human attention to this area; then the process of enriching the area with tradition, history, and art would begin. Due to the intimate scale of the field work for this study, Abo has been described as a local center in later periods. But on the regional scale, this site probably functioned as an important point on a boundary. Both centers and boundaries perform similar functions as each "may aggregate, integrate, and mediate varieties of custom and opinion."² The discussion of the history and archaeology of Abo is usually focused on the regional scale, but it was necessary to focus on a smaller, community scale for the rock art. Trends predicted in the small scale may or may not play out in the regional scale; but much more work remains to be done.

Rock art can mark a place, a center or a boundary. Boundaries can be detected by the layers of markers created by different people. People living in an area know their boundaries intimately; they can point them out, describe them, perhaps even map them. However, a variety of markers are often set up to inform visitors about boundaries. Over time, these markers may accumulate in layers. This is probably what happened in the south shelters where Puebloan and non-Puebloan art superimpose one another in a presumably aggressive relationship. Rock art, then, serves as evidence of a cognitive structure involving both residents and strangers in Abo pass.

It stands to reason that this structure would change through time, a concept that was tested in the chronological model. The spatial structure did change from the Archaic times to the early nineteenth century. It was unfortunate that so few Archaic loci were useful in the model, therefore not revealing much for this earliest period. This may change when the rock art database is broadened, but the ambiguity of dates will continue to be a problem. Early Puebloan and Late Puebloan loci were spread in a general pattern over the survey area, indicating a greater presence coinciding with the population growth visible in the archaeological record. Historic panels seemed to serve many different purposes, marking both center and boundary. Many of the artists seemed to seek visibility for their work, whether from the village or from travelers. Some pictograph panels were clustered in the south shelters, facing Abo Wash and the traffic presumed to travel along its banks. While certain figures were clearly visible, others were carefully hidden. Those that could be easily seen tended to be superimposed over one another. Today, some of these panels are themselves overlaid with modern graffiti, which may indicate that Abo still serves as a point on a boundary. Such images may have been regarded as disposable to both native and non-native peoples, but the place has outlived the patronage of the original cultures, being inherited through the centuries.

Schaafsma's hypothesis that Puebloan war imagery formed a symbolic complex was supported in the iconographic model. These panels were also intended to be highly visible, both from the arroyo and the pueblo. Both Puebloan and Plains artists left their boundary marks, forming a palimpsest. Two possible explanations for such superimpositions offered in Chapter 2 were the concept of absorbing power from previous paintings and the claim of ownership, even though the original images may have been painted by another group. Both Pueblo warriors in the eighteenth century and shepherds of the early nineteenth century are known to have been present in Abo Pass. Perhaps these men created some of the rock art images. It is also possible that Pueblo people continued to visit the site well after the abandonment of the nearby village. The apparently careful beheading of the sacred clown and plumed serpent of locus DS5 is suggested as evidence for this.

The directional model indicates some trends worth pursuing in further research. Due to the small sample size, no firm conclusions can be made. However, it is interesting that a flying bird and bird tracks are significant motifs on horizontal surfaces facing the sky, while circular elements dominate the panels facing other directions. Questions concerning these observations can only be answered in further recording and analytical efforts. No connection to the Zuni world model was suggested, but these patterns deserve more thorough investigation.

The amount of data for this study was limited by the artificial boundaries of the Abo Unit of the Salinas Pueblo Missions National Monument. The data were further limited by the lack of absolute dating techniques which would have facilitated analysis of more rock art. Only fifty-seven percent of the panels were available for these particular modeling exercises; this number would increase were it possible to ascertain absolute dates for the rock art elements. More in-depth and sophisticated analytical methods should be employed in the future. For example, a potentially powerful function of GIS

software is the capability of incorporating elevation and compass data to calculate the visibility, or view shed, being utilized by the artist. Interpretation could then center on decisions as to who was the intended audience, thus providing further insight into public versus private purposes.

First and foremost, more of the rock art in the Abo Pass must be recorded. This is essential not only to build a larger database but also to accurately record what has not yet been published. Stuart Baldwin and his team are the only people to officially report much of the rock art throughout the pass, but their records are not published. In future field work, attempts should be made to continue to be as accurate as possible with the GPS coordinates and compass readings. Additional information should also be incorporated into the models, especially elevation data. The models described above are but the first steps into the larger world of rock art and GIS.

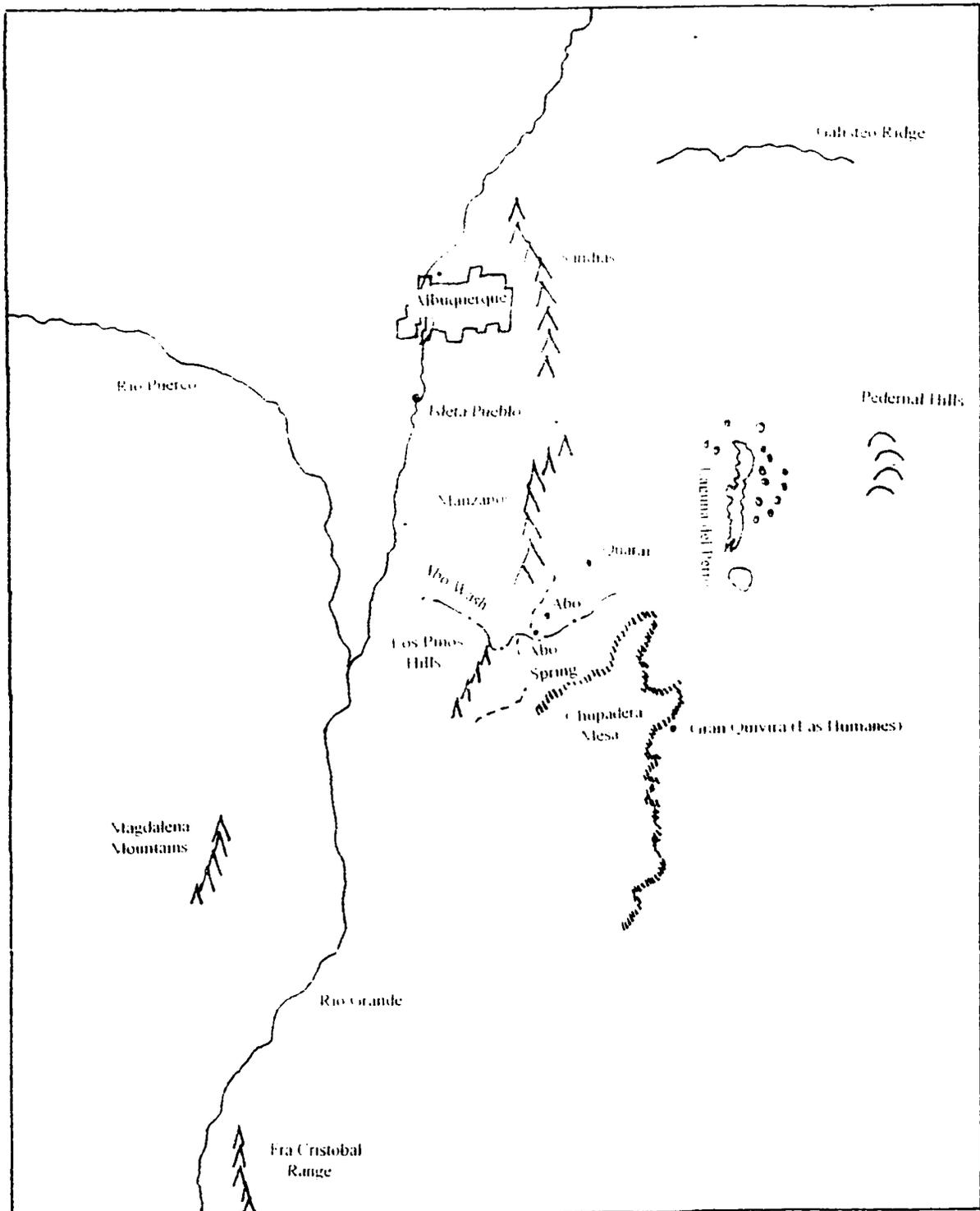
Further investigation should focus on rock art along the Canyon Saladito and Arroyo Espinoso, as well as around the Abo Spring west-southwest of the current site. A trend detected in the small sample size for the iconographic model was that clearer war imagery faced the east-west route along the Abo Wash, while those images on Arroyo Espinoso tended to be more esoteric, except where facing the pueblo ruins. A larger issue to address would be why more rock art sites exist along the north-south drainages than along Abo Wash.

Time is also of the essence, as some of the more accessible panels are steadily being vandalized. Several instances of deliberate defacing were recorded during the field work in 1994, and such destruction has continued relentlessly despite the National Park Service's best efforts. All information available from this research will be shared with the scholarly and native communities in ongoing public education. Only such efforts can stem the tide of vandalism that threatens these rock art sites.

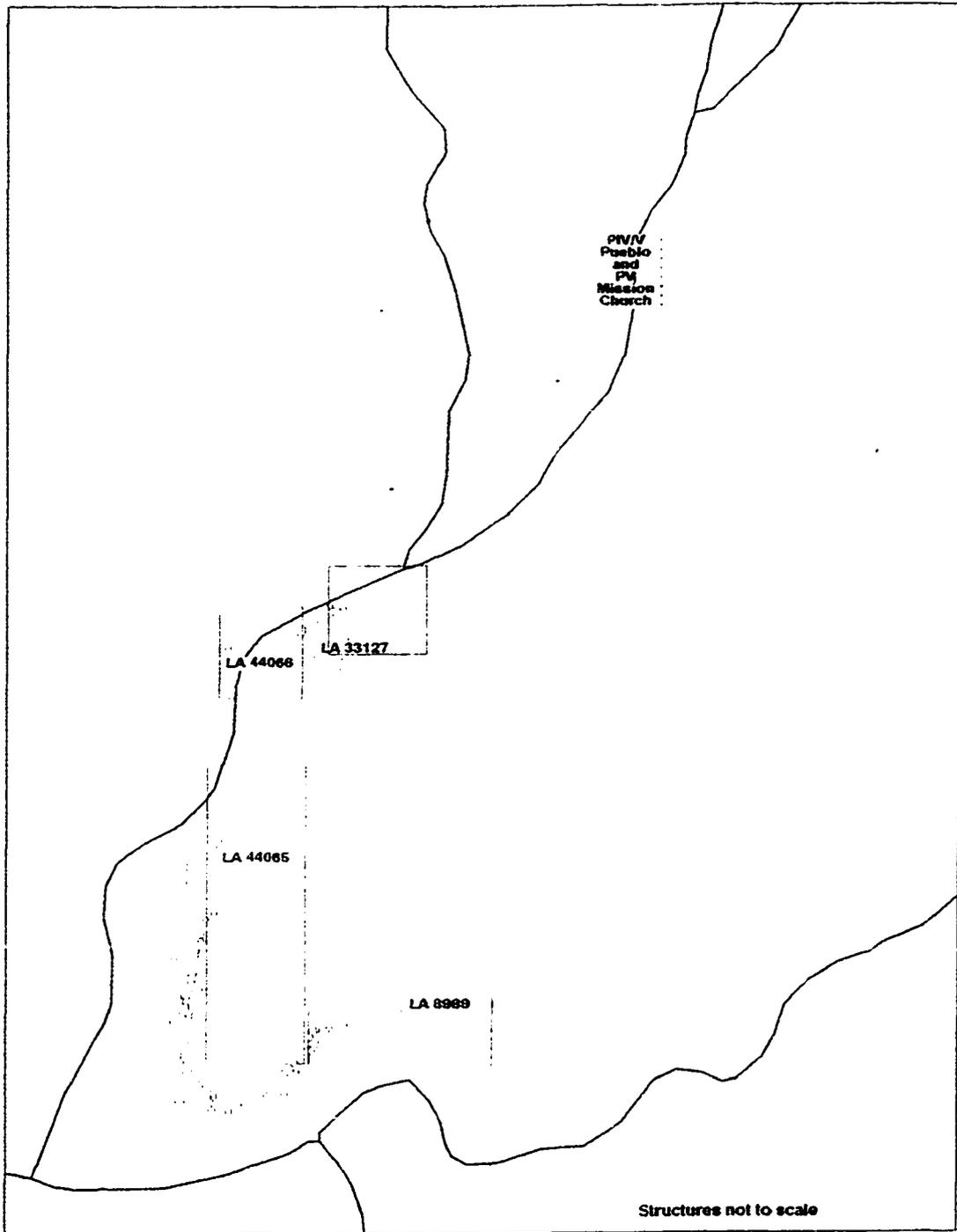
ENDNOTES

¹Ivey, 241; Tainter and Levine, 111.

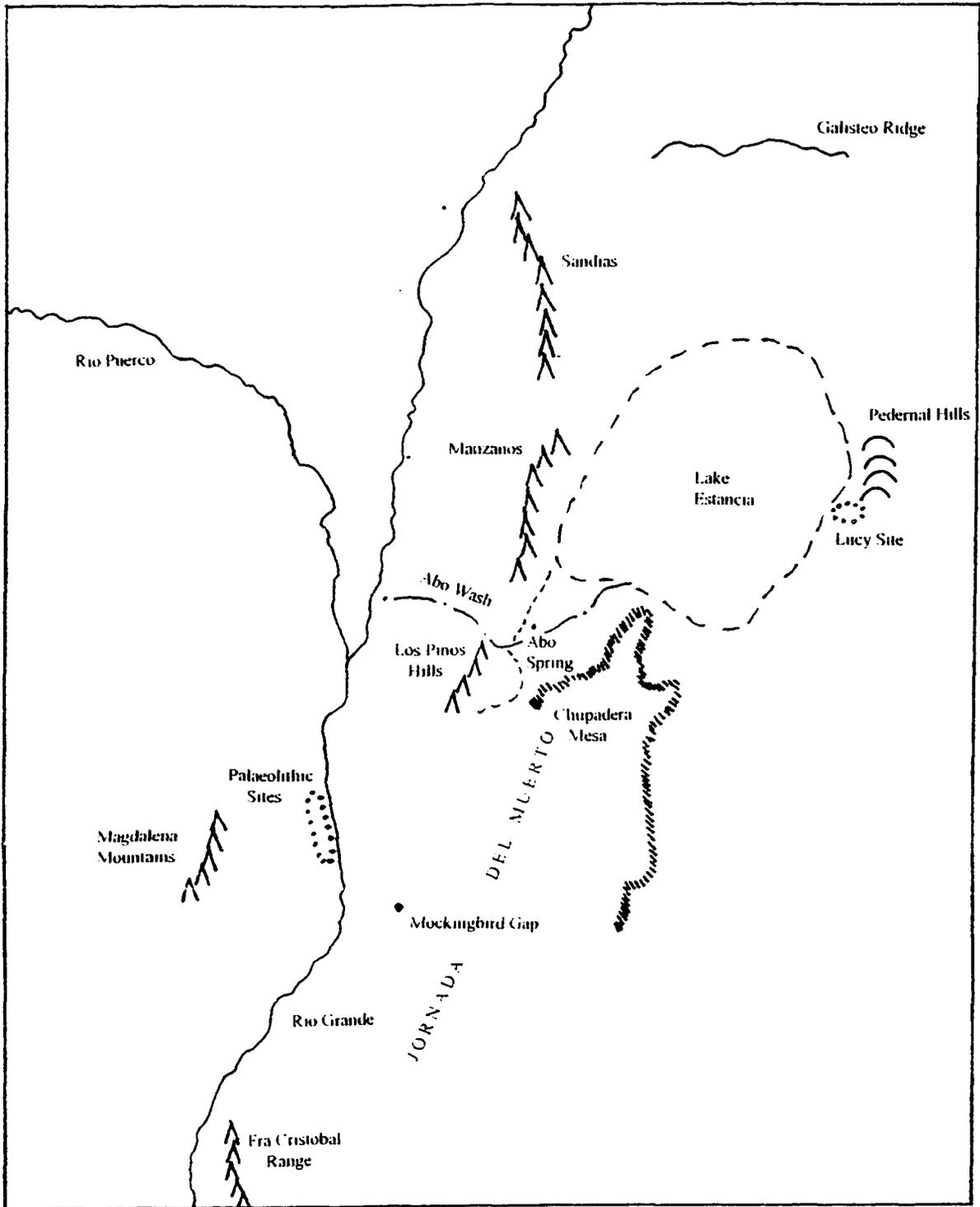
²Crumley and Marquardt, *Regional Dynamics*, 13.



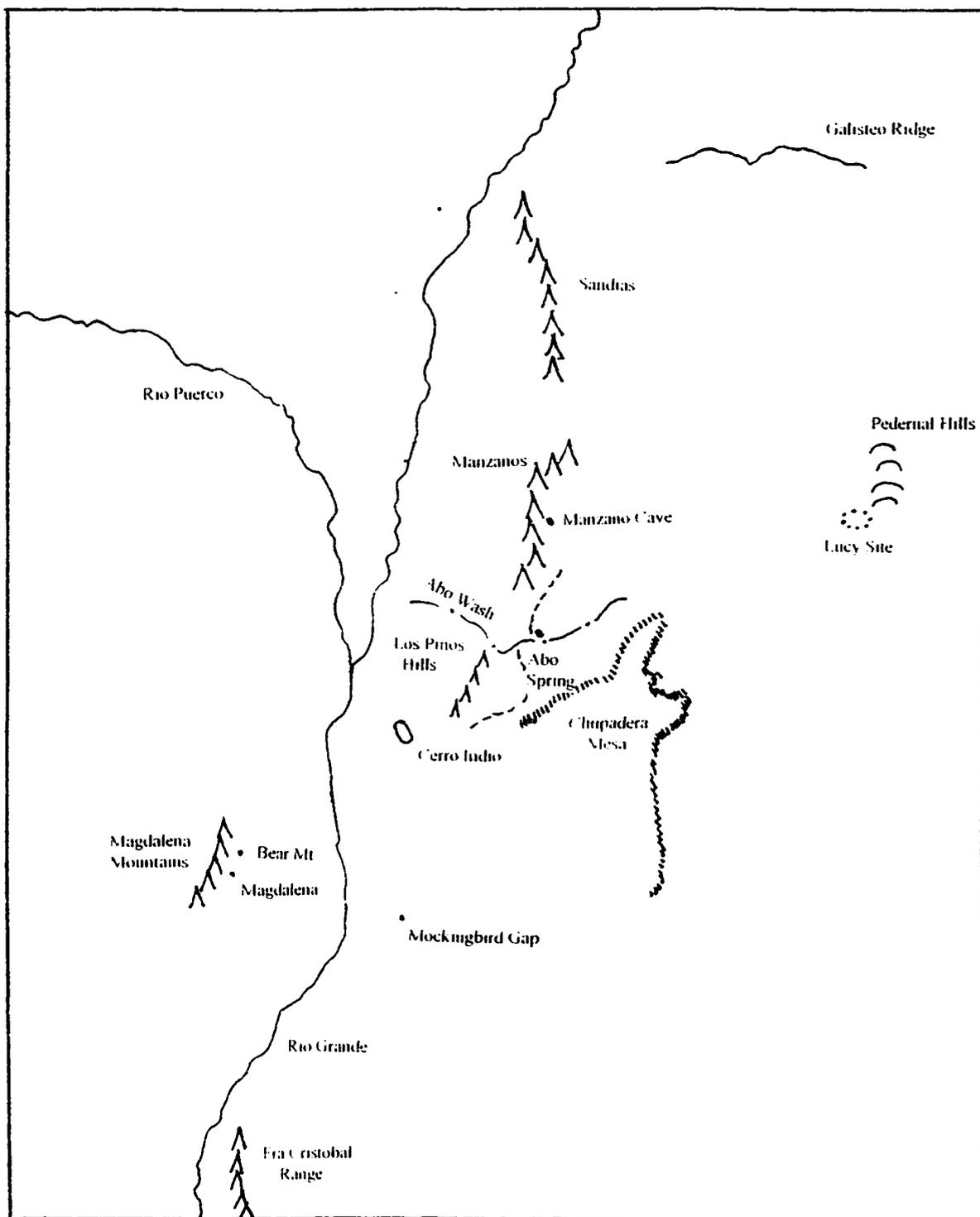
Map 1. Abo Pueblo and Vicinity



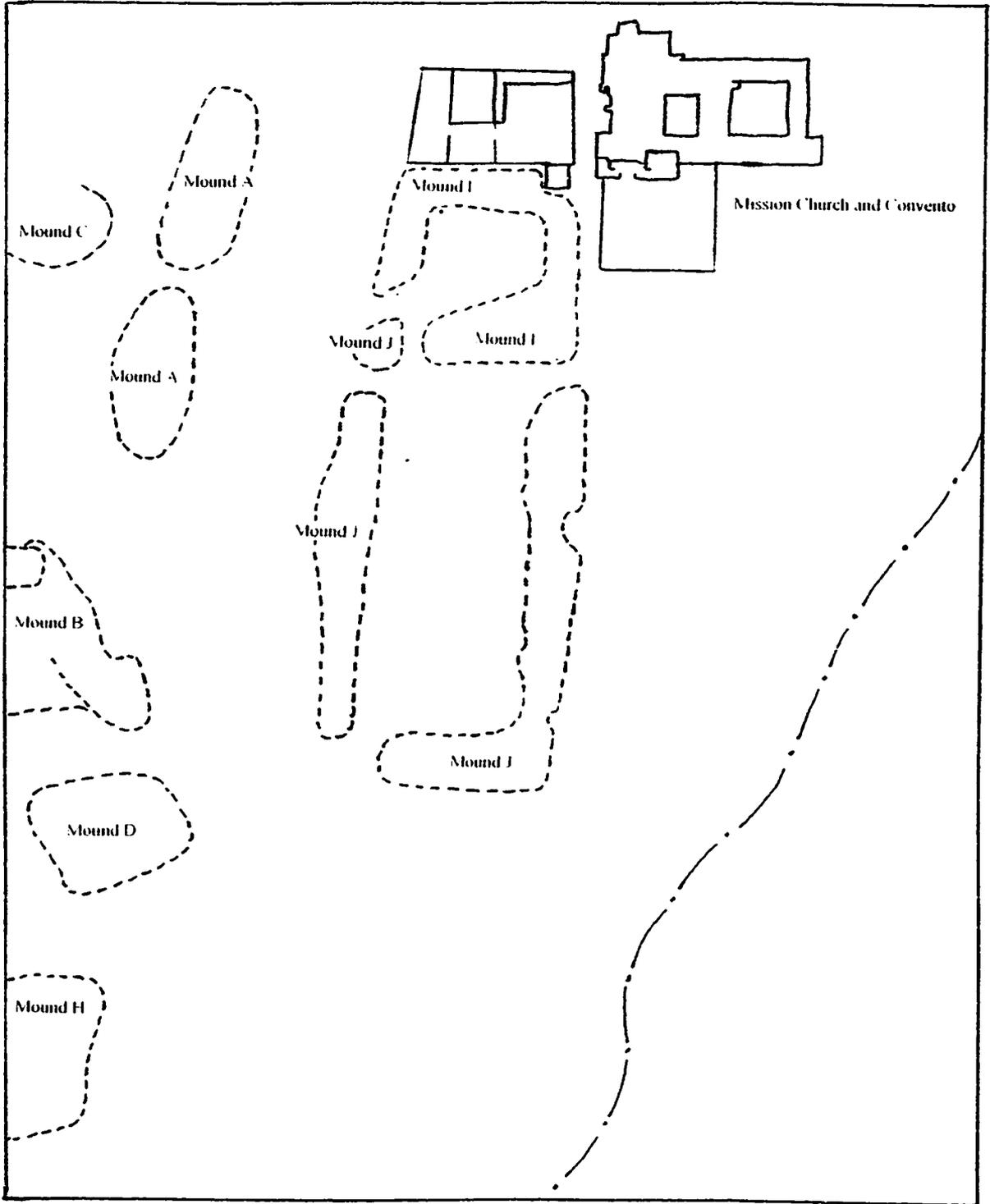
Map 2. All Loci Recorded at Abo Pueblo



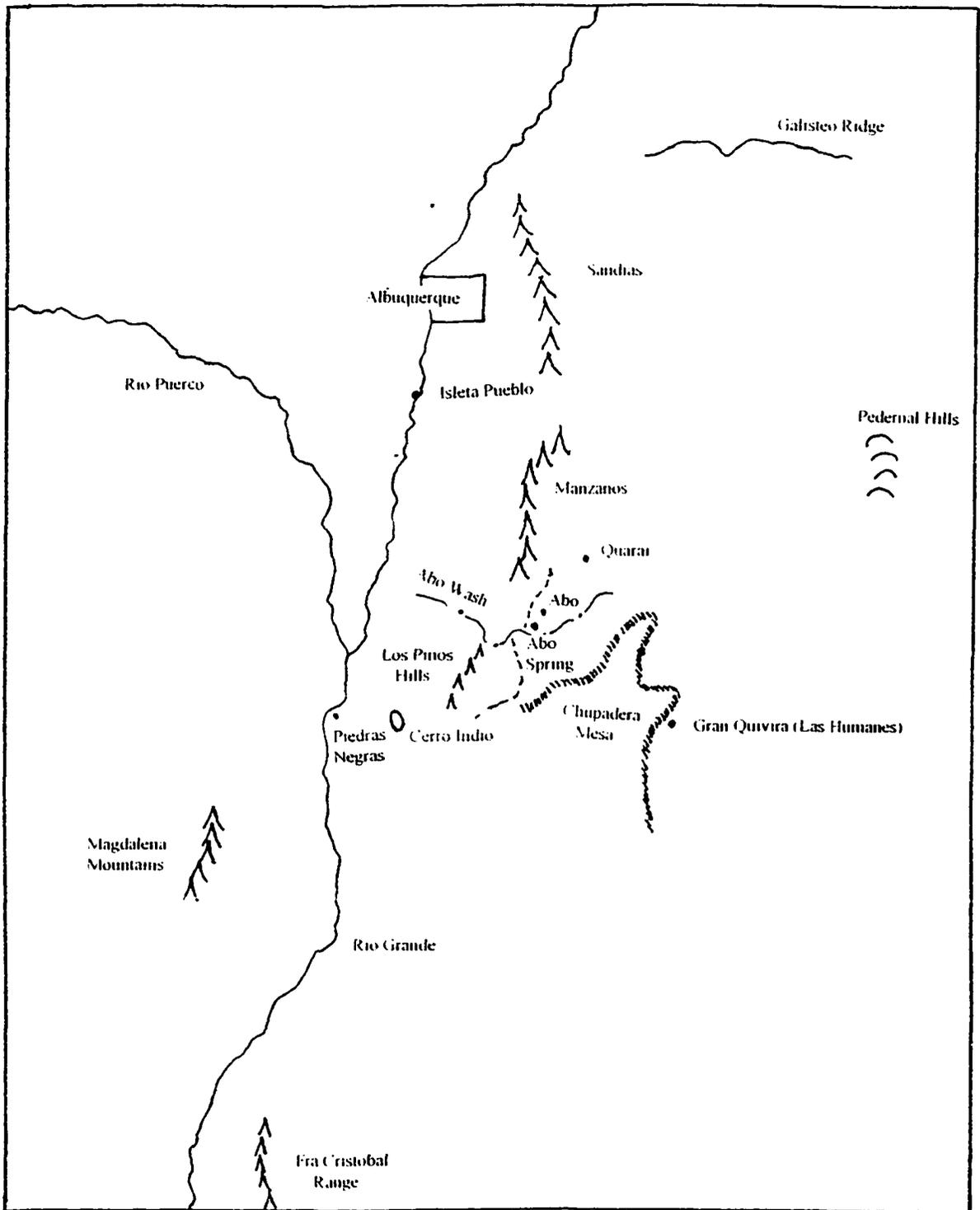
Map 3. PaleoIndian Sites (after Lyons)



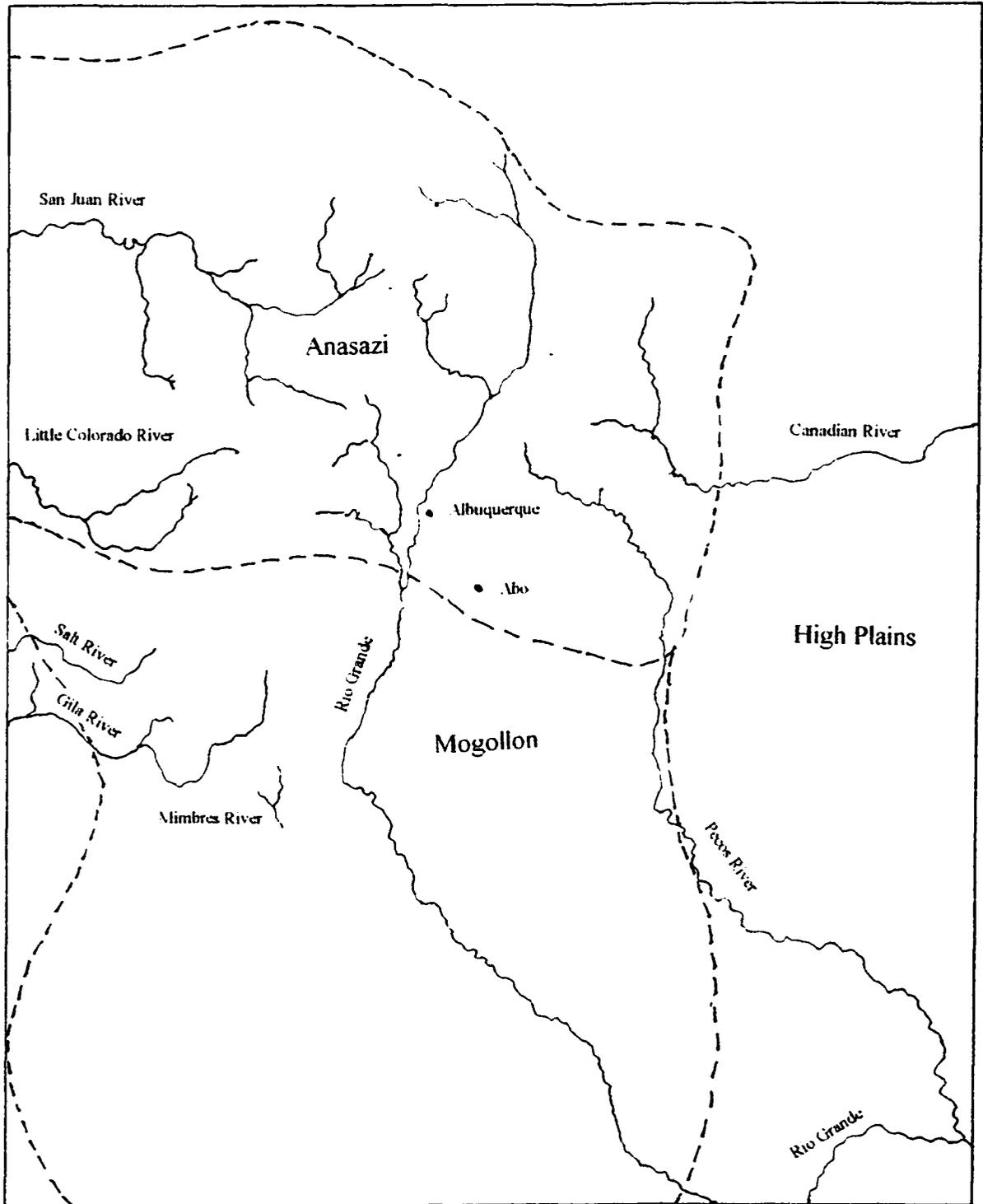
Map 4. Archaic Sites (after Marshall and Walt: 141)



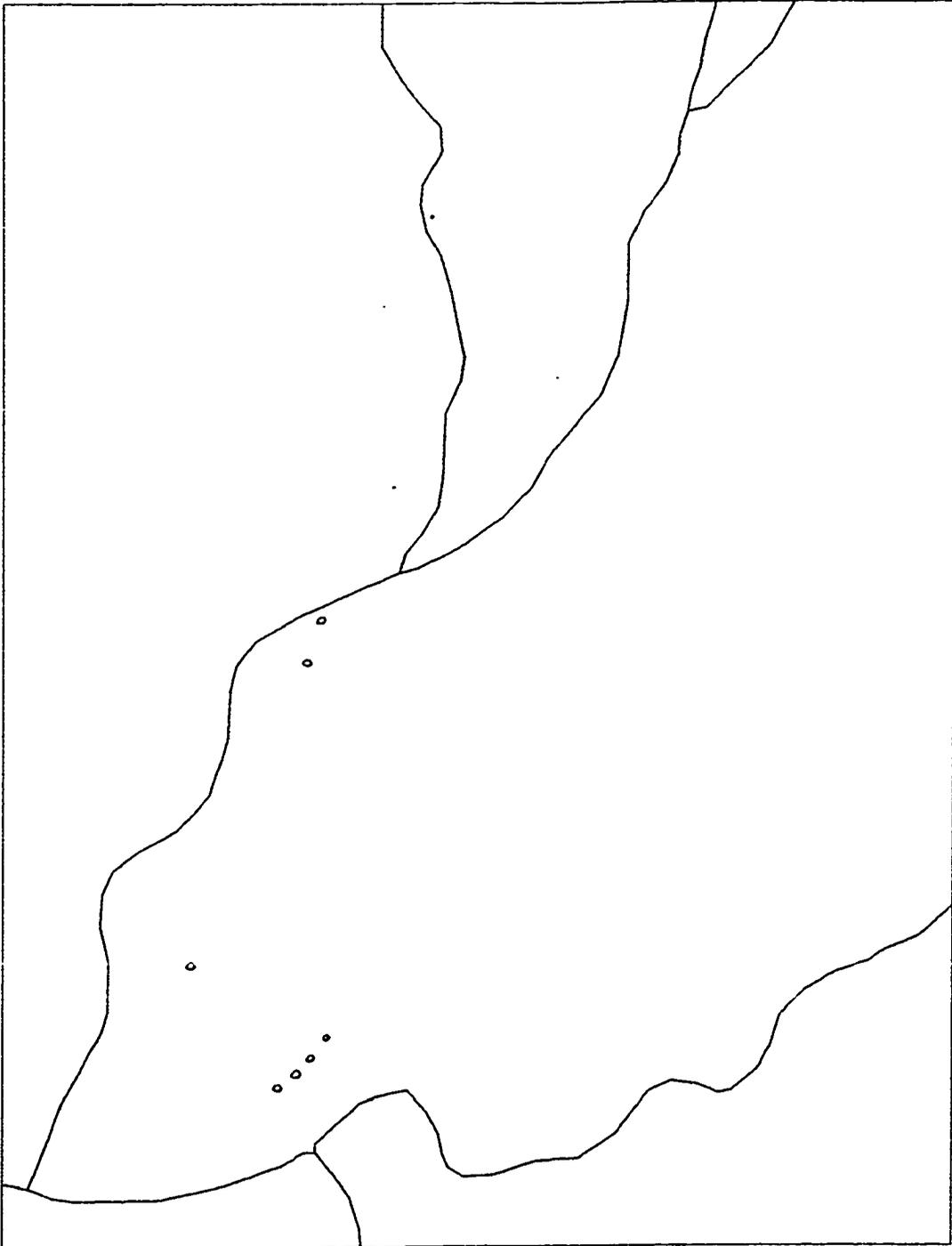
Map 5. Plan of Abo Pueblo and Mission Church (after Ivey)



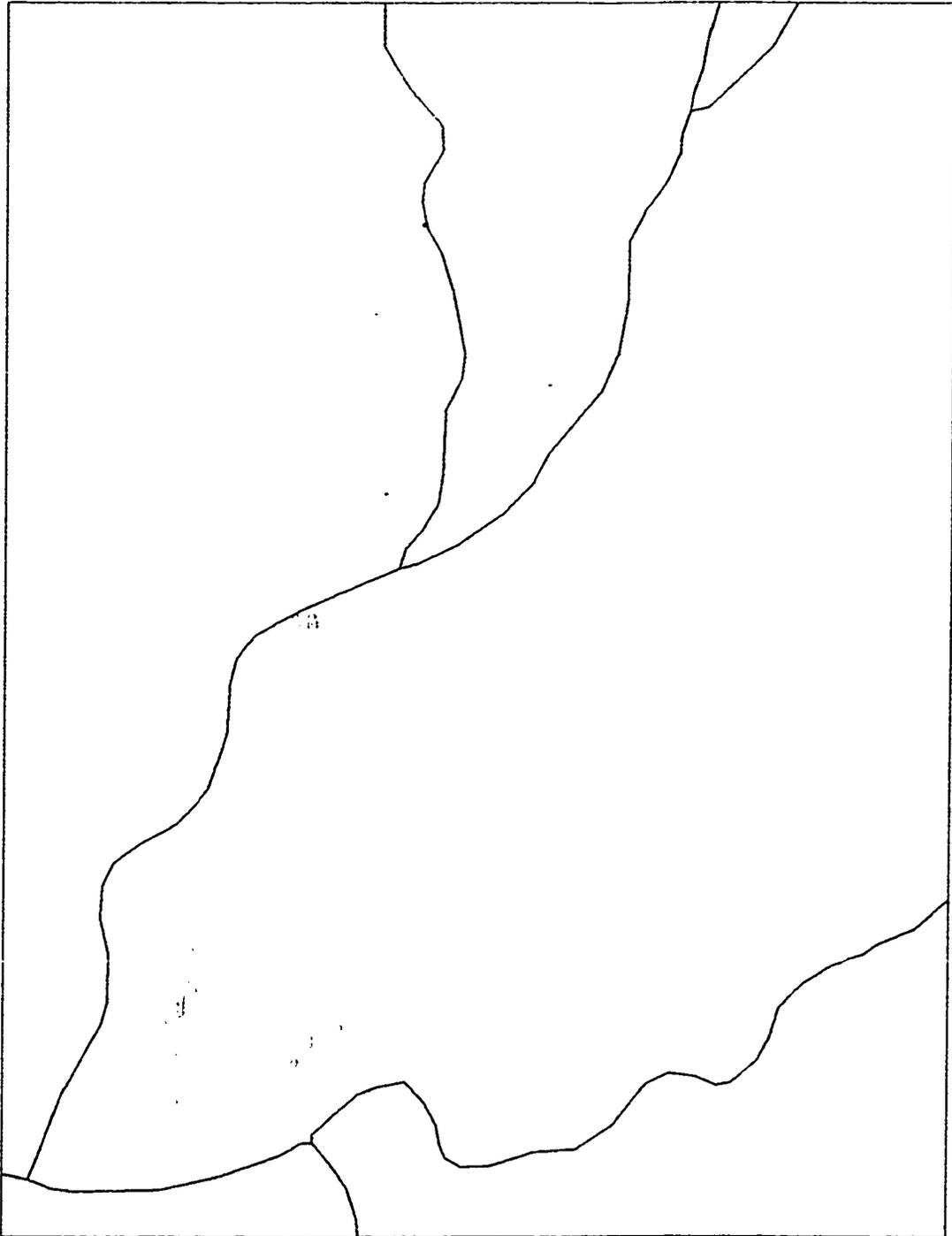
Map 6. Historic Settlements (after Marshall and Walt)



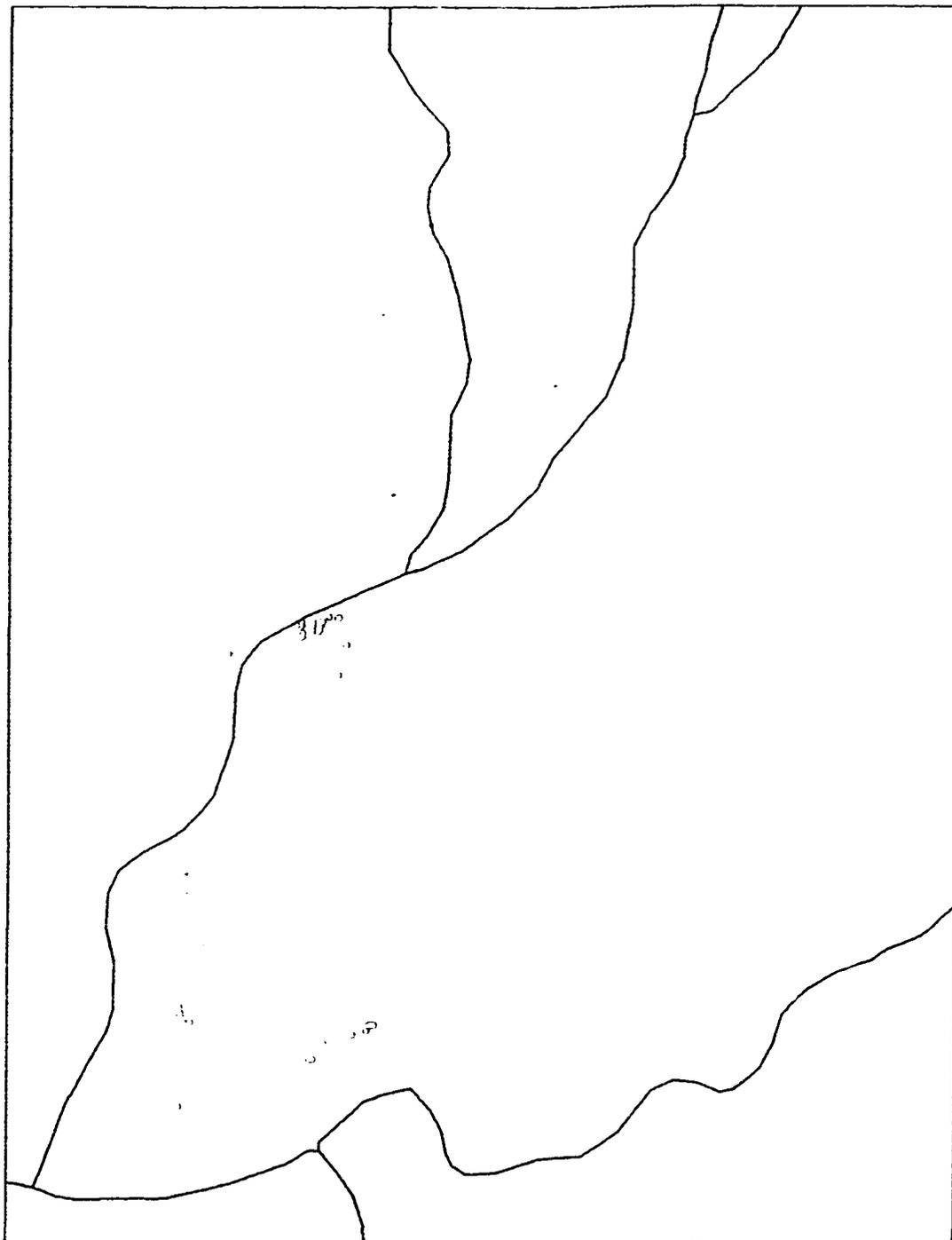
Map 7. Anasazi and Mogollon Culture Areas (after Cordell)



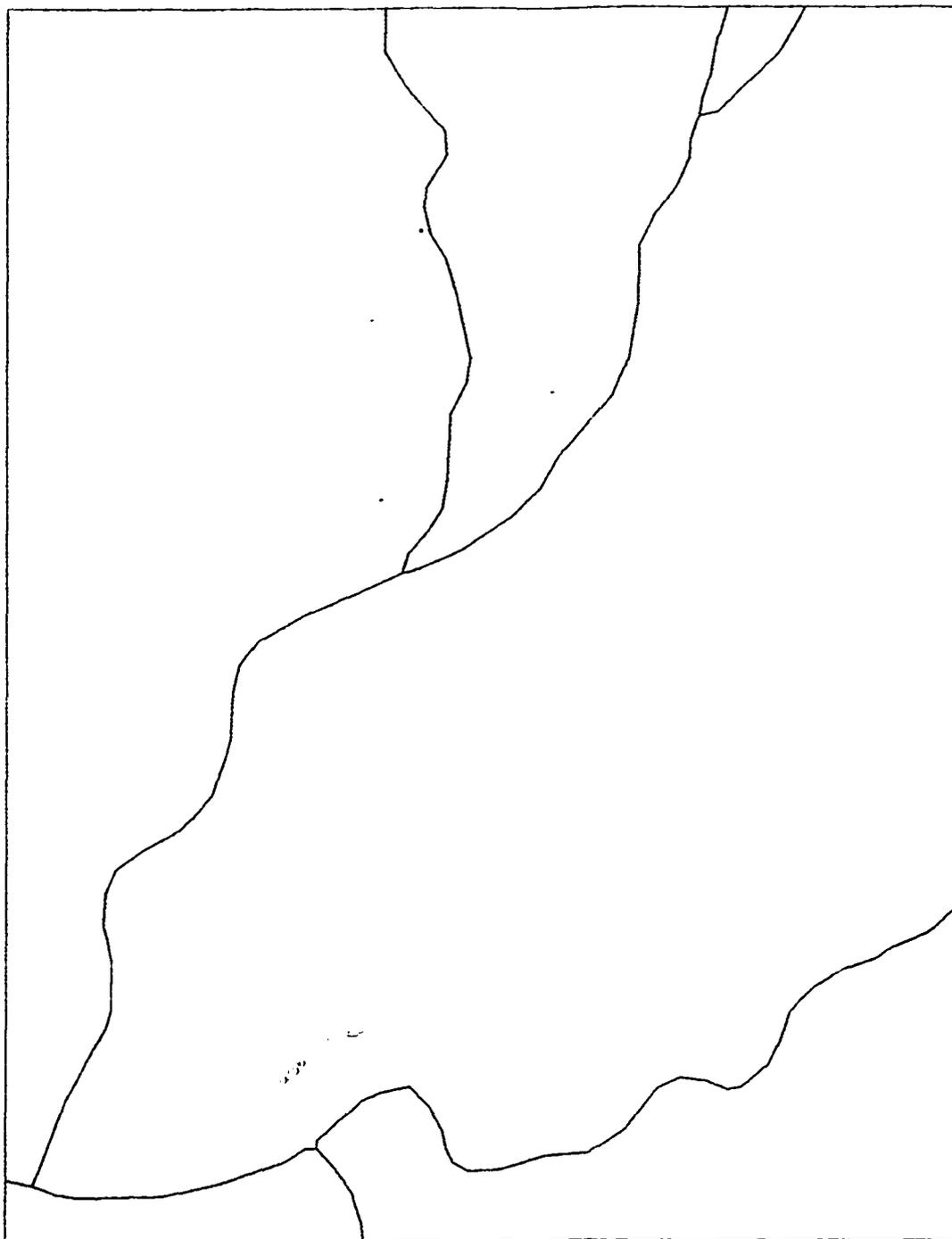
Map 8. Archaic Rock Art Loci



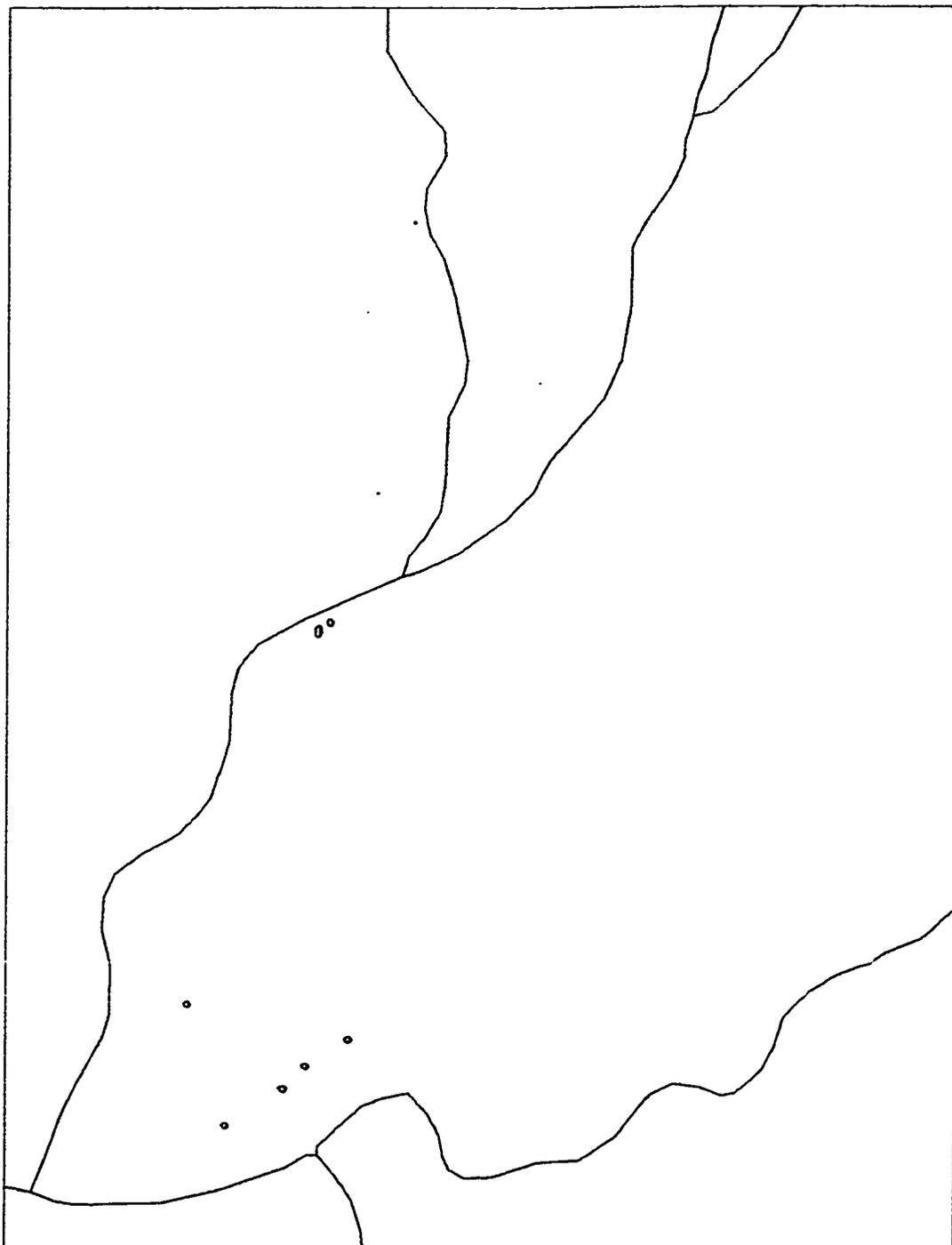
Map 9. Early Puebloan Rock Art Loci



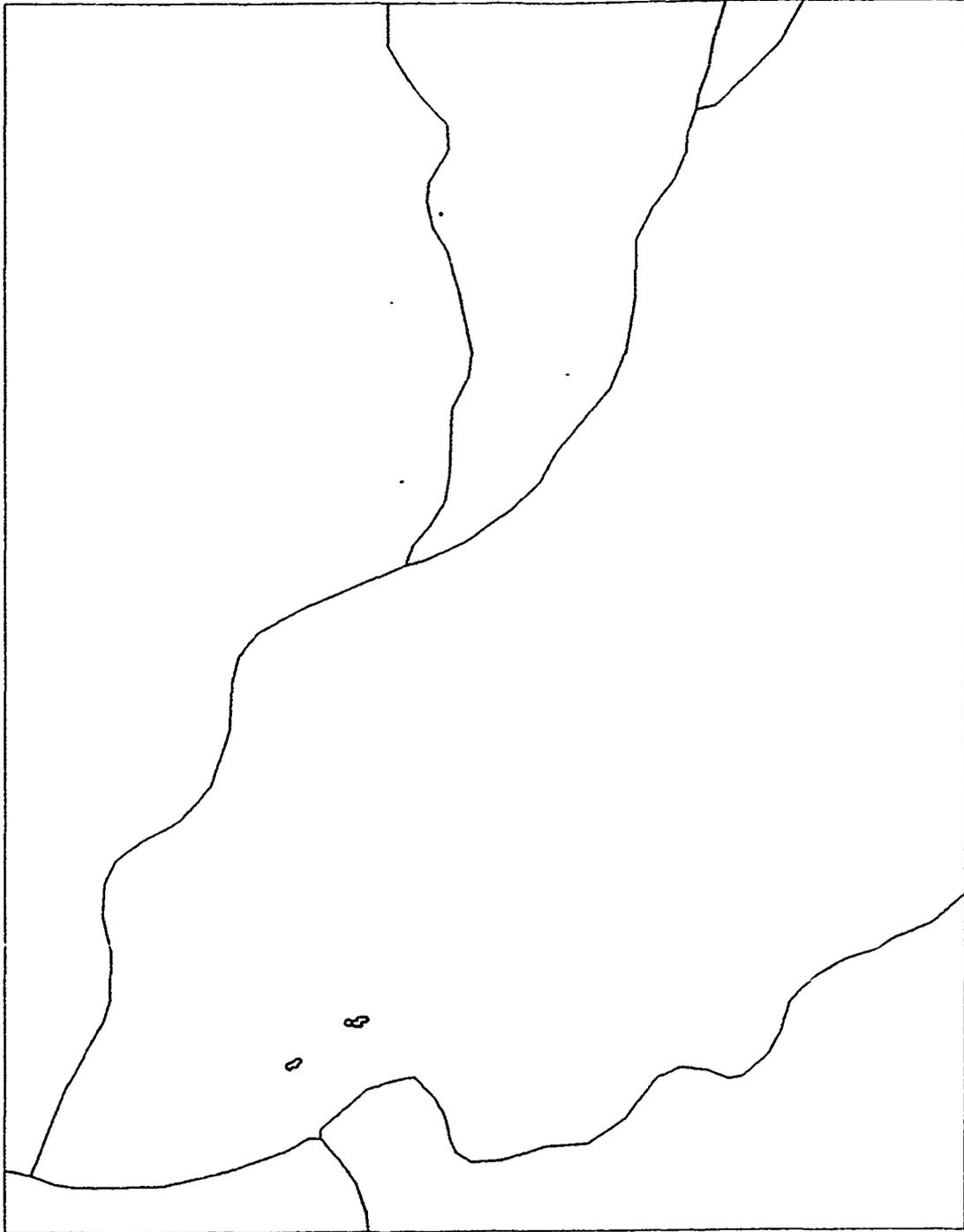
Map 10. Late Puebloan Rock Art Loci



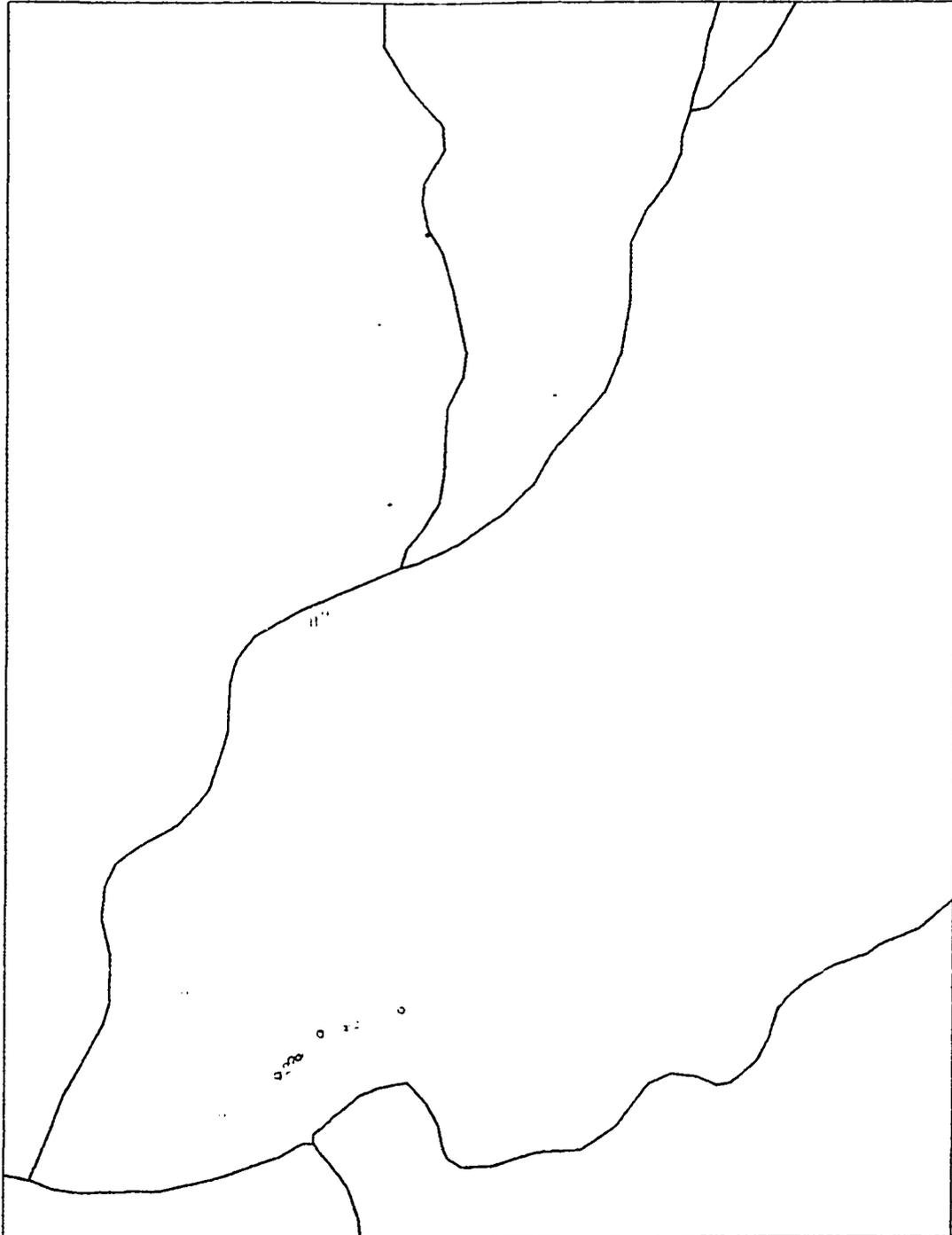
Map. 11. Late or Historic Puebloan Rock Art Loci



Map 12. Historic Rock Art Loci

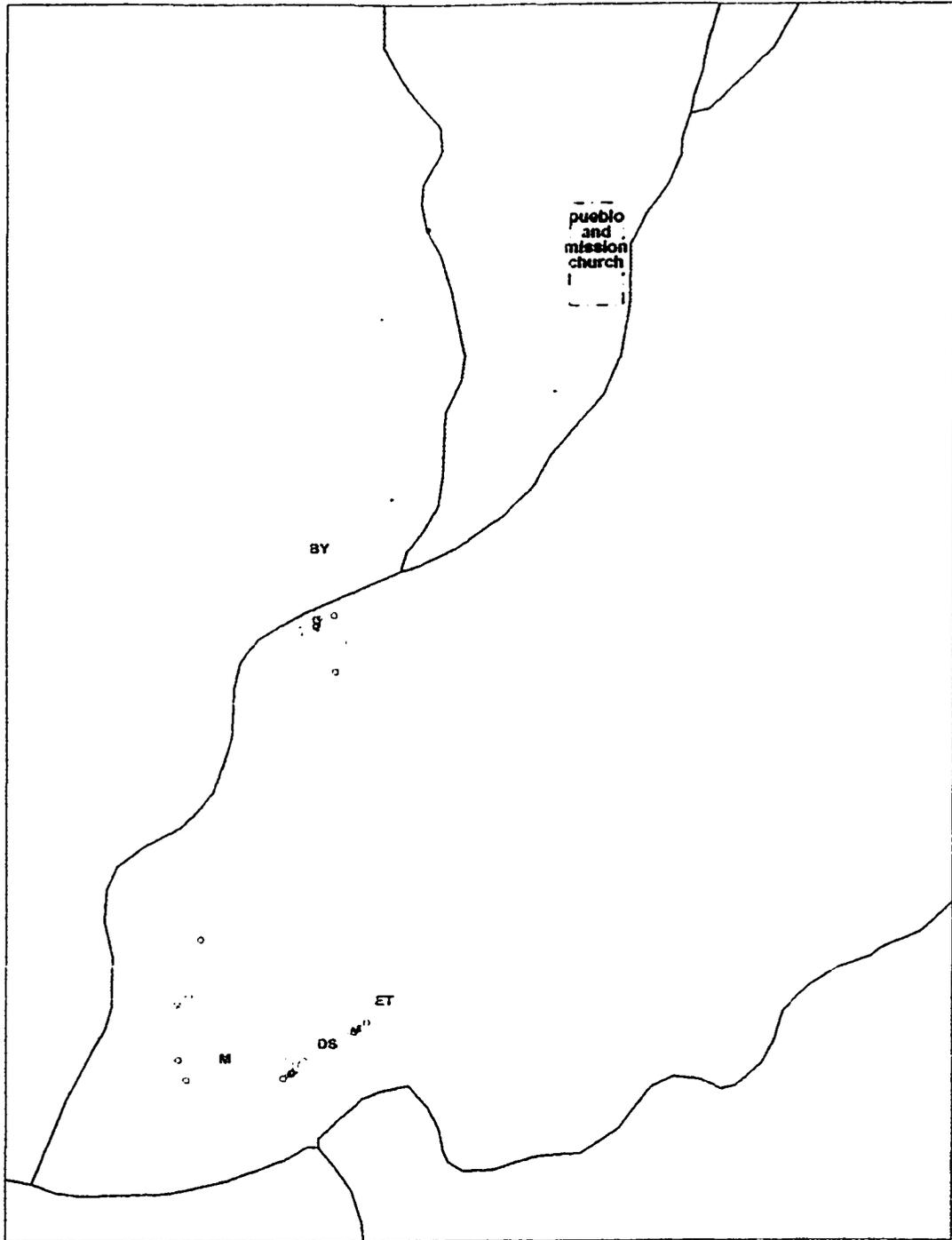


Map 13. Athapaskan Rock Art Loci



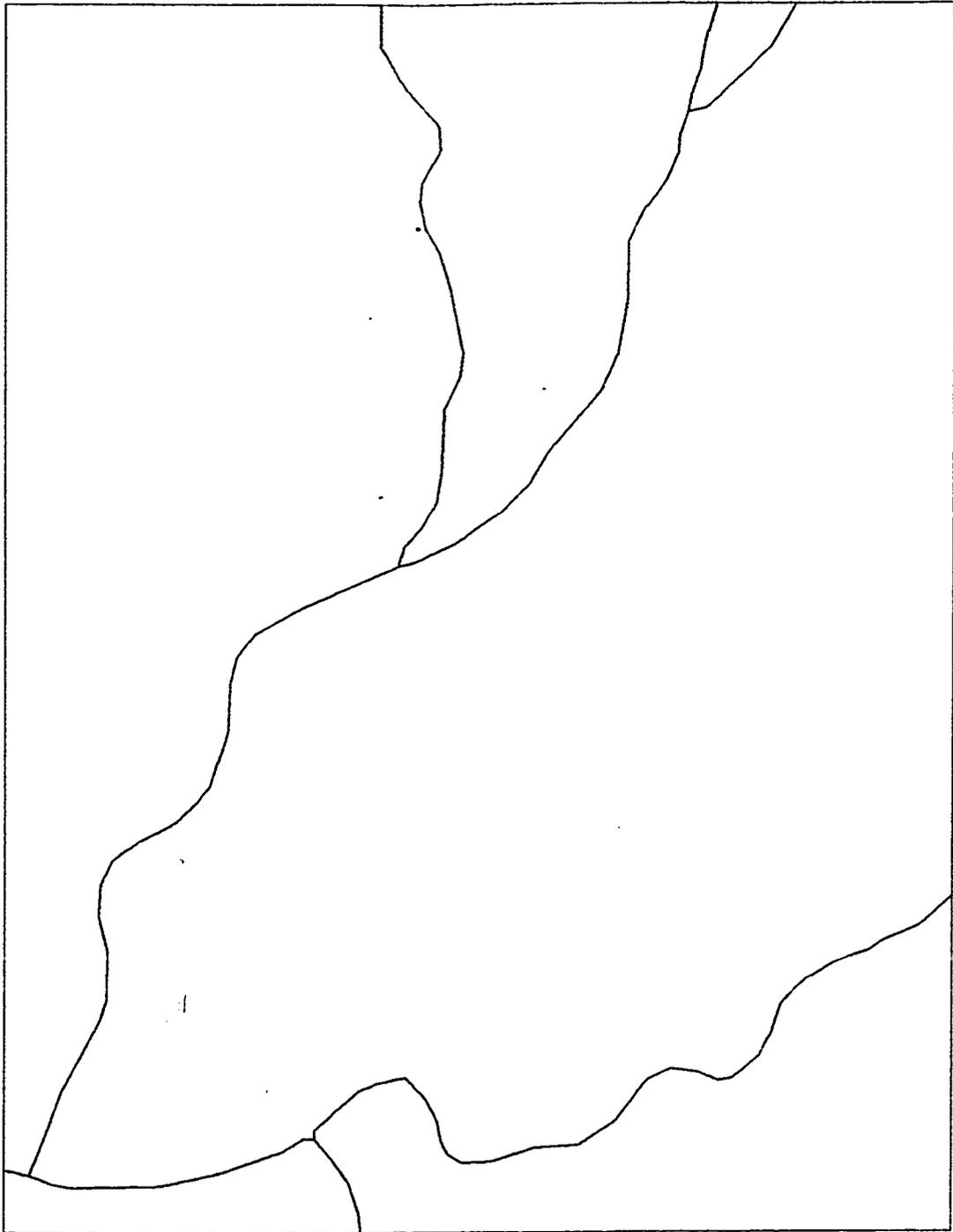
— Arroyos
○ Late or Historic Puebloan Loci
○ Historic Puebloan Loci
○ Athapaskan Loci

Map 14. Comparison of Late/Historic Puebloan, Historic and Athapaskan Panels

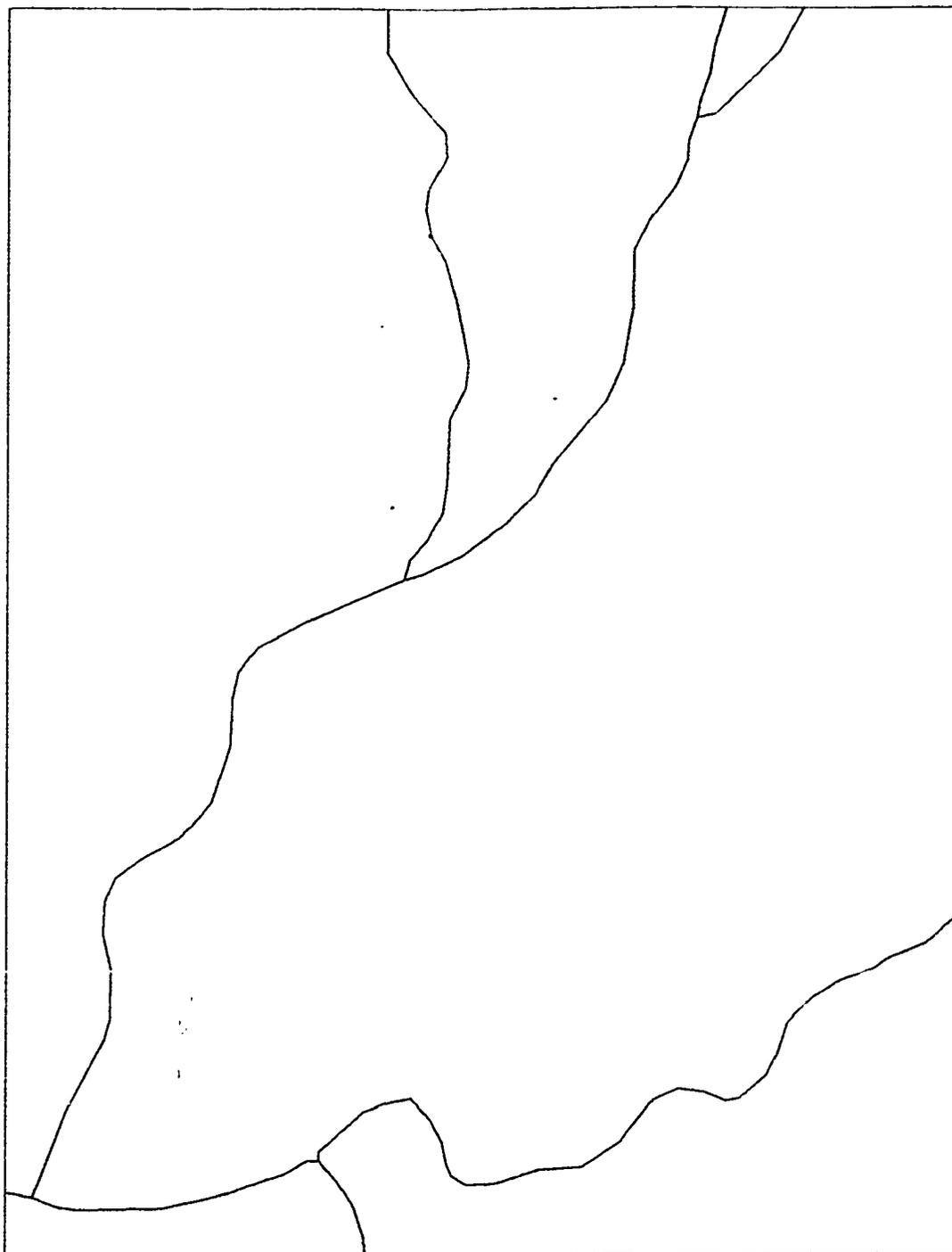


- Arroyos
- Flying Bird Forms
- Four-pointed Stars
- Round Forms
- Shield Bearers
- ⋯ Snakes and/or Spirals
- ⋯ Meanders with Ends
- Masks

Map 15. Test of Schaafsma's War Complex



Map 16. Horizontal Panels on West Site



Map 17. Directional Panels on West Site

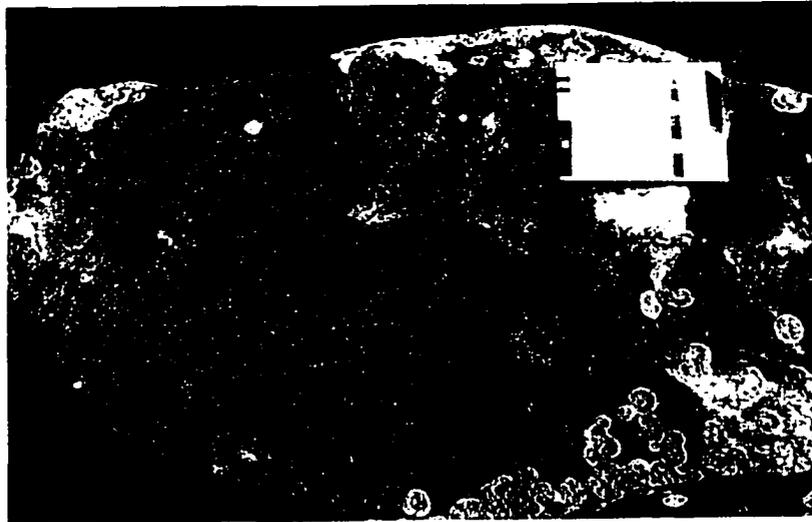


Figure 1. Locus CH, North Site

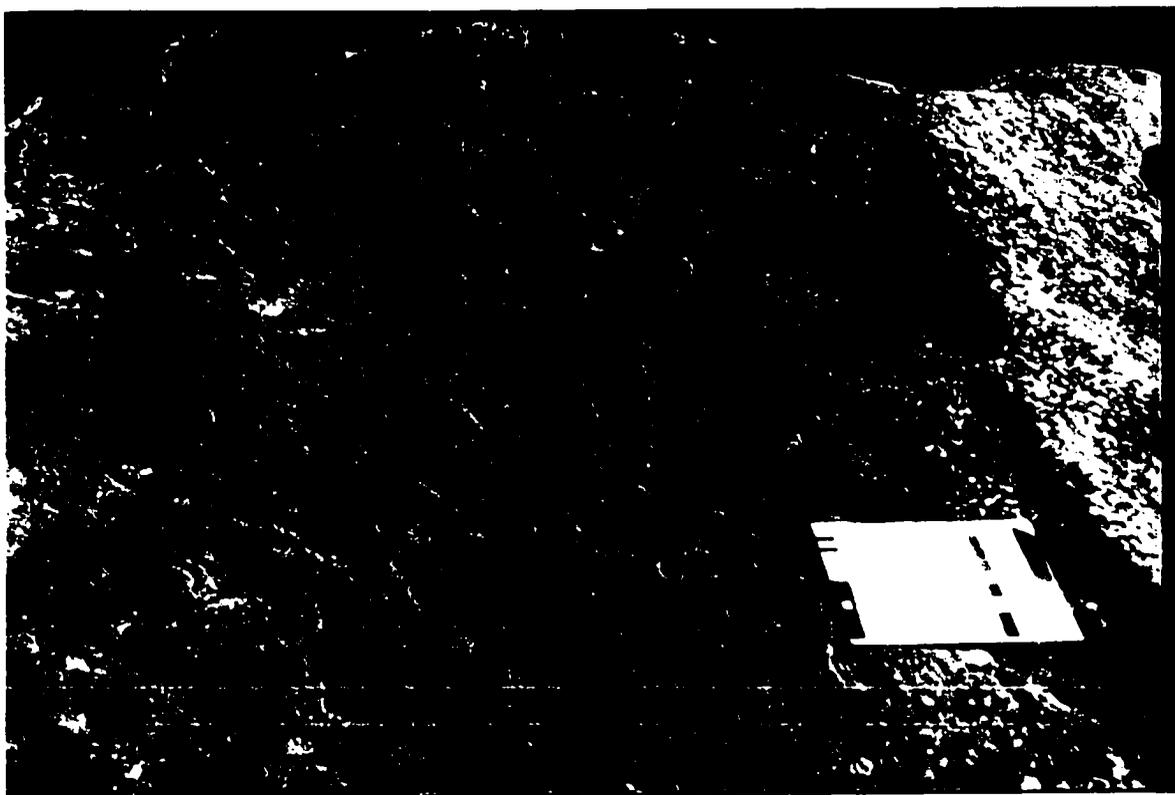


Figure 2. Locus CI, North Site

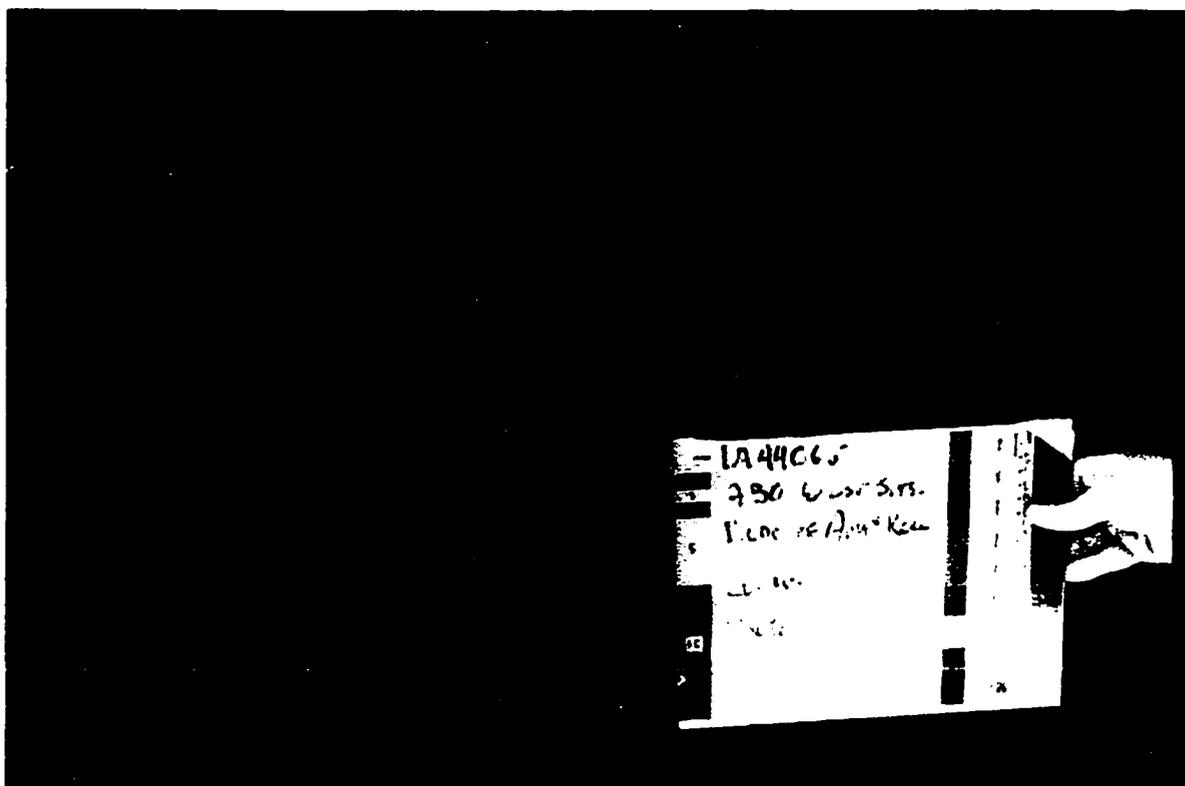


Figure 3. Locus K, West Site

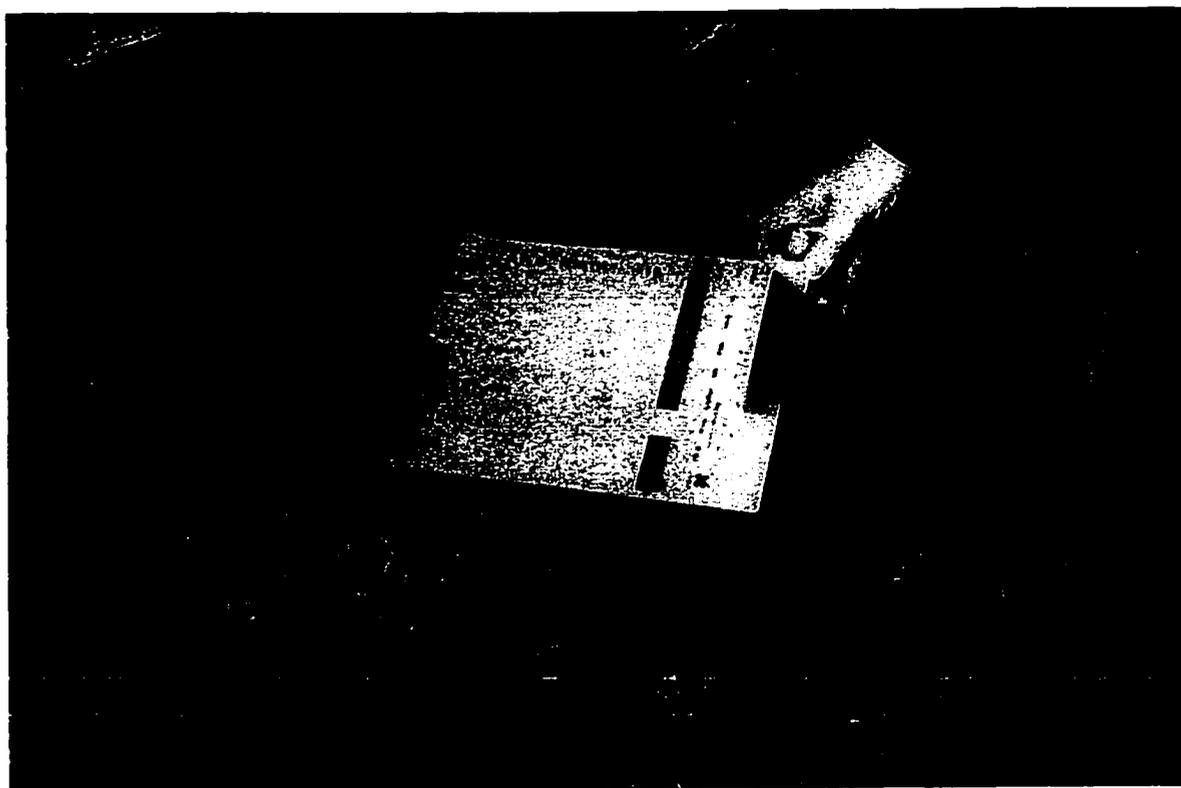


Figure 4. Locus BY53, North Site

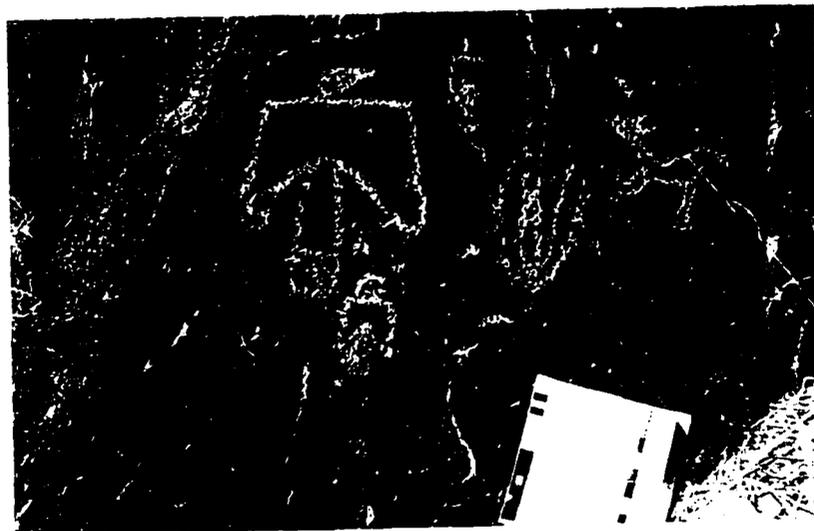


Figure 5. Locus AQ1, West Site

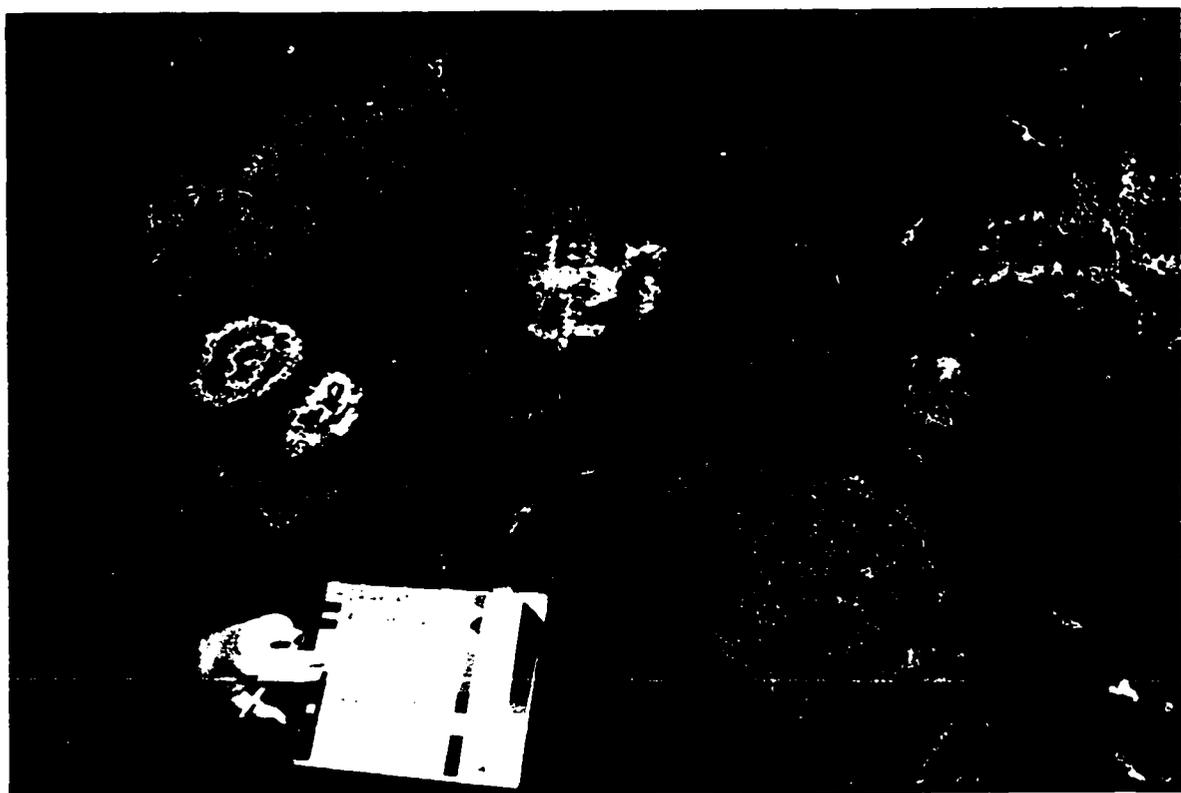


Figure 6. Locus AT, West Site

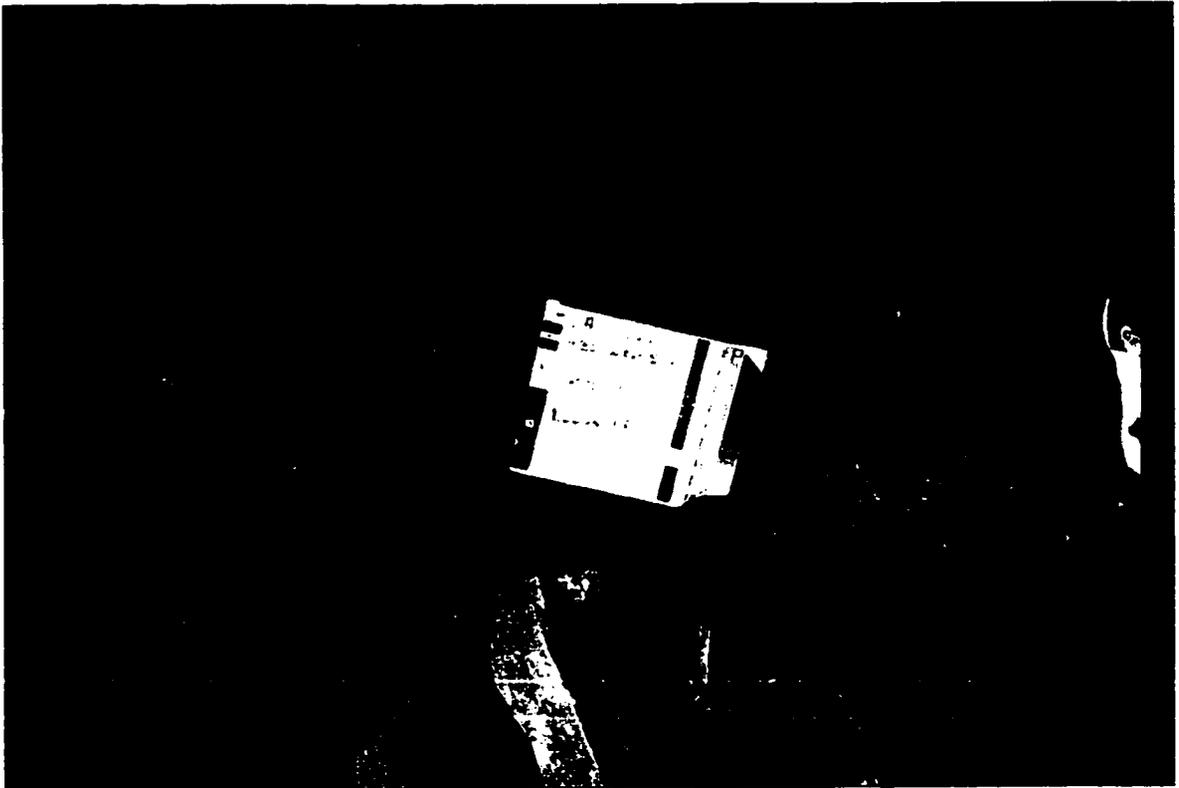


Figure 7. Locus AF, West Site

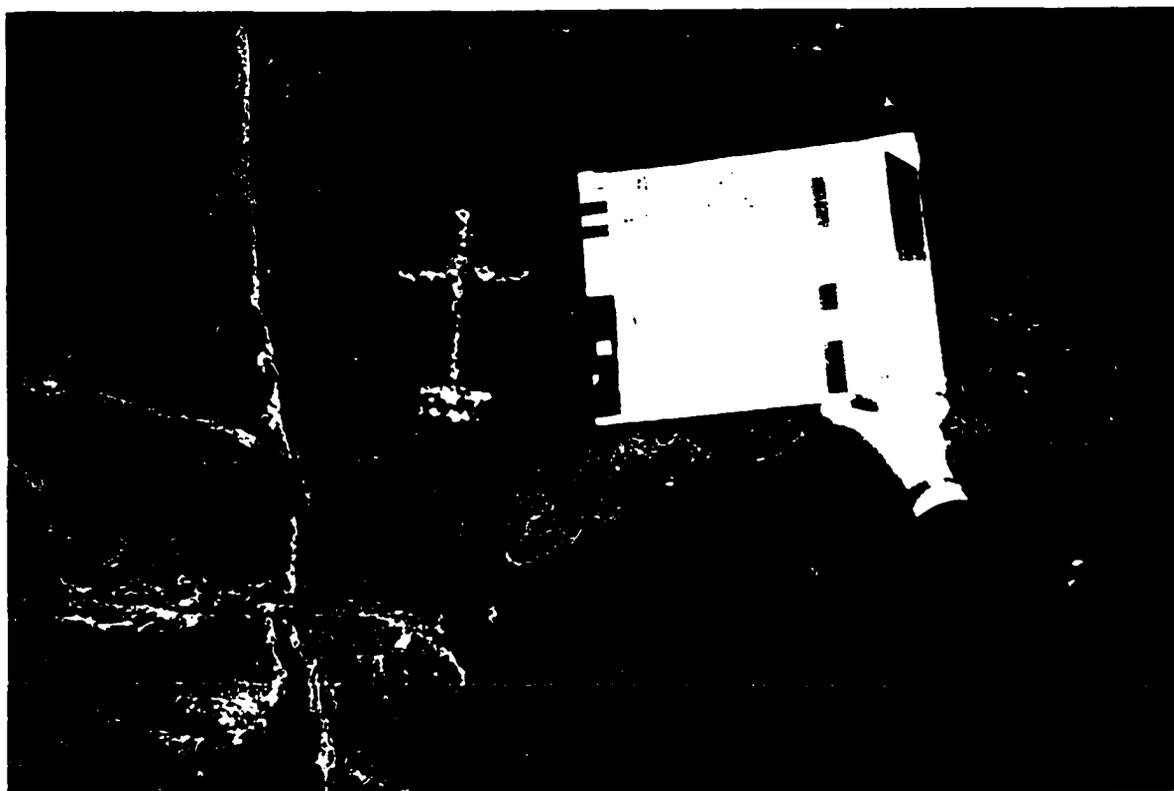


Figure 8. Locus P1, West Site

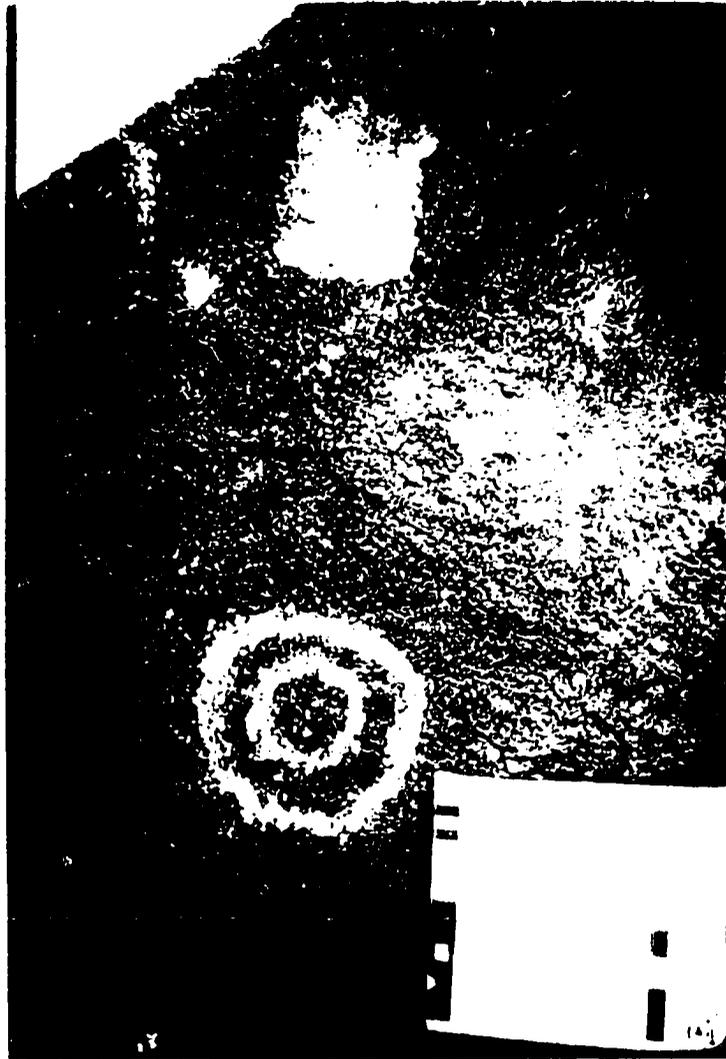


Figure 9 Locus AN1, West Site

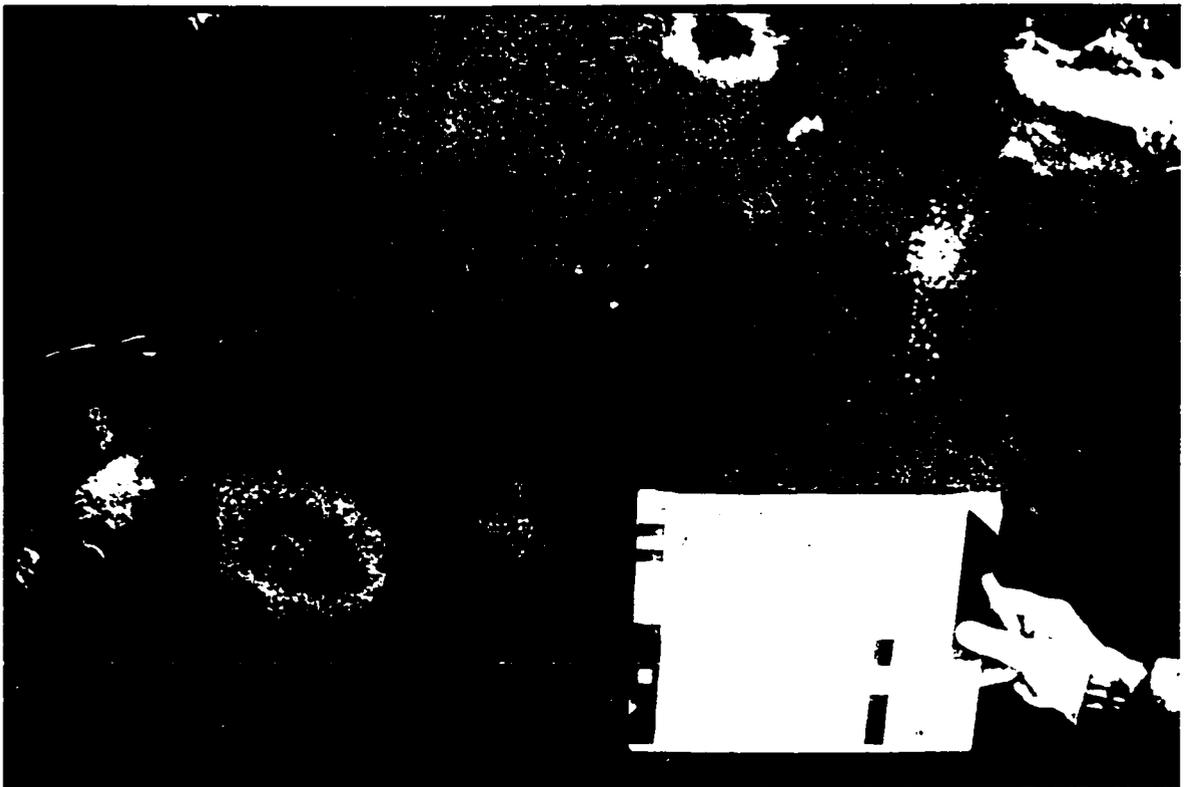


Figure 10. Locus AO1, West Site

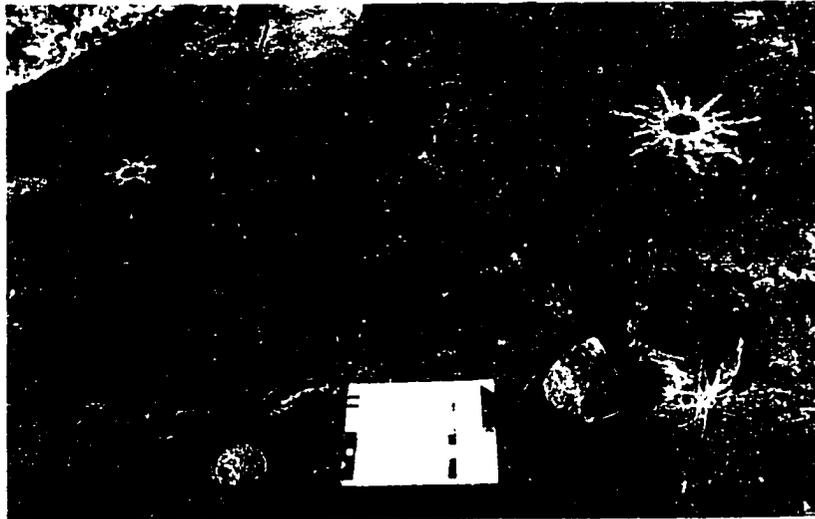


Figure 11. Locus AP, West Site



Figure 12. Locus BY47, North Site

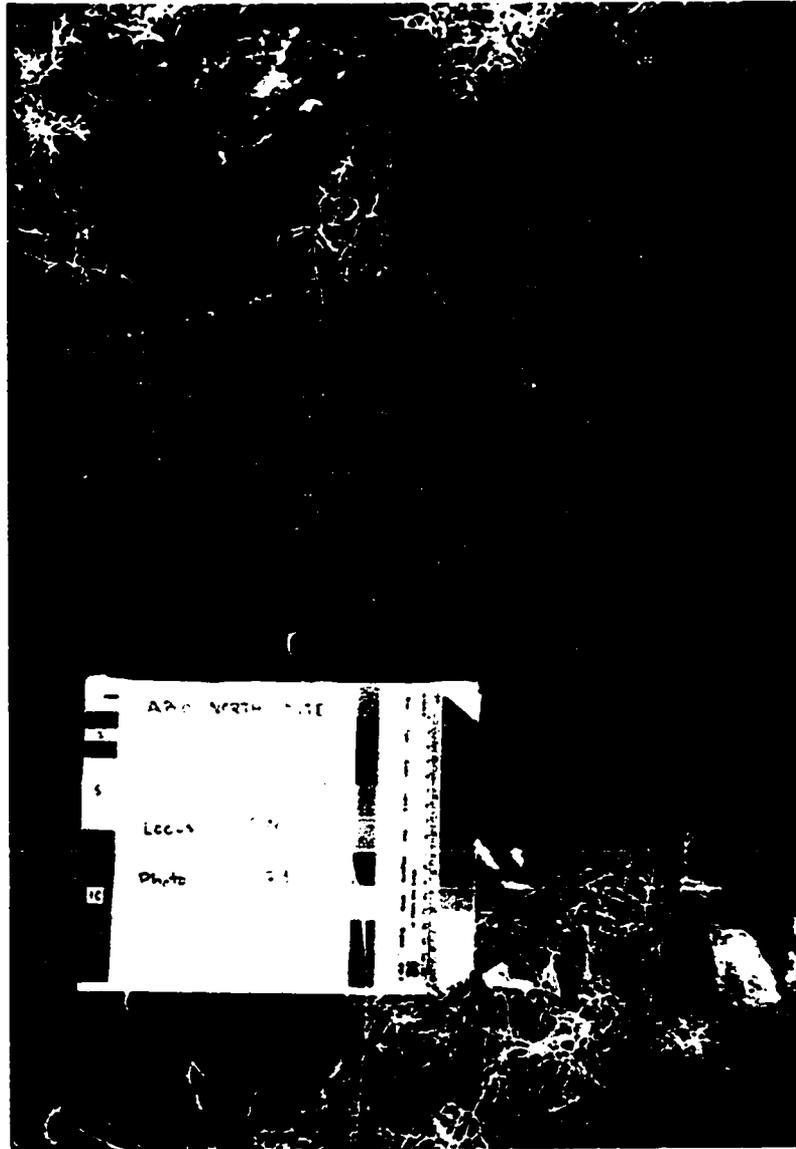


Figure 13. Locus CN, North Site



Figure 14. Locus O1, West Site

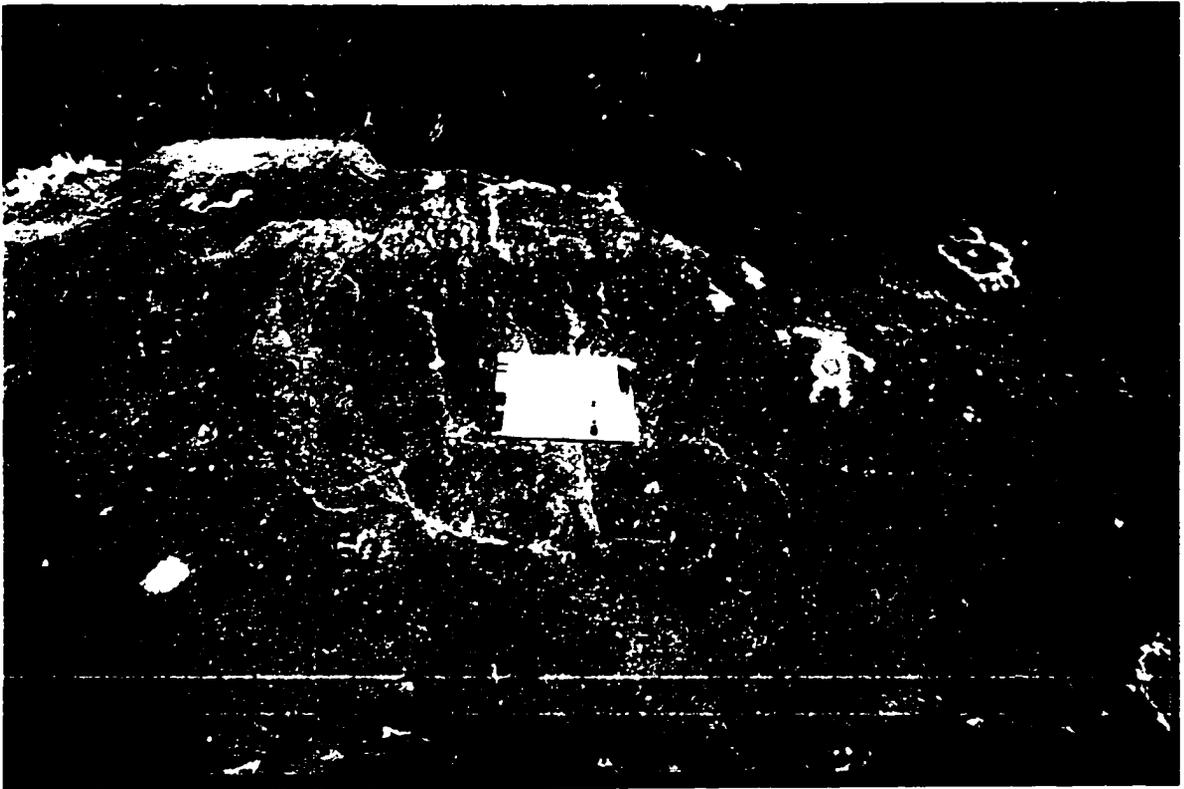


Figure 15. Locus AR, West Site

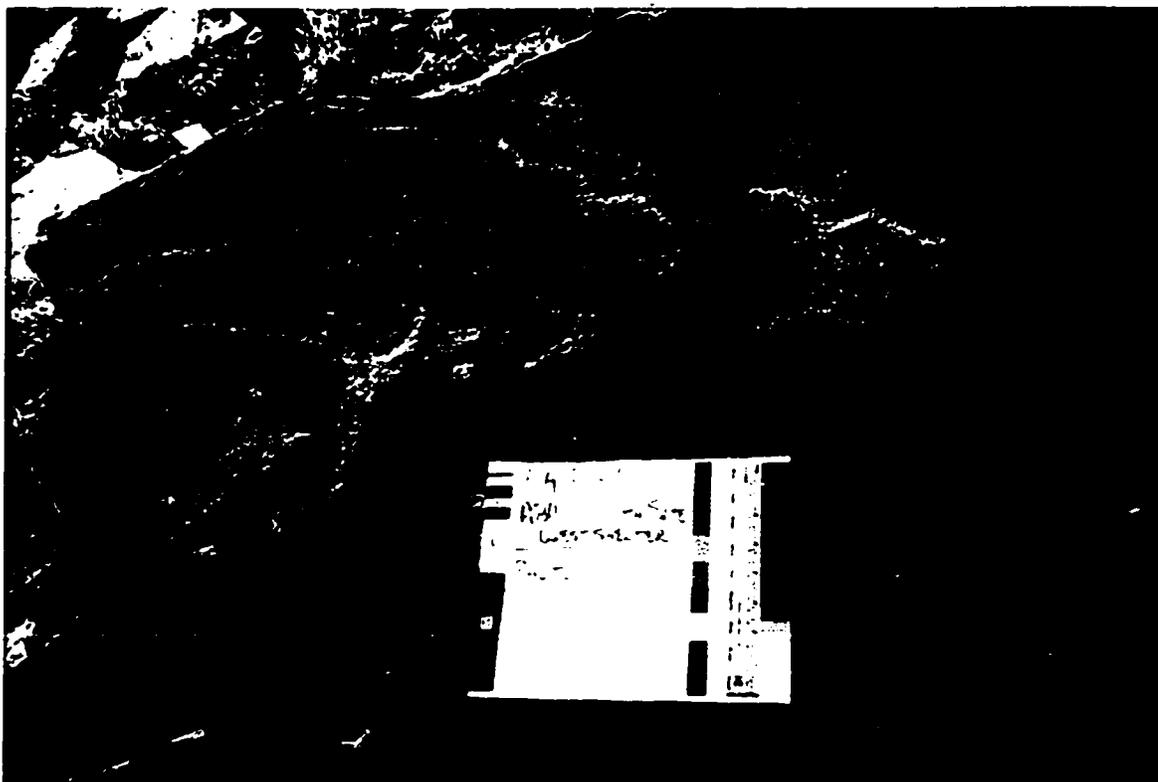


Figure 16. Locus DU, South Site



Figure 17a. Locus DY3, South Site

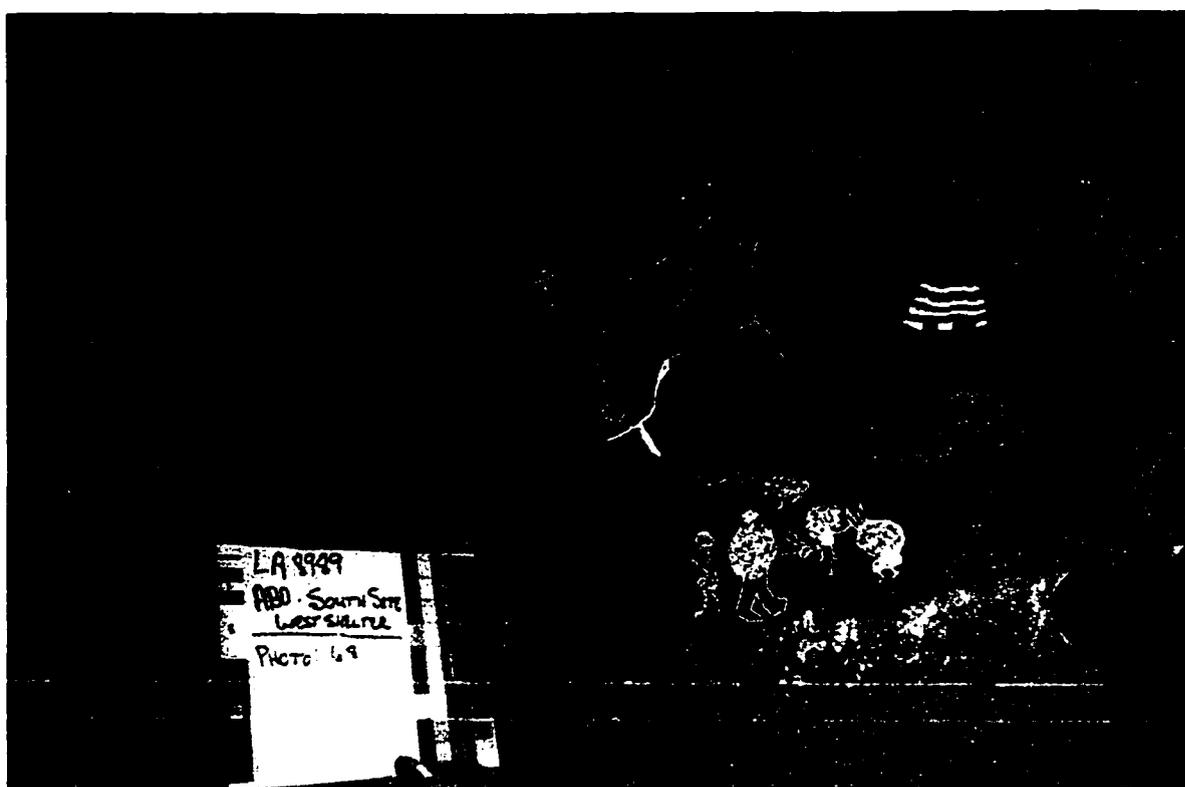


Figure 17b. Locus DY3 (computer enhanced)



Figure 18. Locus BY1, North Site



Figure 19a. Locus DS9, South Site, West Shelter

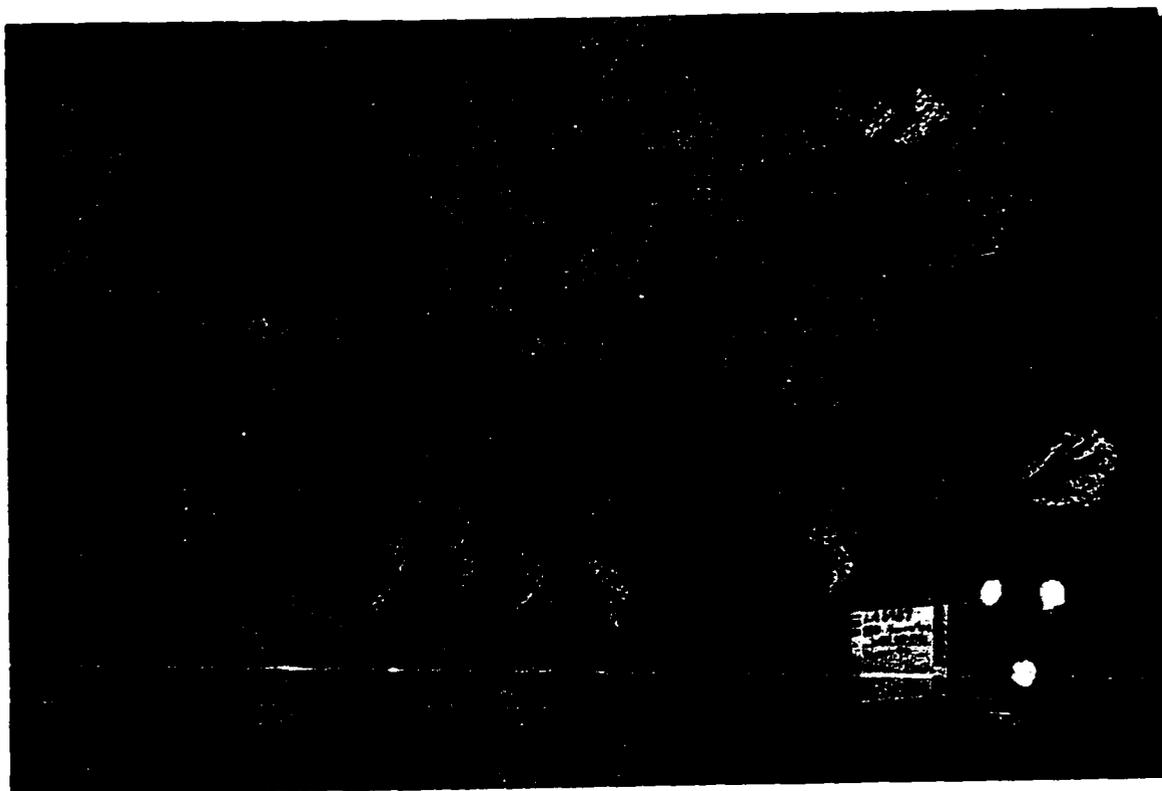


Figure 19b. Locus DS9 (computer enhanced)



Figure 20. Locus DQ1, South Site



Figure 21. Locus AB, West Site



Figure 22. Locus BM2, West Site

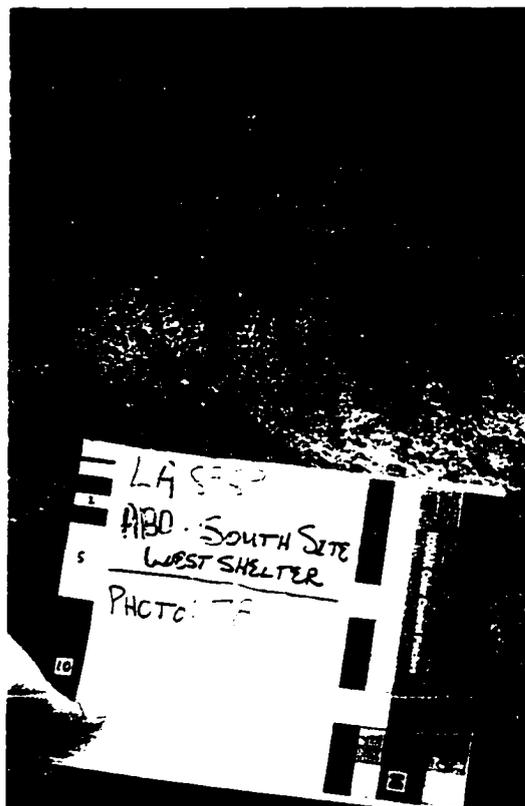


Figure 23a. Locus DX, South Site

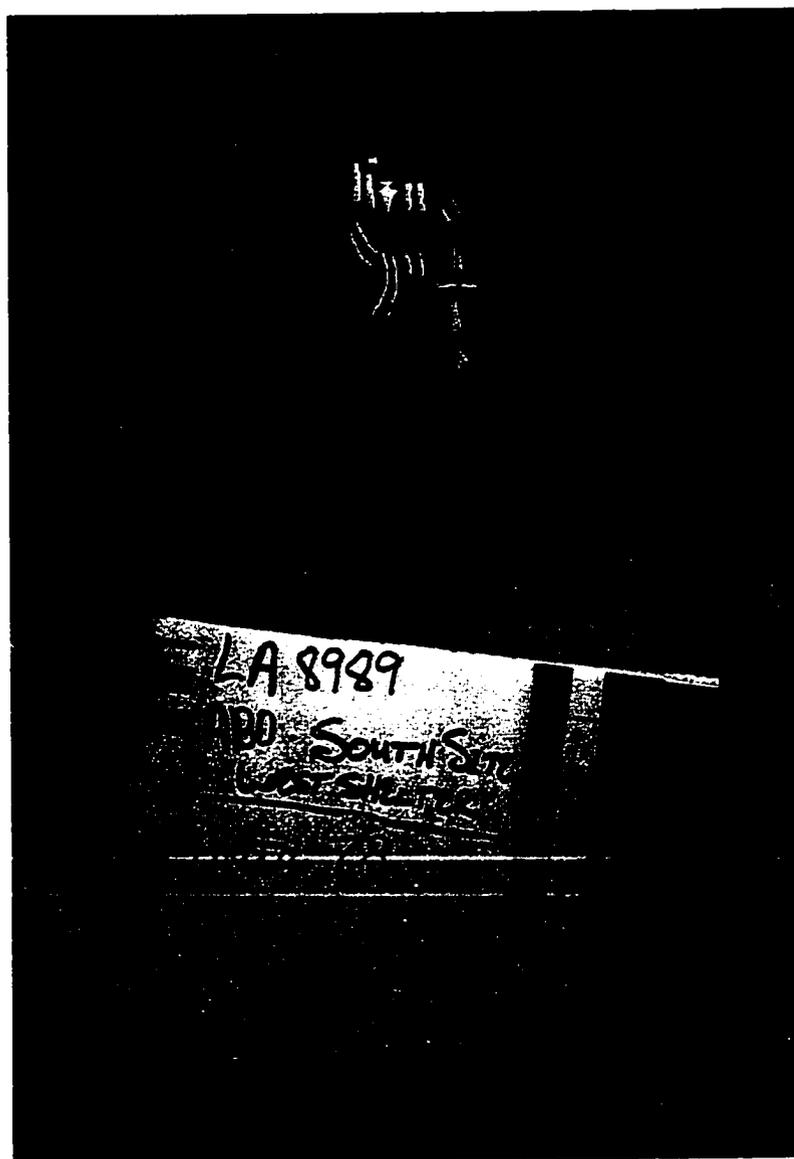


Figure 23b. Locus DX (computer enhanced)



Figure 24. Locus A1, West Site

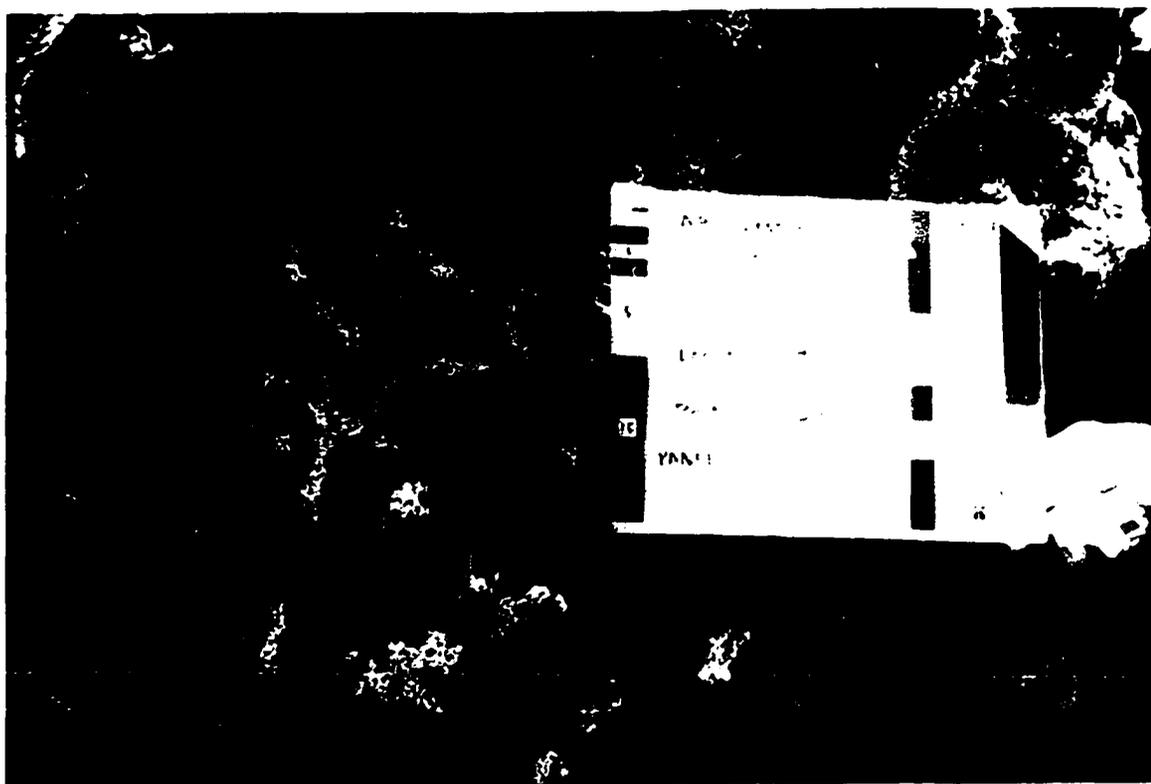


Figure 25. Locus BF, West Site



Figure 26. Locus M3, West Site

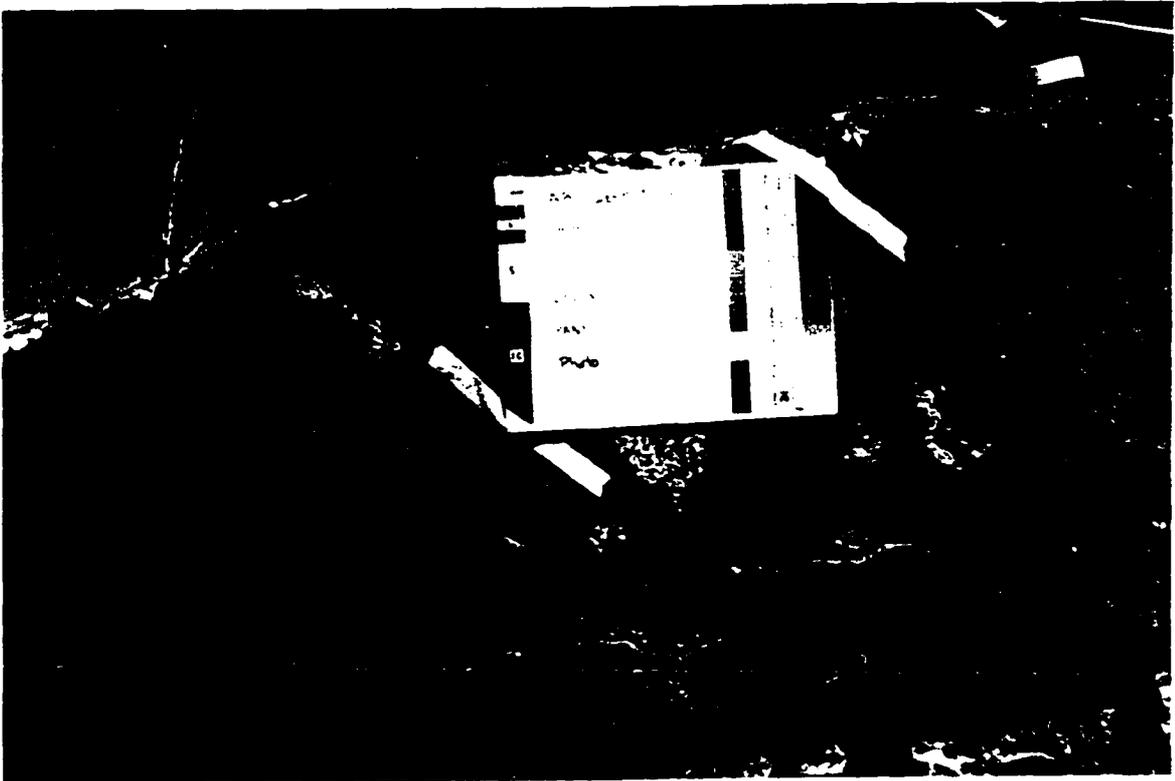


Figure 27. Locus DL, West Site

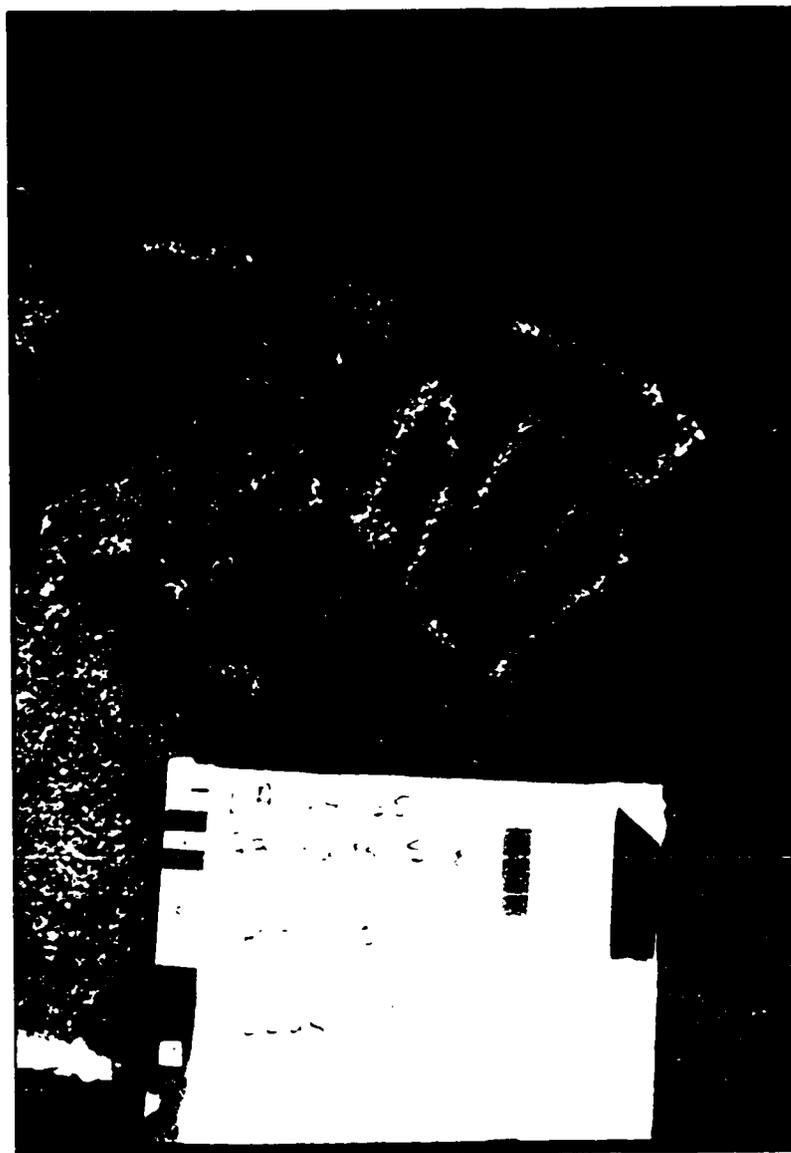


Figure 28. Locus M1, West Site

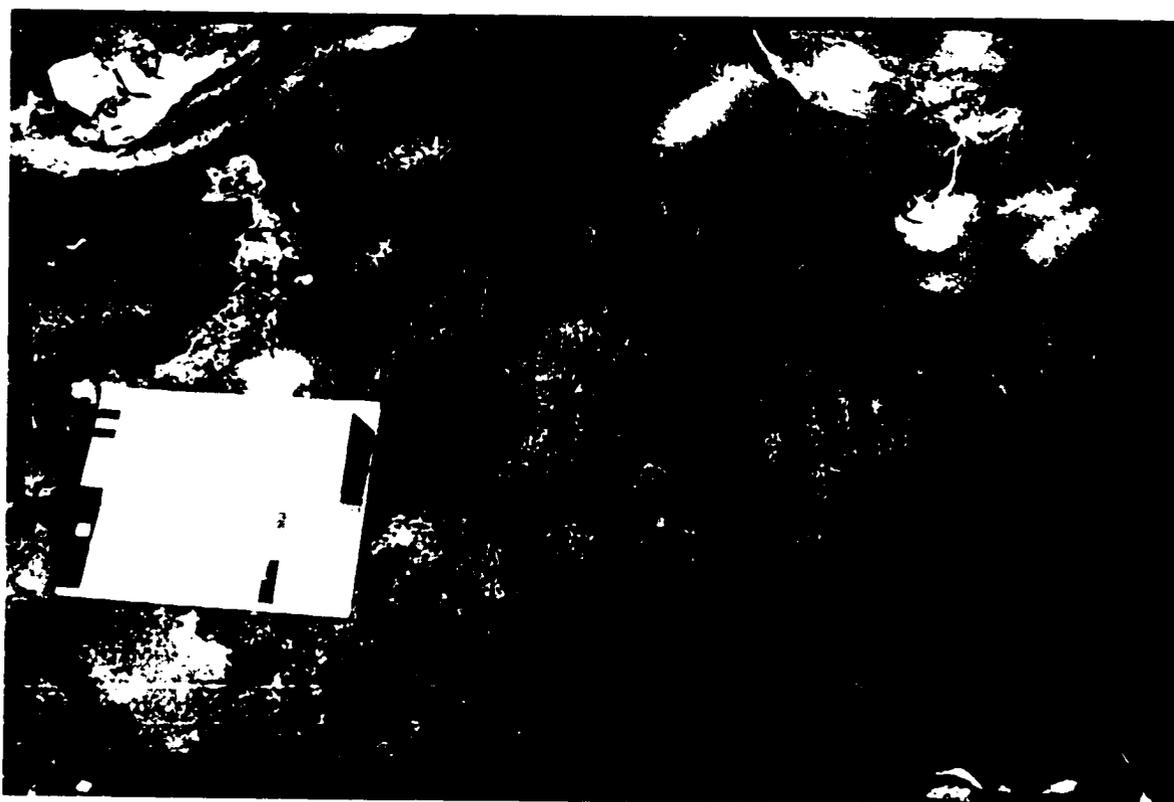


Figure 29. Locus BB, West Site



Figure 30. Locus DT1 and DT2, South Site

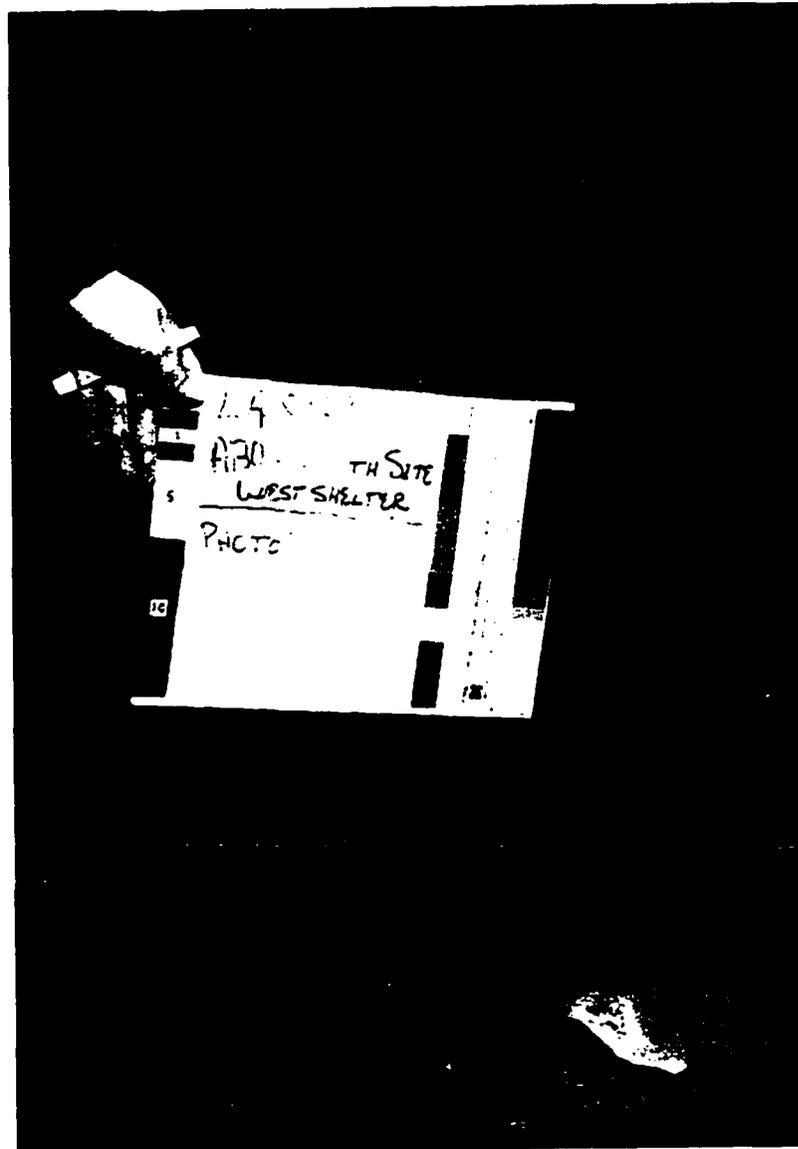


Figure 31. Locus DR1, South Site

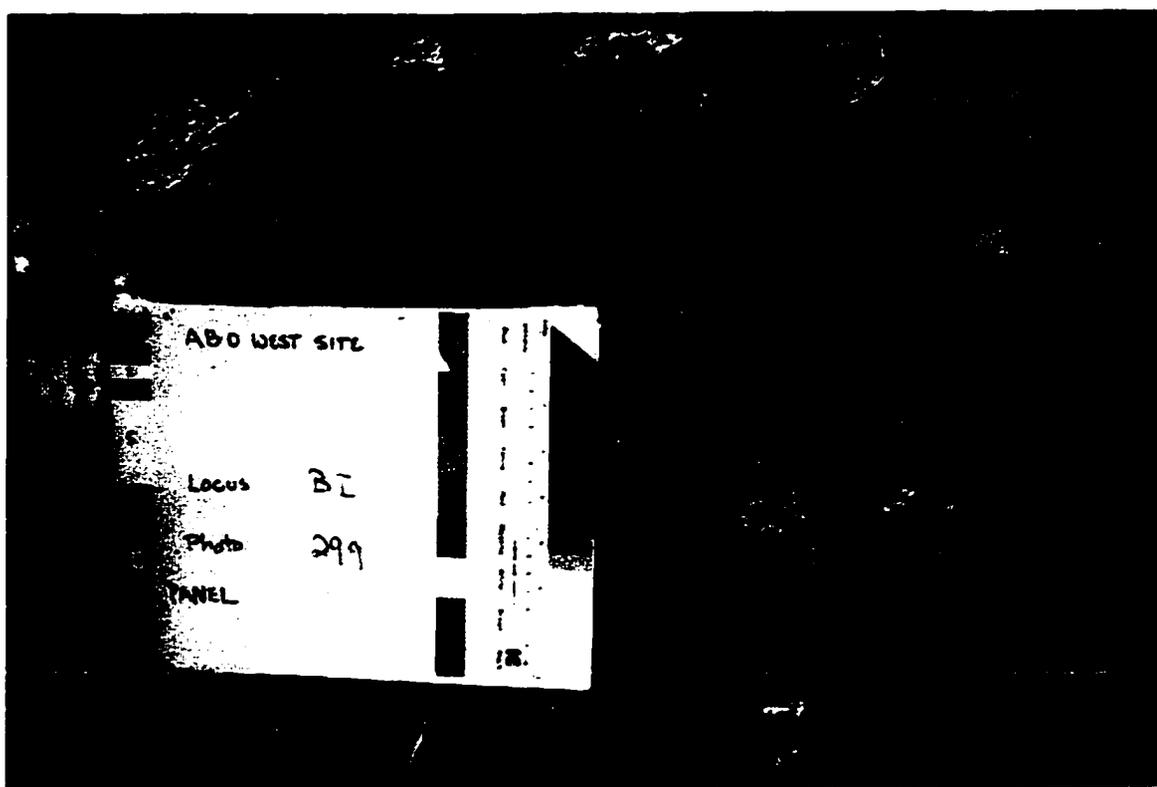


Figure 32. Locus BI, West Site

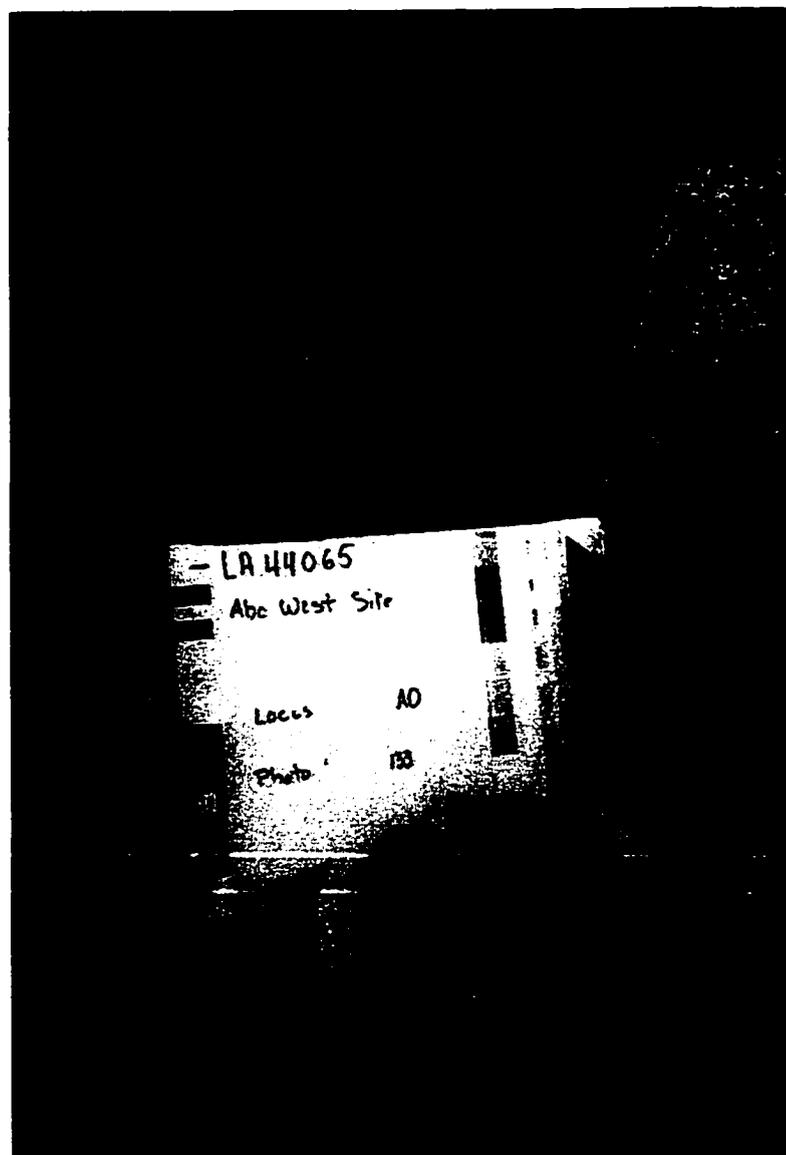


Figure 33. Locus AO3, West Site



Figure 34. Locus BN2, West Site

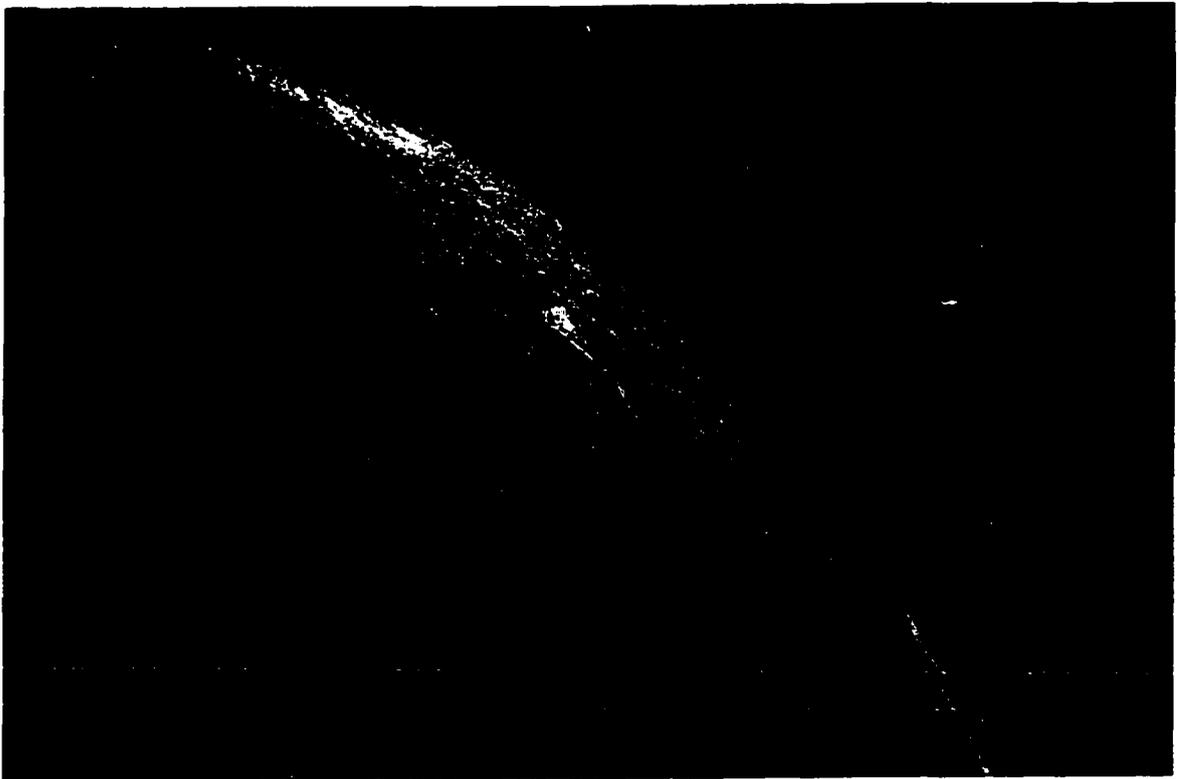


Figure 35. Locus AE3 right, West Site

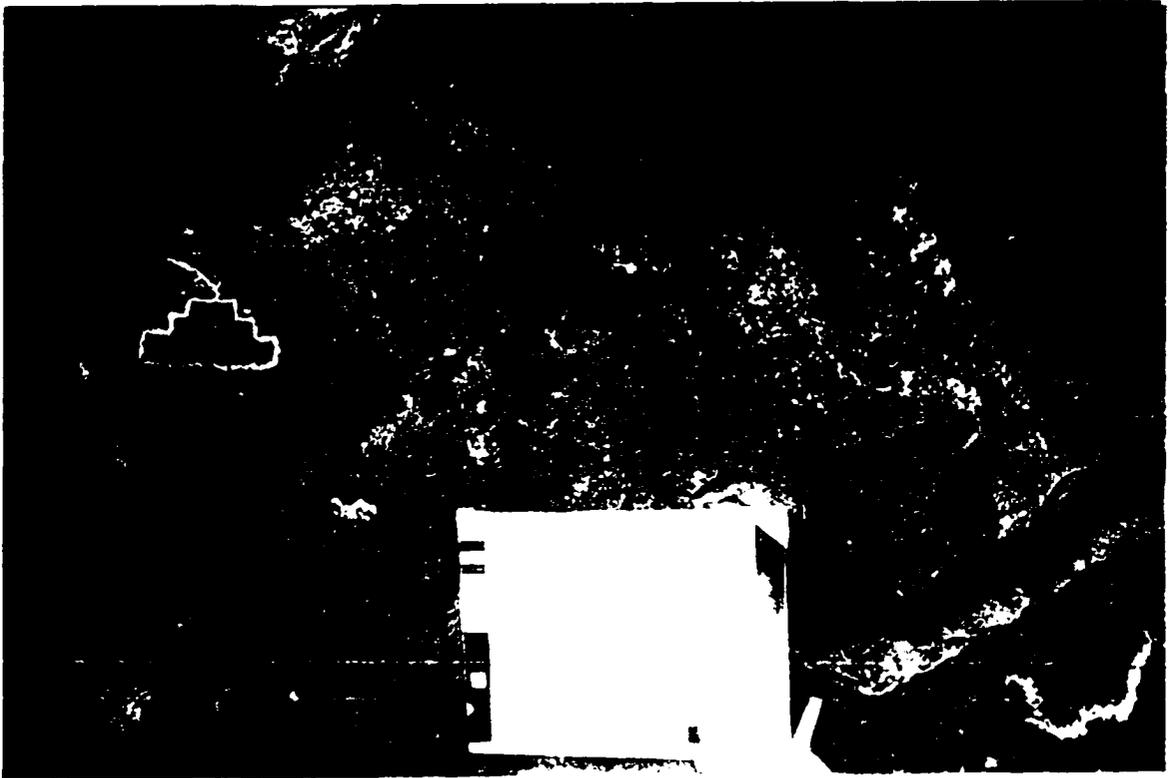


Figure 36. Locus AE1, West Site

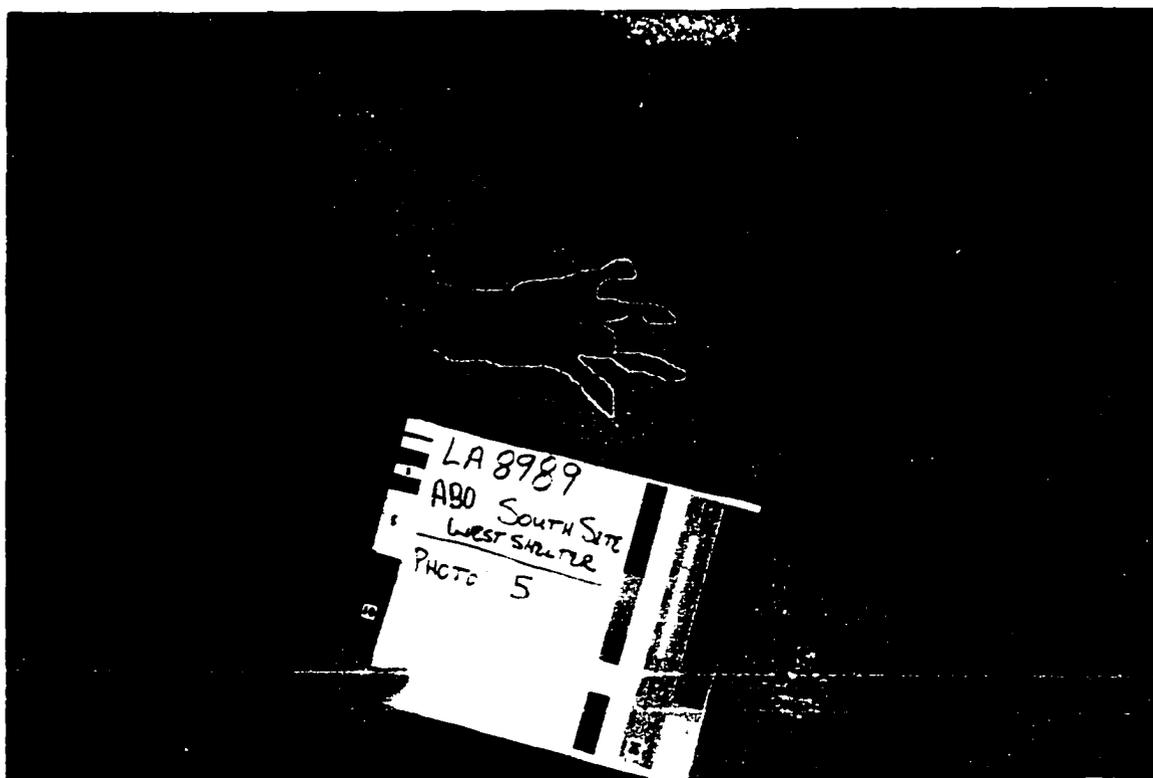


Figure 37. Locus DS1 left, South Site, West Shelter



Figure 38a. Locus DS2, South Site, West Shelter



Figure 38b. Locus DS2 (computer enhanced)

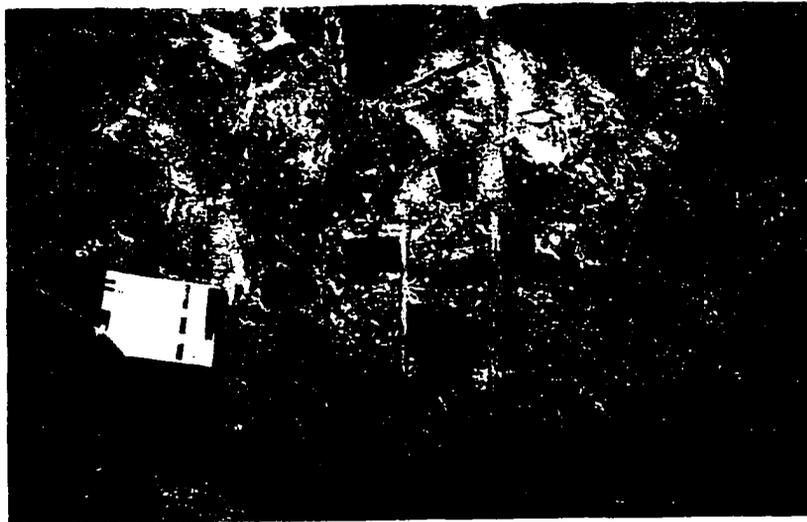


Figure 39a. Locus DS8, South Site, West Shelter

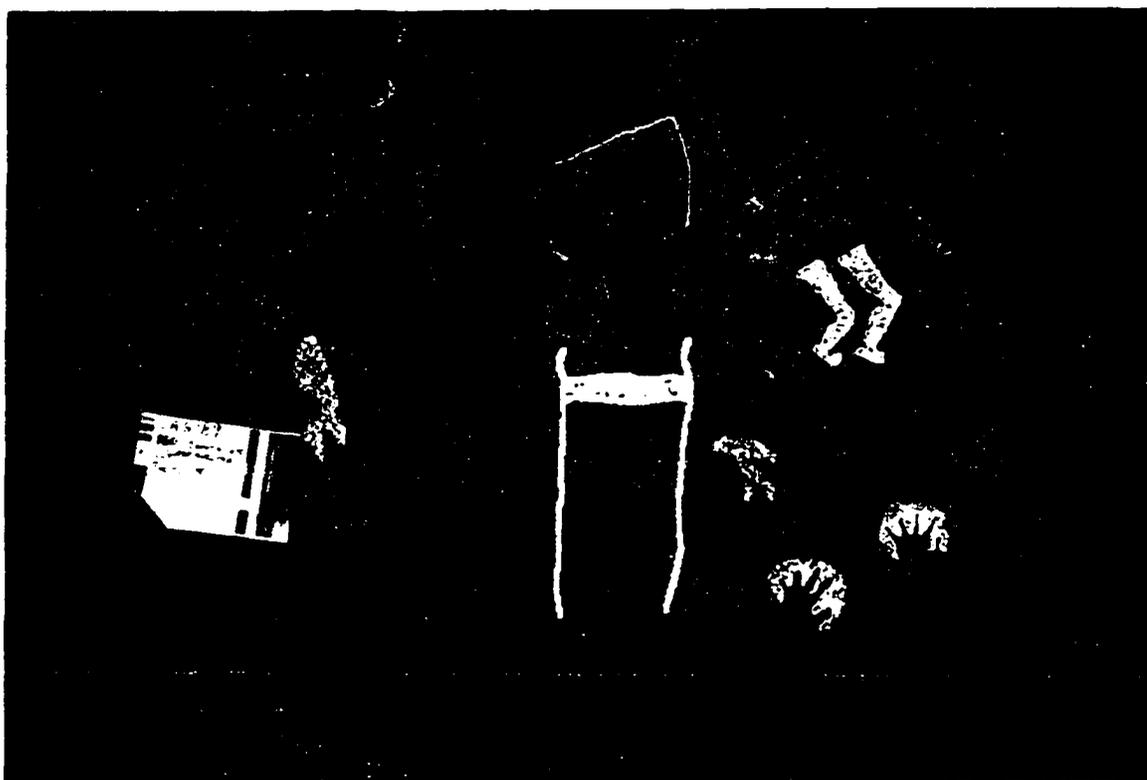


Figure 39b. Locus DS8 (computer enhanced)



Figure 40a. Locus ET9, South Site, East Shelter

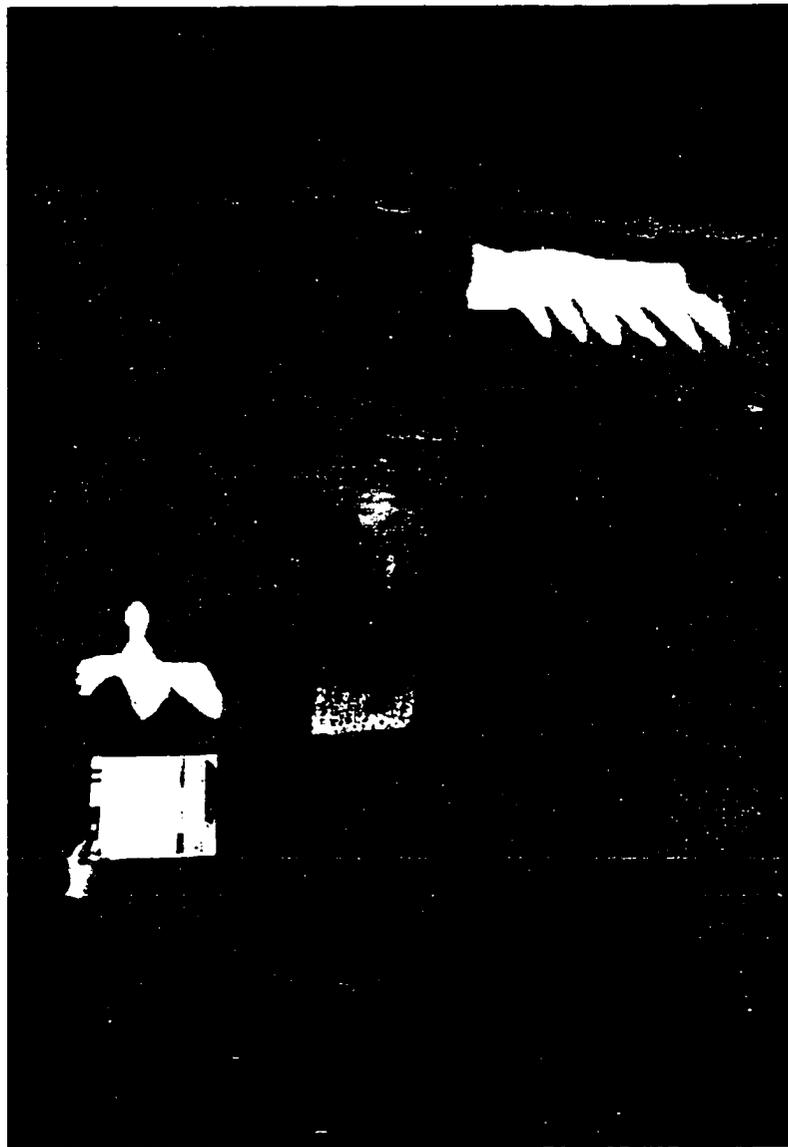


Figure 40b. Locus ET9 (computer enhanced)



Figure 41a. Locus ET10, South Site, East Shelter

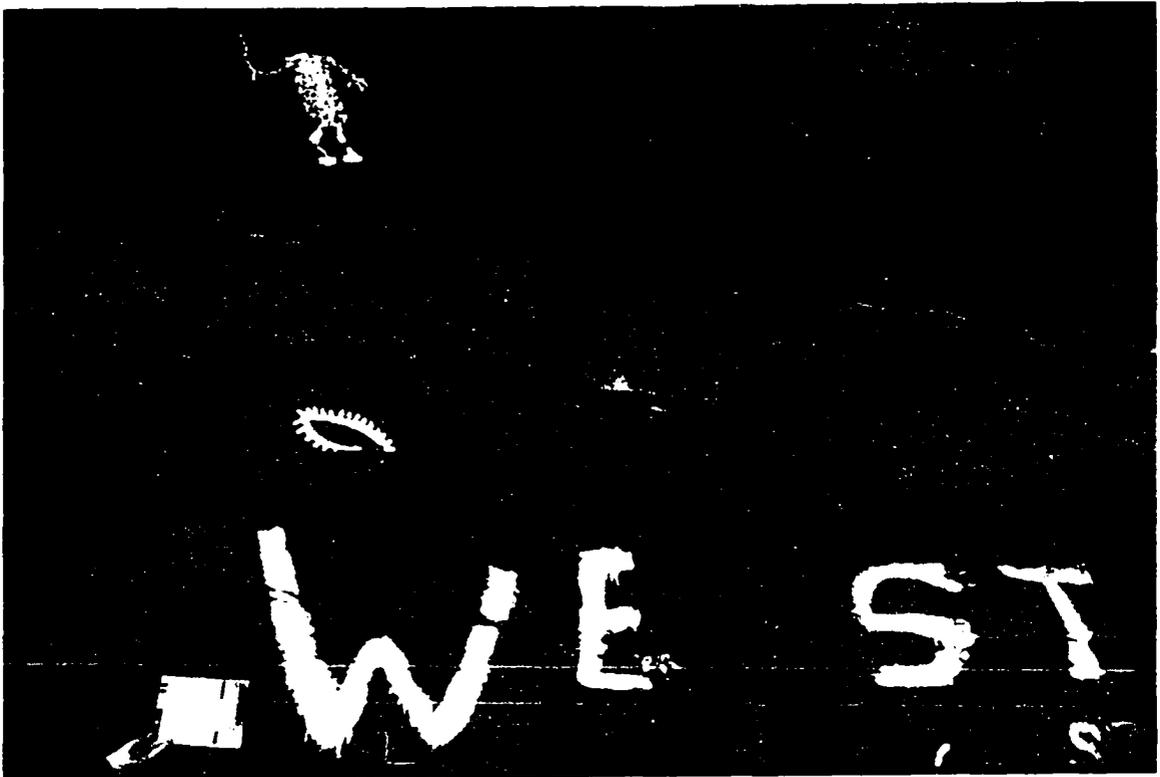


Figure 41b. Locus ET10 (computer enhanced)

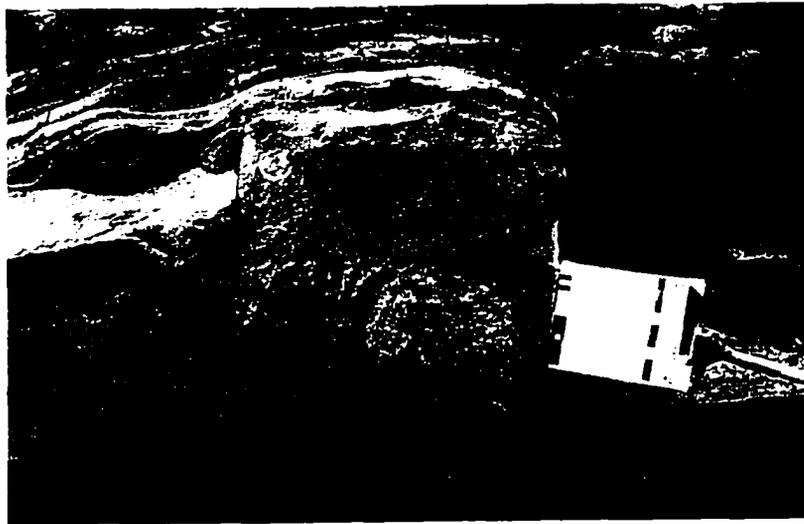


Figure 42a. Locus ET14, South Site, East Shelter

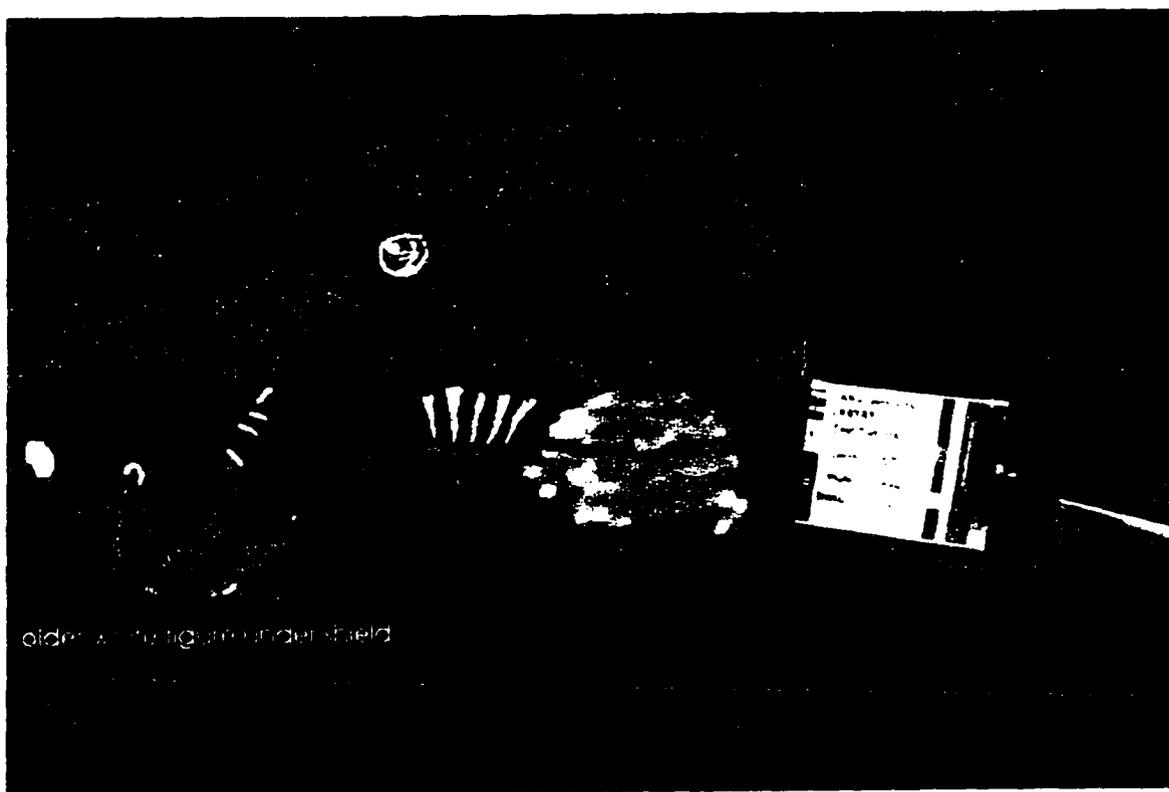


Figure 42b. Locus ET14 (computer enhanced)

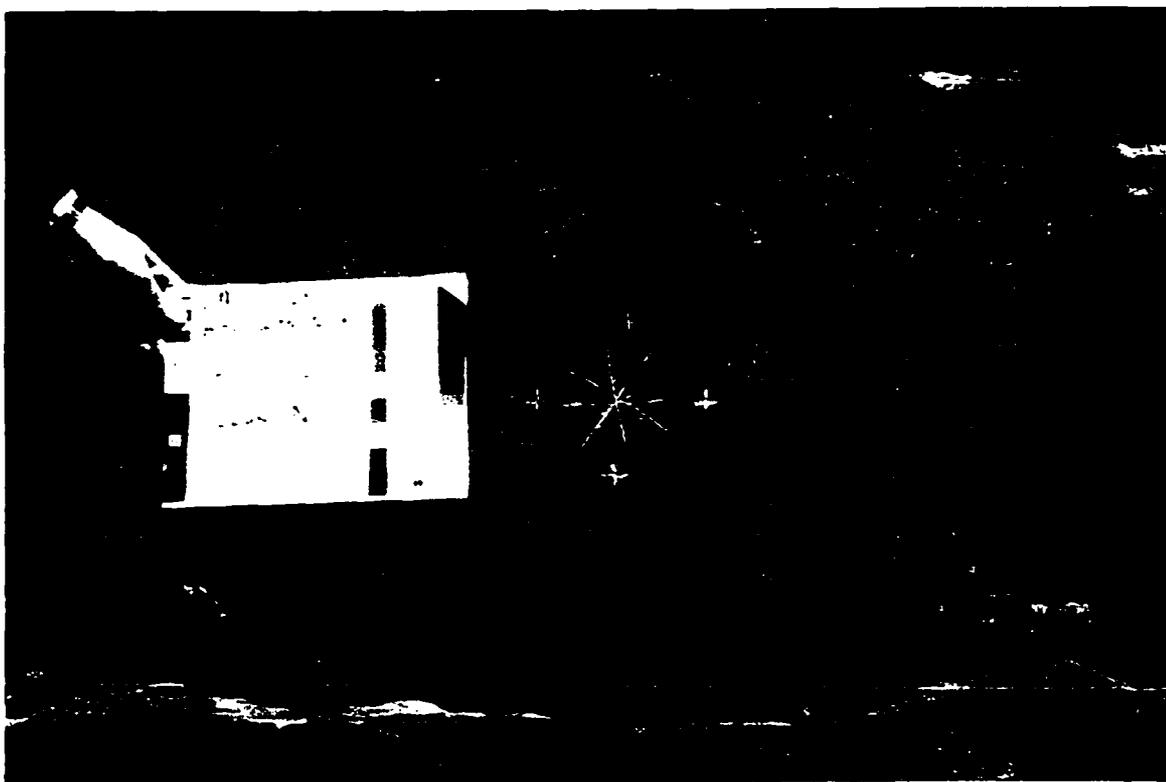


Figure 43. Locus N2, West Site



Figure 44a. Locus DW1-DW4, South Site

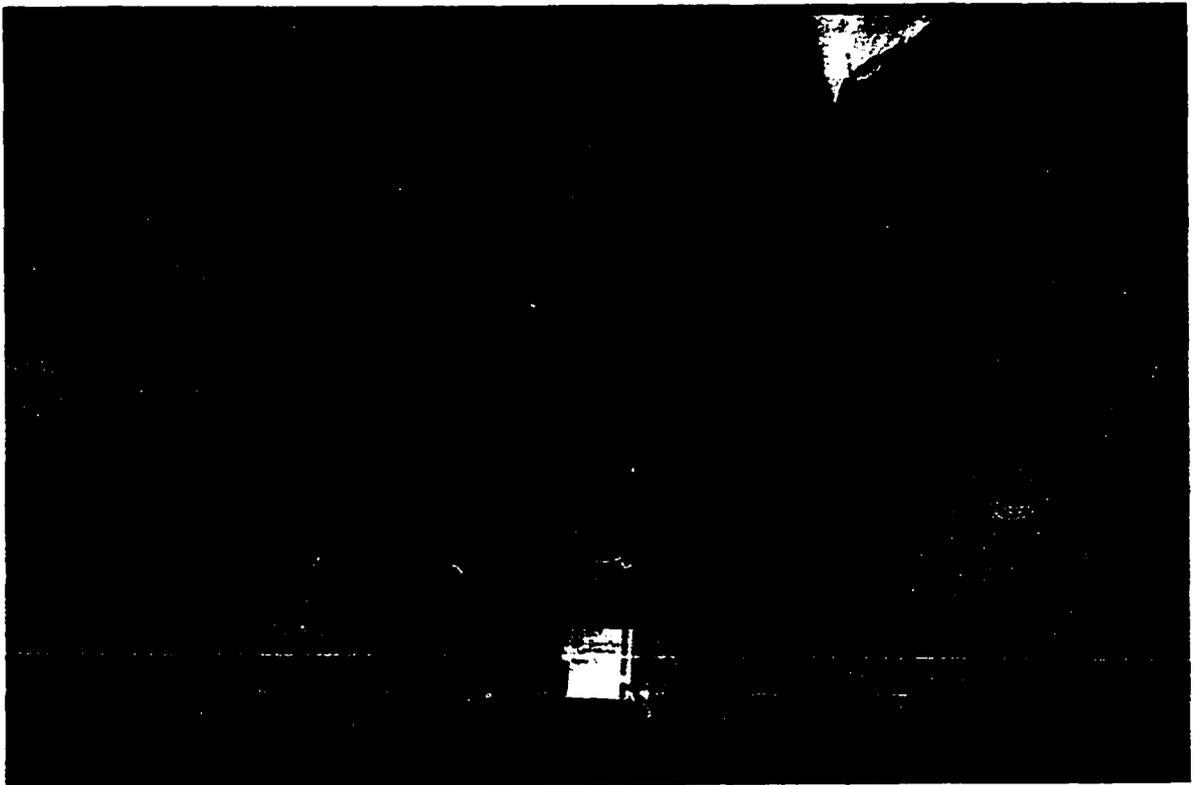


Figure 44b. Locus DW1-DW4 (computer enhanced)

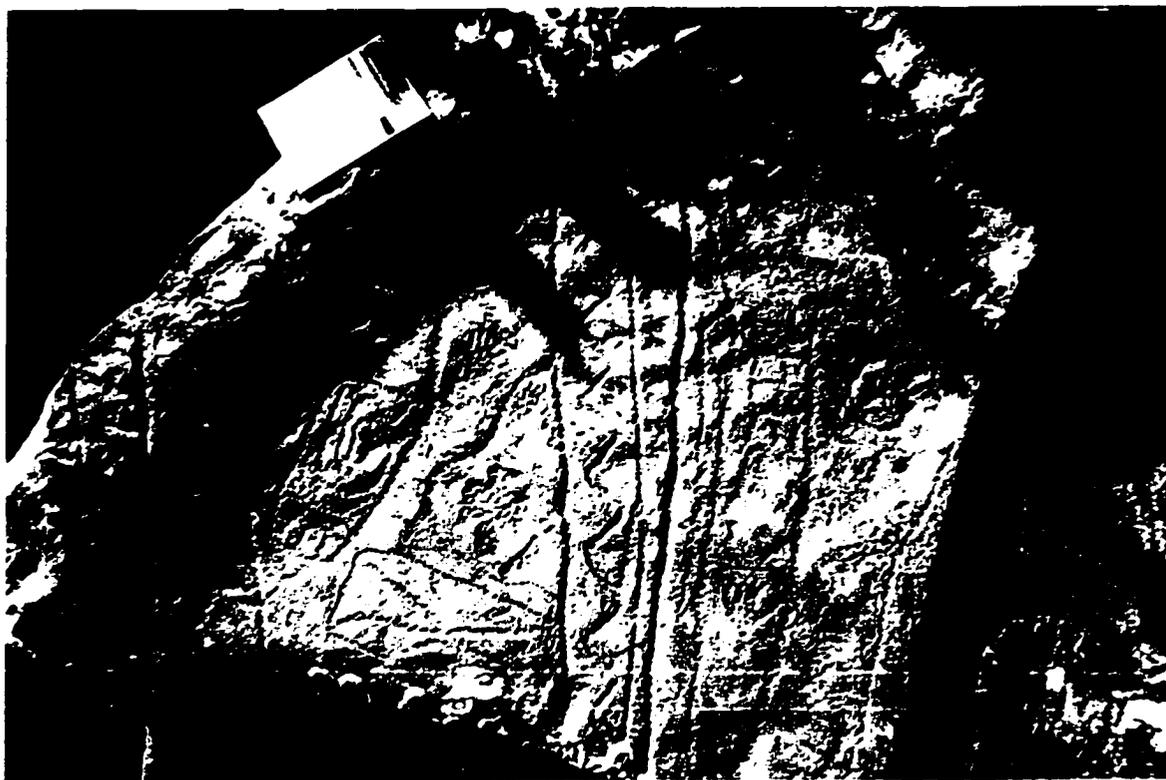


Figure 45a. Locus CF, North Site

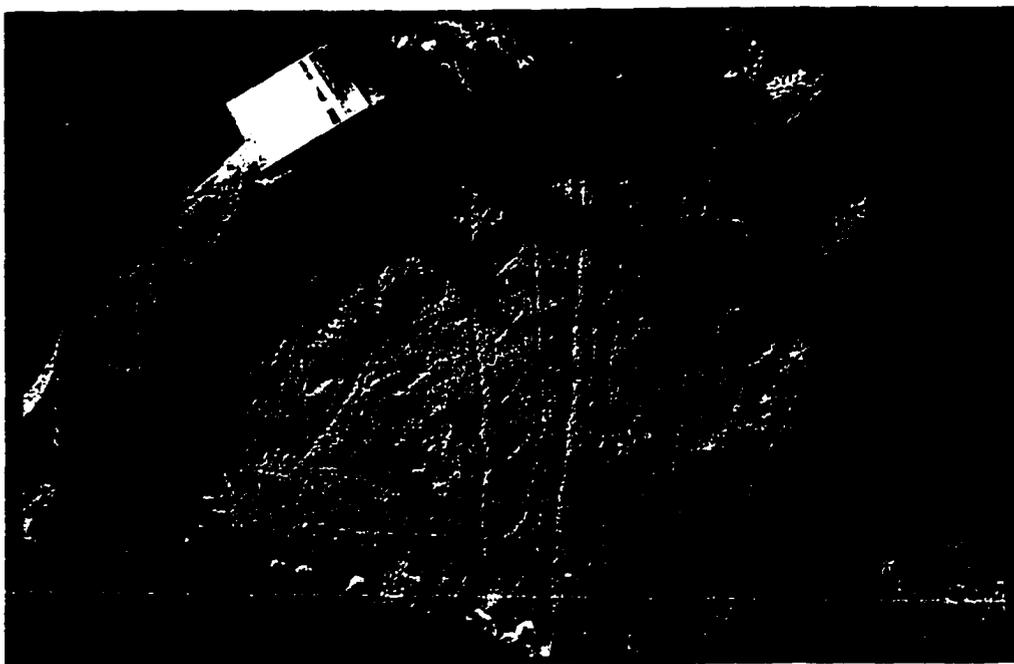


Figure 45b. Locus CF (computer enhanced)

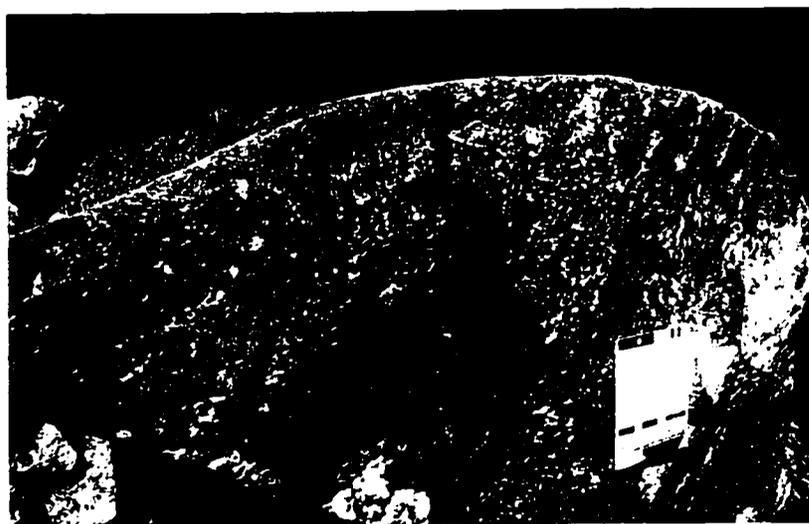


Figure 46. Locus CJ1, North Site



Figure 47. Locus EV, South Site

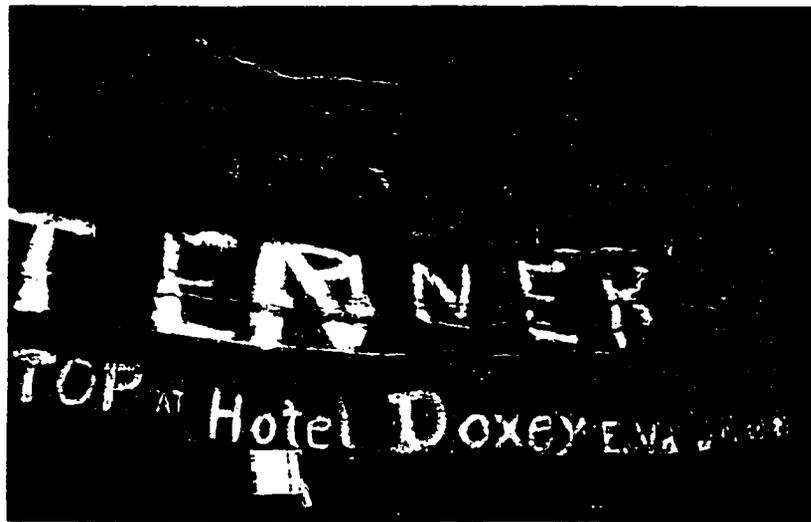


Figure 48a. Locus ET11, South Site, East Shelter

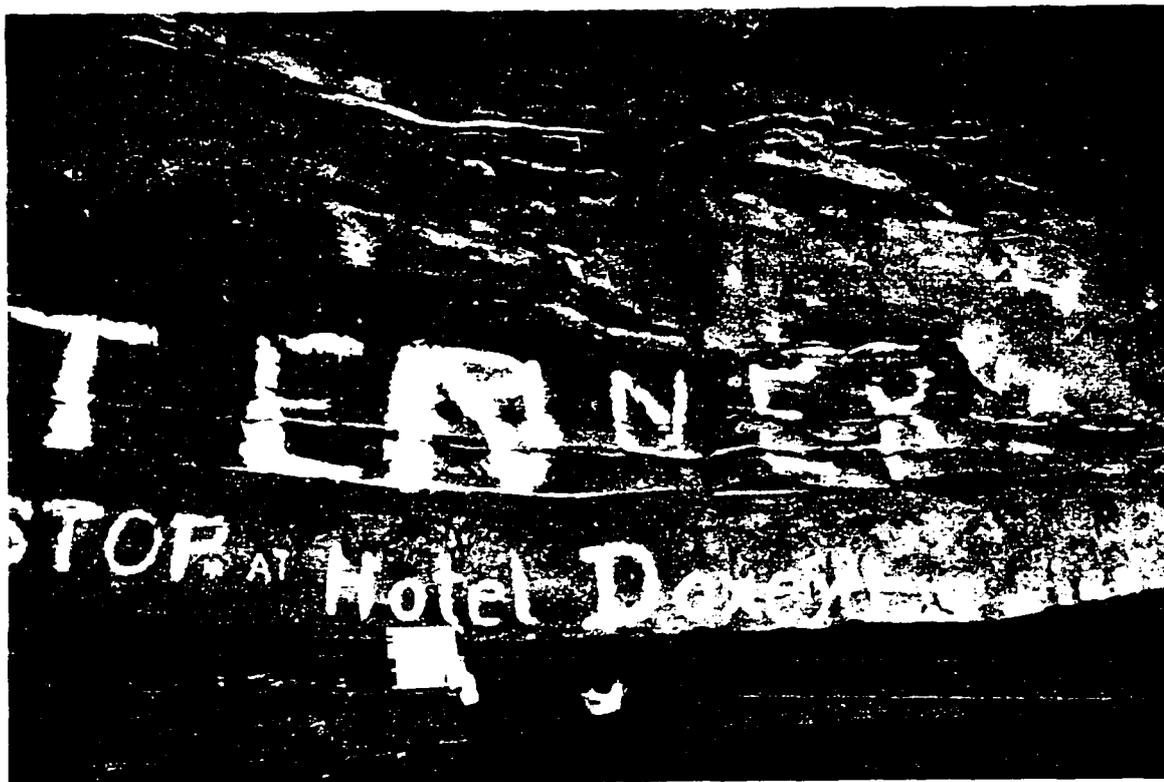


Figure 48b. Locus ET11 (computer enhanced)



Figure 49. Locus U3, West Site



Figure 50. Locus BY36, North Site



Figure 51. Locus BY37, North Site



Figure 52. Locus BY38, North Site

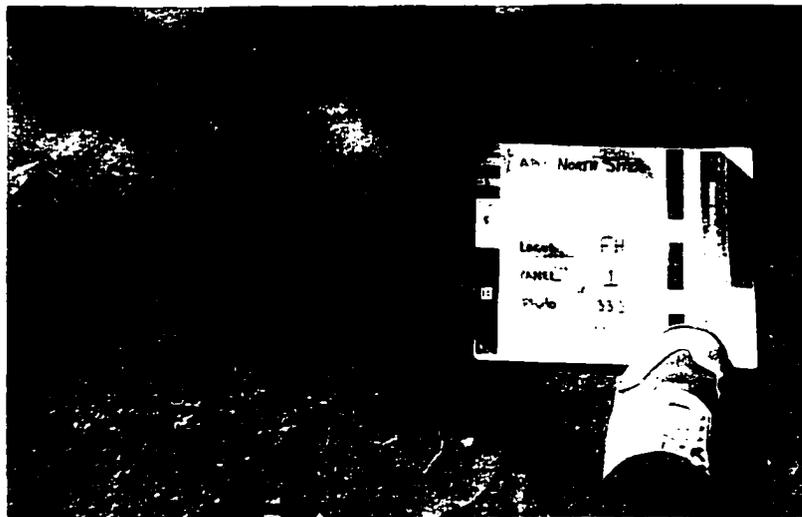


Figure 53a. Locus CL, North Site

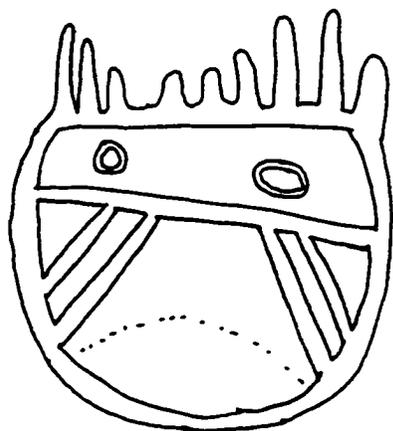


Figure 53b. Locus CL, drawing

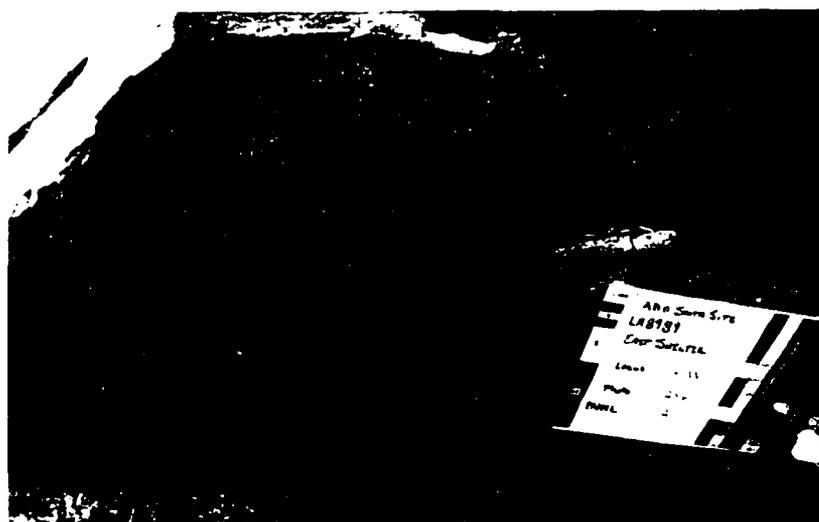


Figure 54a. Locus EW2, South Site

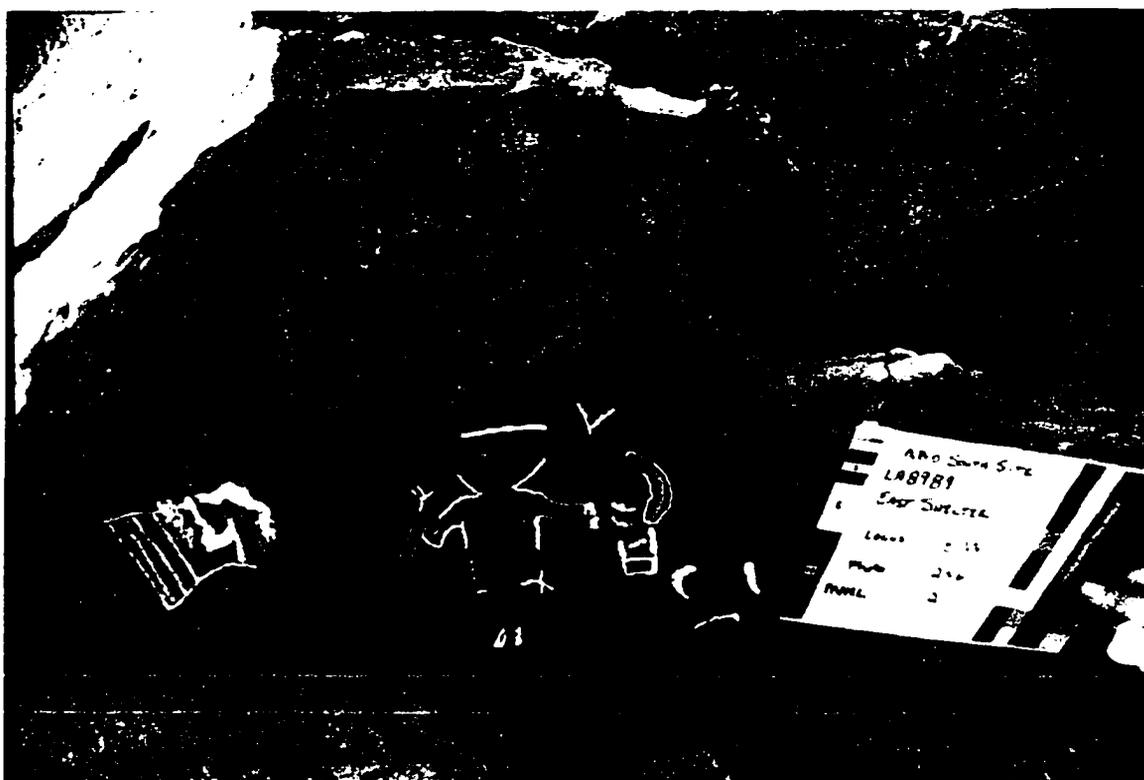


Figure 54b. Locus EW2 (computer enhanced)

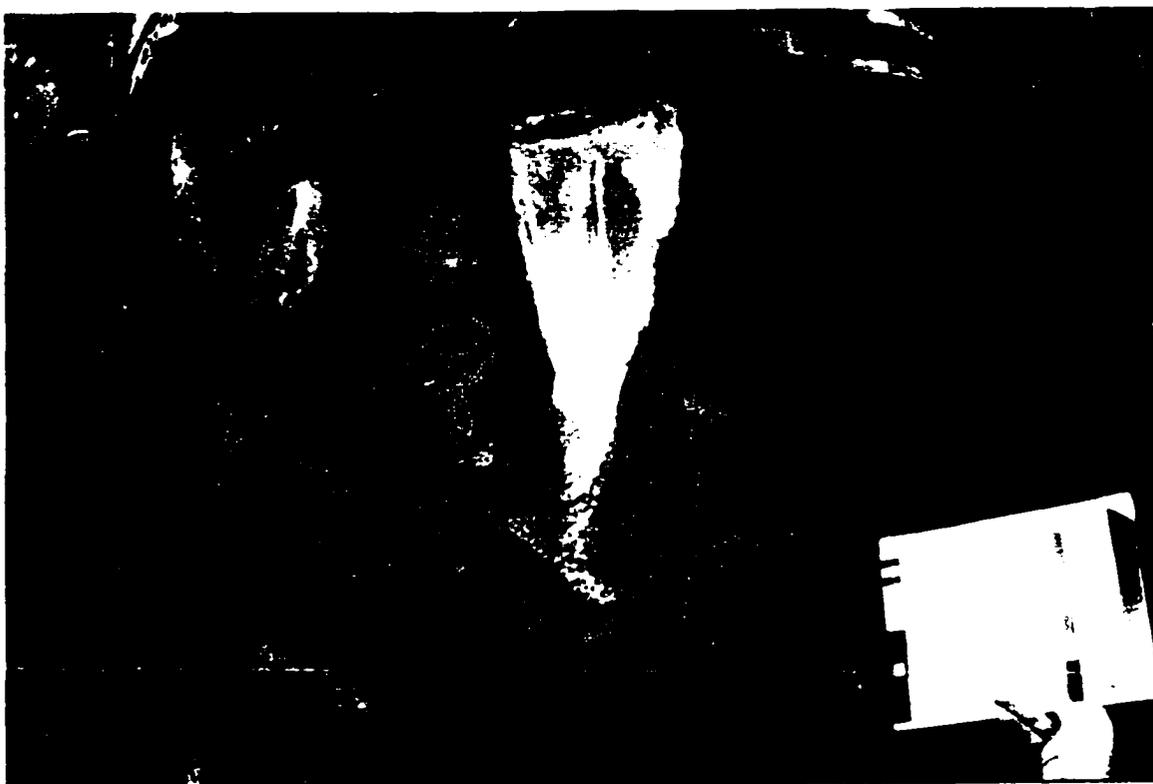


Figure 55. Locus BY7, North Site



Figure 56. Locus AE4, West Site

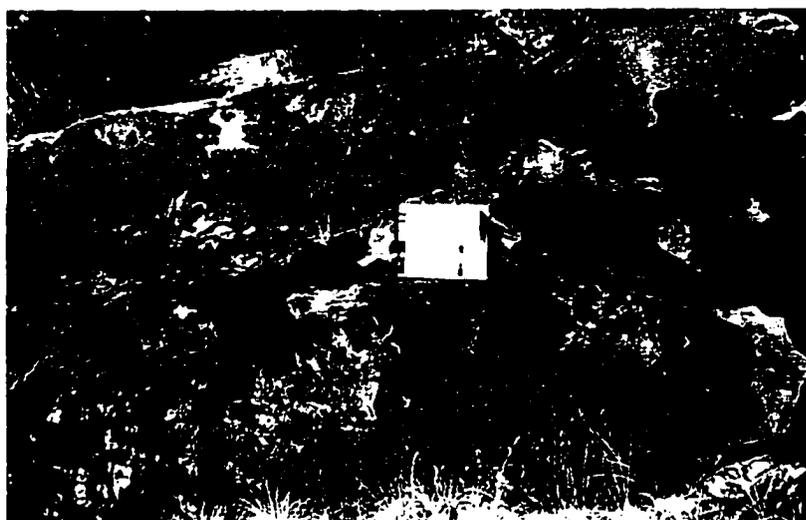


Figure 57. Locus BA, West Site

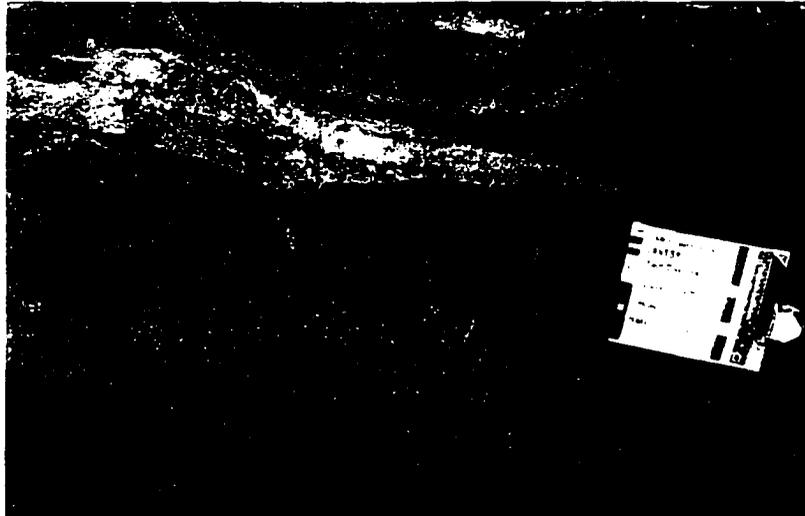


Figure 58a. Locus ET16, South Site, East Shelter

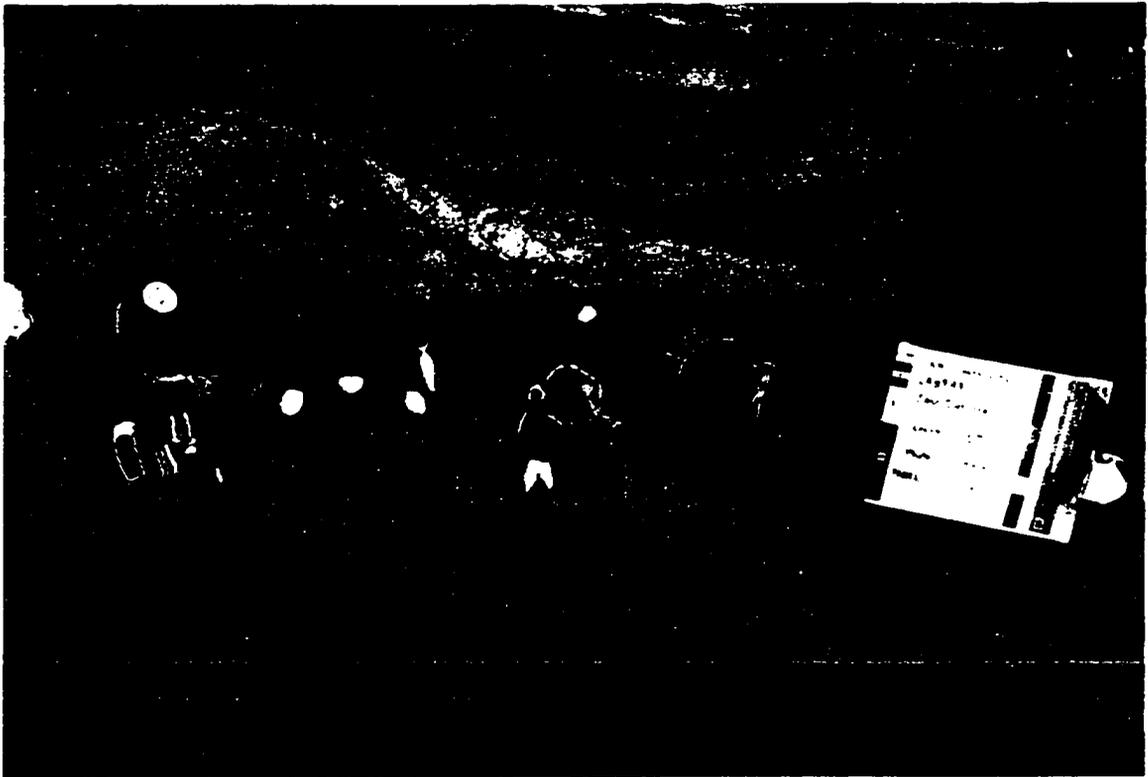


Figure 58b. Locus ET16 (computer enhanced)

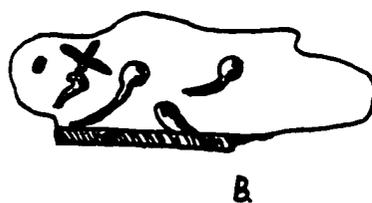
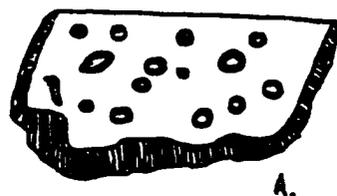


Figure 59. "Nutting" Stones (after Hurt, *Quarai*, plate 12: 3, 5, 7)

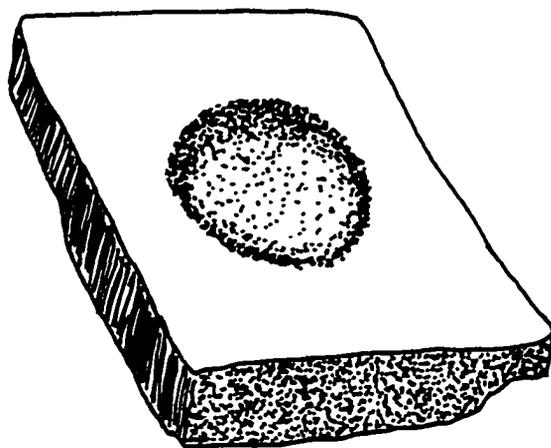


Figure 60. Grinding Basin (after Hurt, *Quarai*, plate 7, no. 5)



Figure 61a. Locus ET4, South Site, East Shelter

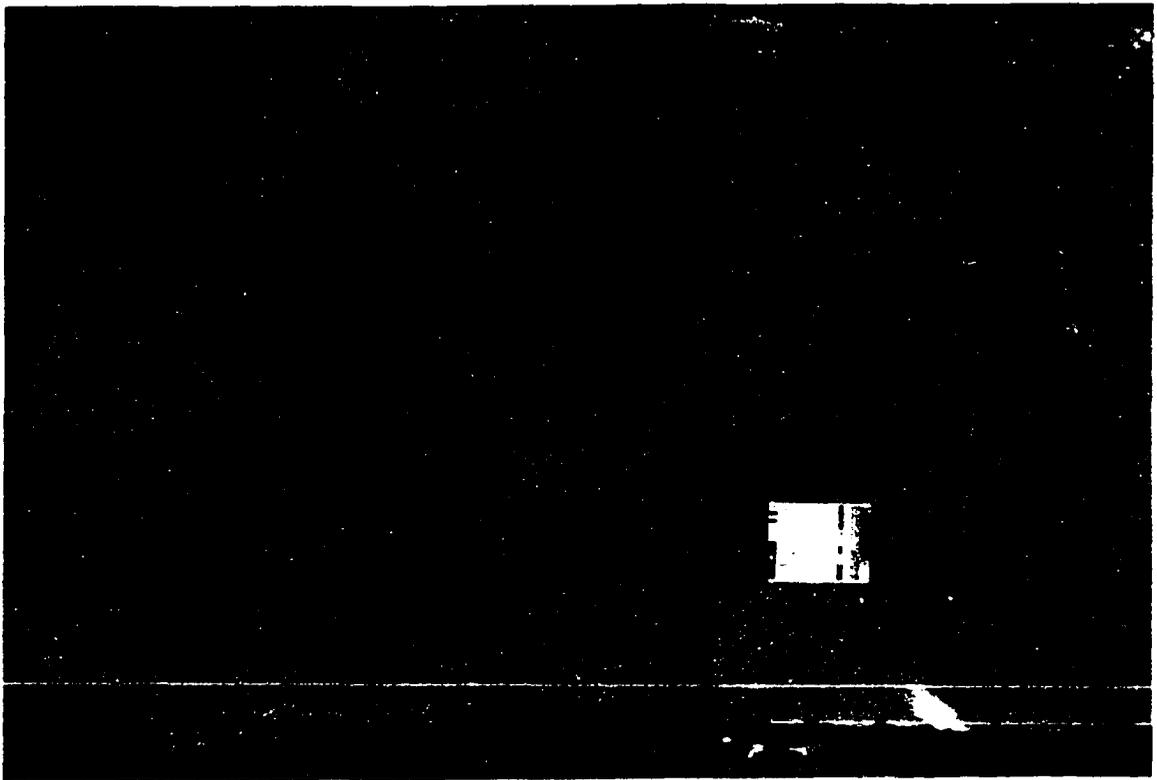


Figure 61b. Locus ET4 (computer enhanced)



Figure 62a. Locus EW1, South Site



Figure 62b. Locus EW1 (computer enhanced)



Figure 63. Locus ET10, South Site, East Shelter, drawing

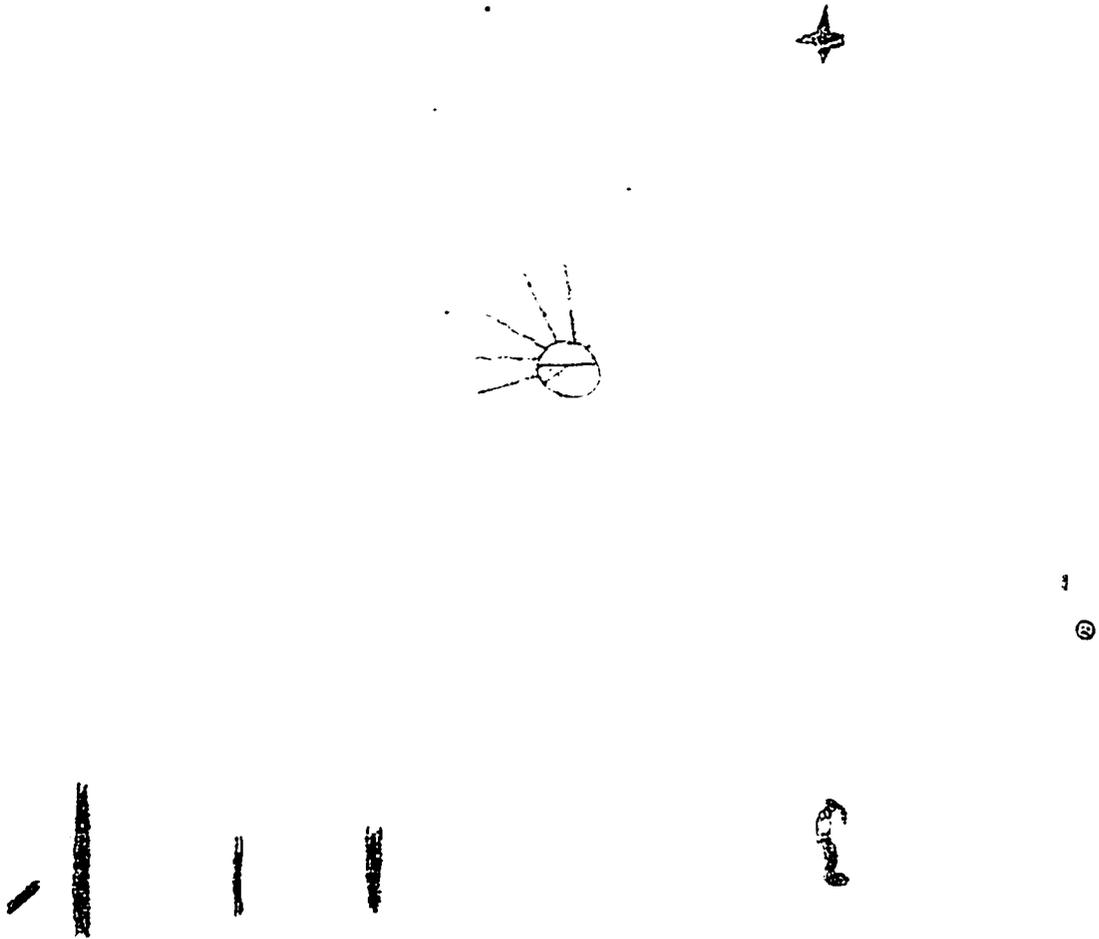


Figure 64. Locus ET11, South Site, East Shelter, drawing



Figure 65a. Locus DS4 and DS5, South Site, West Shelter

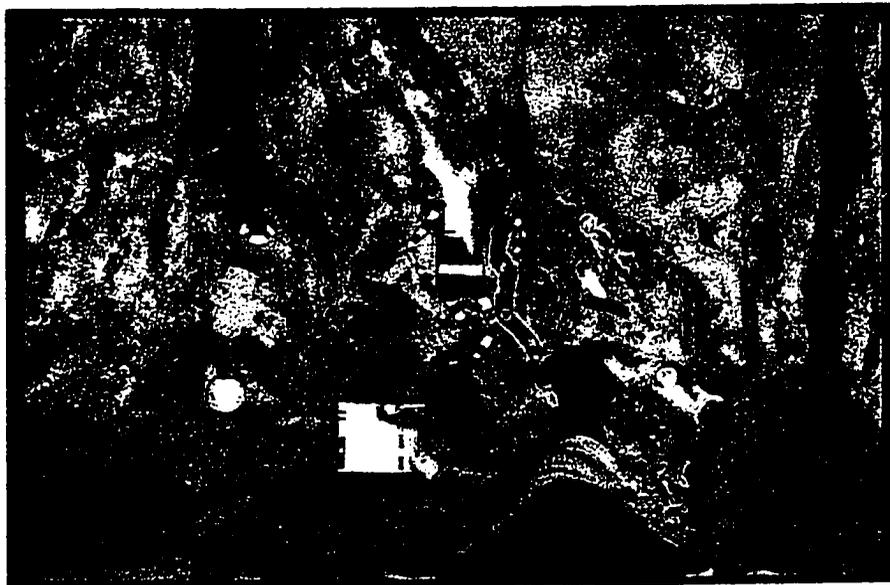


Figure 65b Locus DS4 and DS5 (computer enhanced)



Figure 65c. Locus DS4 and DS5 as recorded by Bandelier, 1882 (vat. lat. 14113, f. 95)

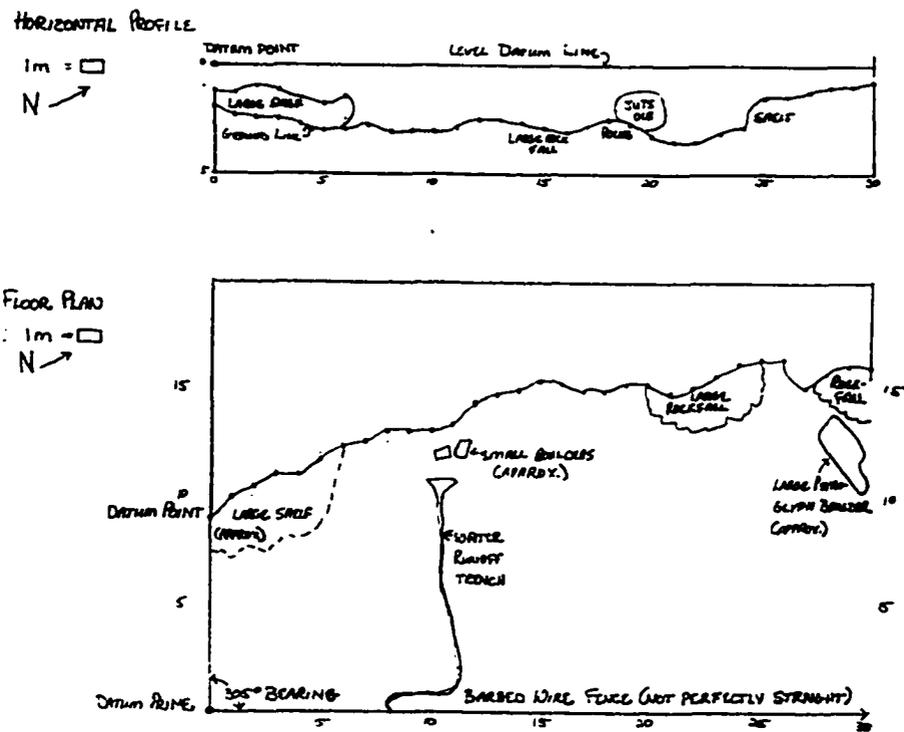


Figure 66. Horizontal Profile and Floor Plan, South Site, West Shelter

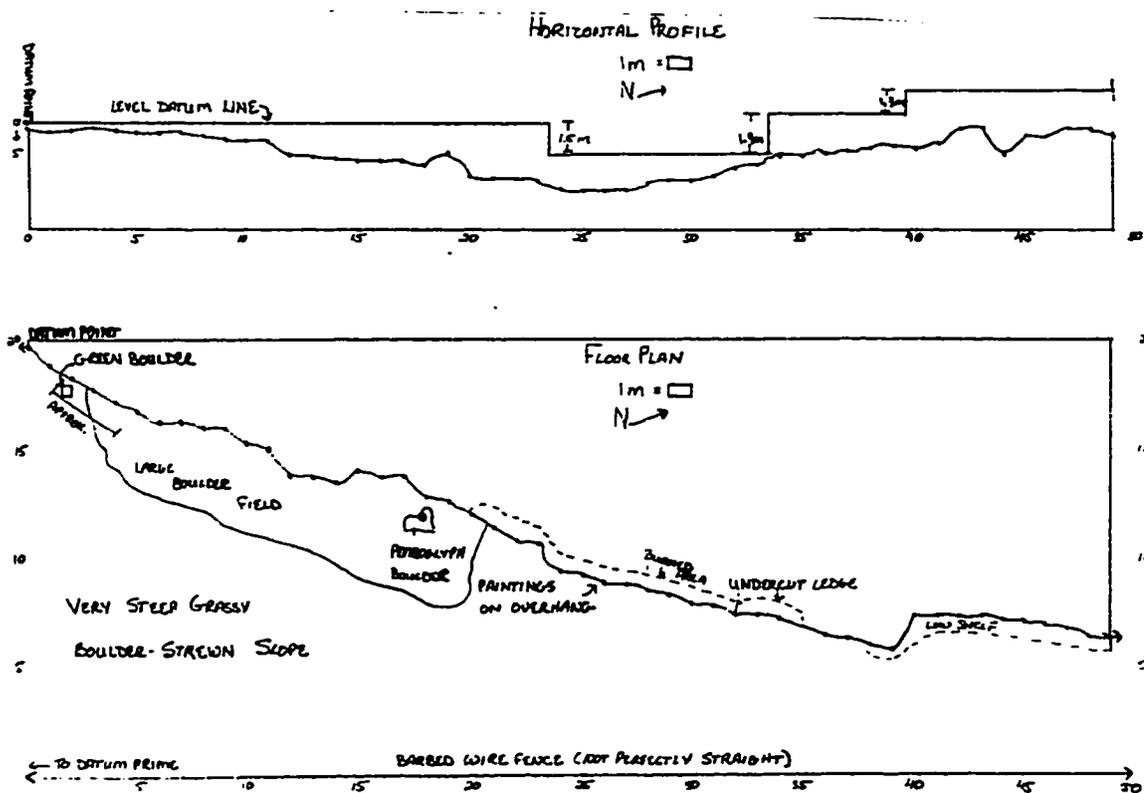


Figure 67. Horizontal Profile and Floor Plan, South Site, East Shelter

APPENDICES

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APPENDIX A Methods for Recording Rock Art and Manipulating Photographs

Recording Methods

In 1994, few rock art recording manuals were available. This has changed dramatically with the advent of the Internet. However, a synopsis of the field methods used for this research is intended to serve as an additional record for future consultation. Each site presents its own challenges, often requiring new field methods to be invented on the spot. Certainly, this was the case at Abo. Formal manuals, such as Nola Montgomery's *Rock Art Recording Manual* or the *Archaeological Society of New Mexico Rock Art Recording Field School Handbook* can provide guidance, but the methods applicable to cave sites on the Lower Pecos or open ridge sites such as Three Rivers, New Mexico exhibit very different characteristics; thus they demand different methodological approaches. In addition, neither manual incorporated Global Positioning Satellite (GPS) technology, although this may change in future editions.¹

Use of GPS technology can save countless hours of field work, but does have some limitations. Most of the rock art panels on the north and west sites are widely scattered talus slope boulders, an ideal situation for mapping with GPS. Plotting the coordinates of the vertical or overhead panels of the north site or the south site, however, presented a challenge. In the instance of the north site, the vertical panels occur too closely together to be accurately recorded with GPS. The field unit can map any position to within one meter, but if the panels are closer together, overlapping coordinates are the result. In the case of the south shelters, the rock art panels are under the overhang. Any recorded coordinates are actually those of the antenna, so to acquire the correct coordinates, the antenna must be able to "see" a significant portion of the sky. Therefore, the antenna could not be placed next to the panels under the overhang. To resolve these difficulties, points where the sky was visible were established at the ends of the bedrock

panel on the north site , and each of the two shelters at the south site. All loci to be mapped via GPS were flagged and labeled with an alphabetic system (A, AA, BA, etc.).

Individual panels were designated in the field. Usually the panel would be defined by the natural edges of the boulder. In the longer panels on the north site (locus BY) and the south site (loci DS and ET), panels were defined by natural breaks, cracks or other surface features. In locus BY, forty-four panels were designated that occupied different faces of the bedrock exposure. In the shelters, panels were determined by the original artists, where paintings seem to cluster at key points in each shelter. In places where water runoff seems to have partially obliterated paintings, dark stains became an arbitrary boundary between panels. In this case, two different panels as coded in this study could conceivably have been one large panel. This will have some effect on future interpretations of these paintings, although it did not play a significant factor in this dissertation.

Once all loci had been established, a team was assembled, composed of a photographer, a recorder and a general assistant, often employed in taking measurements. Each panel was carefully photographed. All panels were measured in height and width, as well as the height of the lowest element to ground level. All images were verbally described, counted and recorded. This information was recorded on a photographic data sheet (Table 2). At the end of each day, the data were transferred to an Abo Rock Art Survey Recording Form (Table 3). In the beginning, a compass was used to accurately record the direction a panel faced, but late "readings" were estimated. While most of the compass headings recorded are accurate, some may be slightly off, for example, east-northeast instead of the recorded northeasterly direction. After all of the photography was completed, each panel was recorded via field drawings. A Munsell rock color chart was used to record the color and value of rock surfaces, as well as three degrees of patination

Table 3.

ABO ROCK ART SURVEY			Panel Report Form		
Site: _____			Date: _____		
Locus: _____			Panel No: _____		
Situation:	Bedrock	Cliff	Talus Slope	Other _____	
Type of Rock: _____					
Worked Surface is: Vertical Horizontal Sloping Overhead					
Compass Reading: _____					
Dimensions of Worked Surface:		Height: _____			
		Width: _____			
		Height of Lowest Element: _____			
Erosion:	Yes	No			
Technique:	Petroglyph-	Pecked	Incised	Abraded	Gouged
		Depth:	Shallow	Medium	Deep
	Pictograph-	Stain	Paint	Blown	Stenciled
	Colors:	_____			
Patination:	Background-	Heavy	Light	None	
	Design Area-	Heavy	Light	None	
Design Elements (describe): _____					

Superimposition or Rock Feature Incorporation (describe): _____					

Natural Deterioration/Vandalism (describe): _____					

Color Photo Nos.: _____			Drawings (no.): _____		
Recorder: _____			Photographer: _____		

on sample panels (Table 4). Not all panels were compared to the color chart. For pictographs, the different pigments were also compared to the Munsell chart, because it was assumed that all pigments were mineral in original substance. Again, only sample paintings were compared to the chart, rather than all of the pictographs.

Table 4: Munsell Rock Color Chart Comparisons

Paint Pigments:	White (Puebloan White) Red Green	Pinkish Gray 5YR 8/1 Moderate Red 5R 4/6 Pale Green 5G 7/2
No matches were found for the yellow, orange, or creamy-white pigments.		
Petroglyph Patina		
Patina Shade	Sample Panel	Munsell Color
None shade	CF (Initials)	Light Brown 5YR 6/4 is a darker shade
No Varnish	CD	Moderate Orange Pink 10R 7/4
No Patina on Designs	CD	Pale Reddish Brown 10R 5/4 Yellowish Gray 5Y 8/1
Light-None Design	BY43	Grayish Orange Pink 10R 8/2
Light Varnish is	CF	Pale Reddish Brown 10R 5/4 a shade lighter
Light Petroglyphs	BY1	Pale Reddish Brown 10R 5/4
Heavy-Light Petroglyph	BY7	Moderate Reddish Orange 10R 6/6 is a shade dark
Heavy Varnish	BY1	Very Dusky Red 10R 7/4
Heavy Varnish	BY7	Very Dusky Red 10R 7/4
Heavy Varnish	BY43	Very Dusky Red 10R 7/4

To map the south site shelters' configurations, more mundane means were employed, in accordance with Montgomery's methods suggested in the above-mentioned manual. A level line was run between the GPS end points and marked every meter. The barbed wire fence running along the front of both shelters served as the straight line reference. A measuring tape was used to map the distance between the fence and the meter tick marks on the level datum lines. This process produced a horizontal map of the shelters (figs. 66a, 67a). The vertical views of the shelters were obtained by running the measuring tape from the meter ticks on the level line to ground level as it existed in the

spring of 1994 (figs. 66b, 67b). There are more accurate mapping techniques available, but these were unknown to this author at the time. The means described above were chosen for their relative accuracy and expediency.

Many problems were encountered during the recording of the Abo images. First, natural deterioration has taken its toll. Damage from rain runoff, swallows' nests, and exfoliation of paint or rock surfaces were all noted during the field work. Deliberate vandalism also occurred widely across the site, concentrating particularly near the modern highway in the south shelters, but it was prevalent throughout all five sites. Graffiti were counted in the recording effort but were not necessarily photographed nor drawn.

One unexpected problem encountered during field work was the removal of some locus flags before the recording was finished. Due to the size and rough terrain of the site, plus the density of images, it took several weeks to record all of the panels. In early April 1994, some "helpful" soul removed all of the locus flags on the north site. This author had to then seek out all of the panels that had been photographed but not yet drawn. Not all of the panels were found the second time, so there are discrepancies in the field data for the north site.

Several methods of photography were tried at this site. Two photographs were shot of most panels: one with a measurement and color standard (the mugboard) and one without. It was determined that "bracketing" the photographs, that is shooting the same panel at three different light exposures, did not yield better visual results, so this was discontinued. As an experiment, both black-and-white and color infrared films were used to photograph select panels in the south shelters, but this also yielded no additional visual information. However, this could easily have been due to the inexperience of the photographers in regards to using or handling infrared film. More experienced photographers may have better results.

As no doubt happens in every recording effort, some petroglyphs were missed. When the locus flags on the north site were removed before the field drawings were complete, not all of the loci were found again. Also, a few widely scattered petroglyphs were discovered on the west band of Arroyo Espinoso after the completion of the recording effort. These petroglyphs are no doubt those reported by Stuart Baldwin as LA site 99189. This author estimates that there are some fifty images on this site. Due to the late discovery, none of these petroglyphs were recorded and will need to be included in future efforts.

Manipulating Photographs

Once the field recording was finished, there remained the task of processing the images so they could be seen in publication or presentation. There were several steps in the process to develop the highly colored images in this dissertation. These will be briefly outlined below.

First, the straight photographs were digitized onto a CD-ROM. This medium was chosen for its relative permanence and immutability. Once digitized, the images could then be manipulated on a computer. Each image was imported into CorelDraw's Photo Paint software and then enhanced. CorelDraw has the capability of enlarging an image sixteen hundred percent, so that each pixel is clearly visible. For the pictographs, those pixels which showed evidence of paint were "painted" with the same hue in a brighter value. This had the cumulative effect of brightening each pictograph. These enhanced photos were then compared to the field drawings to ensure that no extra details were created in the painting process; only details actually visible to the naked eye were brightened. The painted enhancement finished, the digital images were then loaded onto a backup tape for data storage. Later, this backup tape was used in conjunction with a camera set up to take photographs of the digital images, thus producing the enhanced photographs used in this publication.

For the petroglyphs, each digital image was overlaid with a brightening filter available in the CorelDraw Photo Paint software. This had the net effect of enhancing the contrasting values in the rock art images. What is sacrificed here is the naturalistic color of the rock. This enhancement was sufficient in most cases, but not all. Where the visual images are inadequate, the field drawings are included to clarify otherwise invisible details. Great care was taken to remain true to the now-visible images on the rocks of Abo, and to avoid "making up" details.

ENDNOTES

¹Nola Montgomery, *Rock Art Recording Manual*, ed. Georg Zappler (El Paso: Texas Parks and Wildlife Department, Interpretation and Exhibits Branch, 1992); *Archaeological Society of New Mexico Rock Art Recording Field School Handbook* (Albuquerque: Archaeological Society of New Mexico, 1992).

Command: reclass
 Number of files: 1
 Old file: mainmap
 New file: main2
 Description: Reclass of mainmap for display
 Enter one reclass statement per line. Use empty line to end.
 : 1=1:344
 : 254=254
 :

Beginning reclass...

Command: count 1 main2

Legend file:

Count output file:

C:\EPPL7\MAIN2.EPP

Class	Count	Percent	Cumulative	Area	Legend
1	159	0.00	0.00	159.00	{all loci are now class 1}
254	3340941	100.00	100.00	3340941.00	

3341100 cells are onsite.

Command: buff

Old file: main2

New file: mainbuff

Description: To create 5 meter buffer around all loci

Radius: 5

Direction: 15

Command: border {to create circle border around loci; this is a vector file}

Old file: mainbuff

Create DGT file (YN): y

New DGT file: mainbord

Offsite option: 2

Create labels (YN): n

Line generalization tolerance: 0

APPENDIX C

Flow Chart for GIS Analysis

Model A: Chronological Maps with Hydrology

In DBase:

Create Query {UTM_E, UTM_N, LINE_NO, LOCUS, PANEL, DATE}
 Date Filters: AR*, E*P*, *LP, LP/HP, HP, *H, HA

AR Archaic

EP Early Puebloan

LP Late Puebloan

HP Historic Puebloan

H Historic (Mixed)

HA Historic Athapaskan

Save [Design Mode] Query| Copy Results to New Table

archaic.dbf	histpb.dbf
athapask.dbf	latehist.dbf
earlypb.dbf	latepb.dbf

In EPPL:

Import Table DBase *.dbf *.tbl {Converts DBase to Table file}

archaic.tbl	histpb.tbl
athapask.tbl	latehist.tbl
earlypb.tbl	latepb.tbl

Gridpoint ALLUTMS4.EPP *.tbl 1 7 8 15 16 19 *.cct 65535 254 Creates raster file

archaic.epp	histpb.epp
athapask.epp	latehist.epp
earlypb.epp	latepb.epp

Reclass 1 *.epp *.epp {Reclasses loci from class 0 to class 1 for buffer function}

:1=0

:254=254

:

ar.epp	hp.epp
ap.epp	lh.epp

ep.epp lp.epp
Model A: Continued

Buffer *.epp *buff.epp 5 15 Creates 5 meter buffer around all loci

arbuff.epp	hpbuff.epp
apbuff.epp	lhbuff.epp
epbuff.epp	lpbuff.epp

Border *.epp Y *.dgt 2 N 0 Creates linear circle for all loci; vector file

arbord.dgt	hpbord.dgt
apbord.dgt	lhbord.dgt
epbord.dgt	lpbord.dgt

In Layout:

Draw basic .epp file
Overlay *buff.dgt {chronological points}
Overlay abohydro.dgt {arroyos}
Save as [period].tpl

Model B: Schaafsma's War Complex with Hydrology

In DBase:

Create Query {UTM_E, UTM_N, LINE_NO, LOCUS, PANEL, DATE, [element]}
Date Filter: LP*

Save [Design Mode] Query| Copy Results to New Table

bird.dbf	zap.dbf
dfly.dbf	rnd.dbf
4pt.dbf	rndfig.dbf
mask.dbf	snake.dbf

In EPPL:

Import tbl DBase *.dbf *.tbl {Converts DBase to Table file}

bird.tbl	zap.tbl
dfly.tbl	rnd.tbl
4pt.tbl	rndfig.tbl
mask.tbl	snake.tbl

Gridpoint ALLUTMS4.EPP *.tbl 1 7 8 15 16 19 *.cct 65535 254 Creates raster file

bird.epp	zap.epp
dfly.epp	rnd.epp
4pt.epp	rndfig.epp
mask.epp	snake.epp

Reclass 1 *.epp *.epp {Reclasses loci from class 0 to class 1 for buffer function}

:1=0
:254=254

bird2.epp	zap2.epp
dfly2.epp	rnd2.epp
4pt2.epp	rndfig2.epp
mask2.epp	snake2.epp

Buffer *2.epp *buff.epp 5 15 Creates 5 meter buffer around all loci

birdbuff.epp	zapbuff.epp
dflybuff.epp	rndbuff.epp
4ptbuff.epp	rndfigbuff.epp

maskbuff.epp snakebuf.epp
Model B: Continued

Border *buff.epp Y *.dgt 2 N 0 Creates linear circle for all loci; vector file

birdbord.dgt	zapbord.dgt
dflybord.dgt	rndbord.dgt
4ptbord.dgt	rfbord.dgt
maskbord.dgt	snakebrd.dgt

In Layout:

Draw latepb.epp file as base

Overlay *bord.dgt {element points} in different colors

Overlay abohydro.dgt {arroyos}

Save as schaafs.tpl

Model C: Directional Model with Hydrology

In DBase:

Create Query {UTM_E, UTM_N, LINE_NO, LOCUS, PANEL, DATE, [all elements]}
Date Filter: EP

Save [Design Mode] Query| Copy Results to New Table

top.dbf west.dbf

In EPPL:

Import tbl DBase *.dbf *.tbl {Converts DBase to Table file}

top.tbl west.tbl

Gridpoint ALLUTMS4.EPP *.tbl 1 7 8 14 15 17 *.cct 65535 254 Creates raster file

top.epp west.epp

Reclass 1 *.epp *.epp {Reclasses loci from class 0 to class 1 for buffer function}

:1=0

:254=254

top2.epp west2.epp

Buffer *2.epp *buff.epp 5 15 Creates 5 meter buffer around all loci

topbuff.epp westbuff.epp

Border *buff.epp Y *.dgt 2 N 0 Creates linear circle for all loci; vector file

topbord.dgt westbord.dgt

In Layout:

Draw *.epp file as base

Overlay *bord.dgt {element points}

Overlay abohydro.dgt {arroyos}

Save as *.tpl

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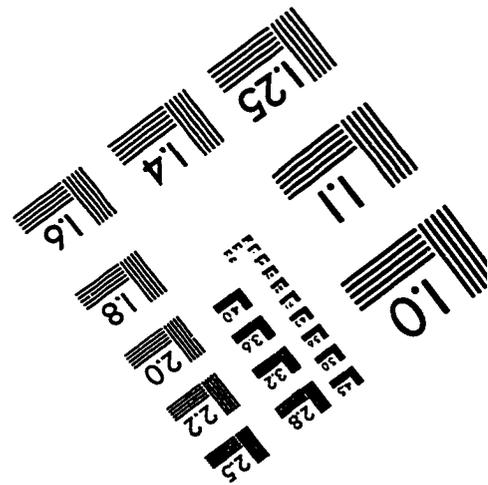
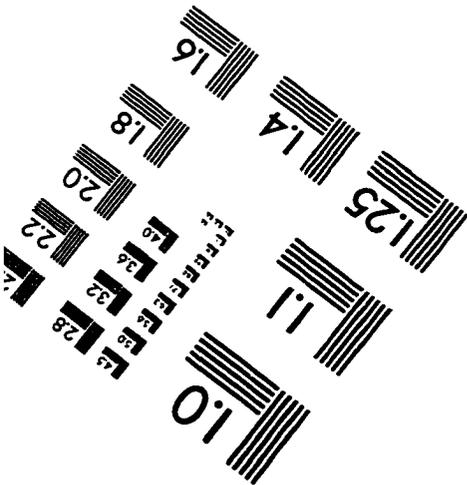
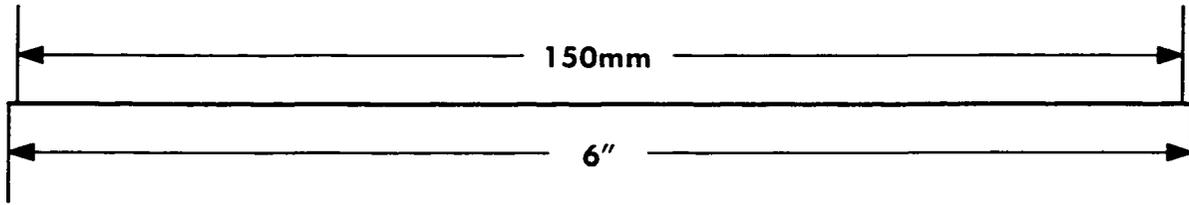
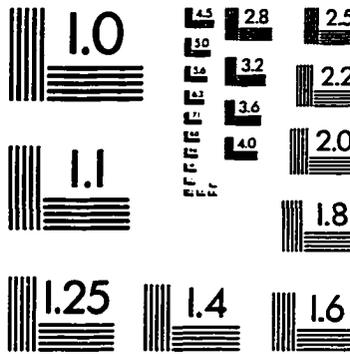
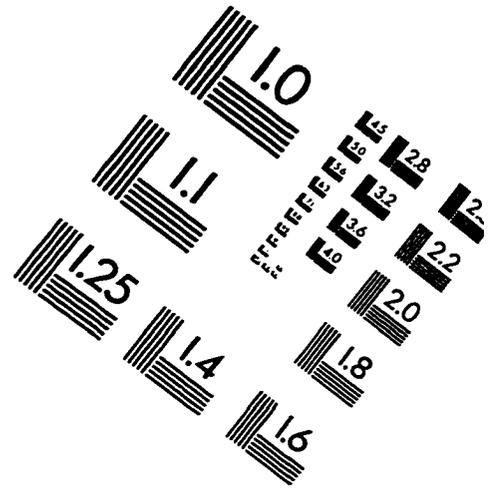
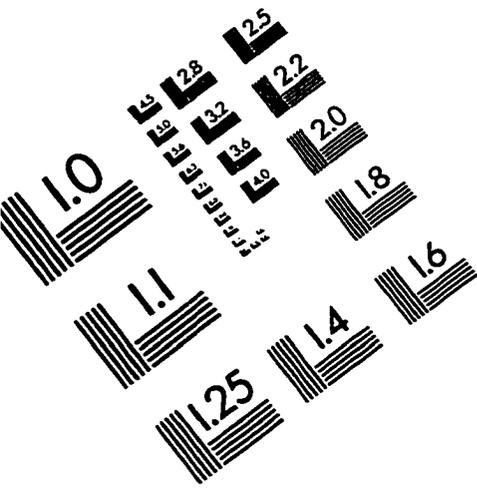
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