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Introduction to Field Investigations and Analysis

by

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## ABSTRACT

The University of Colorado began field operations as part of the Dolores Project Cultural Resources Mitigation Program in June 1978. The program is being funded by the Bureau of Reclamation as an integral part of the Dolores Project, a multipurpose water storage and distribution system being constructed on the Dolores River in southwestern Colorado. Preparation for the first field season included formulation of a general research design with five major problem domains (Economy and Adaptation, Paleodemography, Social Organization and Settlement Pattern, Foreign Relationships, and Cultural Process); design of a site typology and preliminary systems of spatial and temporal units; and development of a specific excavation design and excavation schedule for 1978. Intensive fieldwork began on 12 June and ended on 22 November. During this span University of Colorado and Washington State University field crews conducted excavations at seven prehistoric sites; the occupational time span represented in this sample is about 4000 B.C.-A.D. 1200. In addition, another crew conducted specialized field studies including magnetometer survey and recovery of archaeomagnetic dating samples. In 1978 the program of field operations emphasized recovery of basic archaeological data for estimation of characteristics of prehistoric cultures in the Dolores Project area. Goals for the program in this direction included obtaining assessments of the temporal range of prehistoric remains, of variability in site types and distributions, and of the quality and quantity of portable artifacts. In 1979 and future years, field operations will be directed toward amassing additional data to refine and augment first-year constructs and toward the recovery of data that can be

questions outlined in the research design. During the fall of 1978, the data generated during the field season was employed to develop more rigorous project controls including a reversed site typology and systems of spatial and temporal units.

## INTRODUCTION

The Dolores Project Cultural Resources Mitigation Program is a multi-institutional, multi-year research project funded by the U.S. Department of Interior, Bureau of Reclamation. The goal of the program is to alleviate direct and indirect impacts on cultural resources in Montezuma and Dolores counties, Colorado, resulting from construction and implementation of the Dolores Project, a multi purpose water storage and distribution system being constructed on the Dolores River. The prime contractor for the program is the University of Colorado; the university is responsible for directing and managing the program and conducting a major portion of the fieldwork and analysis. The university has engaged several subcontractors who are conducting other facets of the program: Woodward-Clyde Consultants is designing and implementing the data management system; Washington State University is sharing responsibility for field operations and analysis; Western Audio Visual is preparing motion picture footage of the program; and Centuries Research, Incorporated, assumed responsibility for mitigation of historic resources.

During 1978 the university was to conduct field investigations in first-year construction impact areas as determined by the Bureau of Reclamation. Consideration of these guidelines led to the designation of priority zones for intensive investigations (usually excavation) of cultural sites. These priority zones are termed the 1978 study areas and reflect the projected locations of the dam site and initial borrow areas in the Bureau's construction plan. The 1978 study areas consist of two

divisions, one each in the Sagehen Flats and Grass Mesa archaeological localities (see Spatial Systematics section in this report for definitions of these terms).

Necessary preparatory steps before initiating actual fieldwork were the formulation of a general research design for the program as a whole, construction of preliminary control systems (temporal and spatial units and a site typology), and creation of a sampling design and excavation schedule. Actual fieldwork was begun on 12 June and continued until 22 November. During most of this period, operations were conducted by five University of Colorado and Washington State University crews; four crews were responsible for site excavation and one crew carried out specialized field studies. These studies included magnetometer survey and recovery of archaeomagnetic dating samples. A summary of field activities is presented in a later section in this report. Detailed discussions of specific site excavations and specialized field studies are topics of individual reports included as other chapters of this volume. These chapters will be included in further Reports from the Dolores Project, Cultural Resource Series. After the field season, project personnel were engaged in analysis and report preparation. The preliminary control systems were evaluated in light of the excavated data and more rigorous constructs formulated. These are presented in the later sections of this report.

## GENERAL RESEARCH DESIGN

The general research design of the Dolores Archaeological Program (D.A.P.) is focused on investigating prehistoric (Anasazi Tradition) communities in the Dolores area. The rationale for this study emphasis is twofold: first, archaeological surveys have revealed that the project area is rich in Anasazi remains representing all periods of occupation; other prehistoric traditions are not so well represented. Second, the large areal expanse of the project allows study of Anasazi communities on a regional scale; perhaps the most serious shortcoming of previous archaeological research done in the Montelores area (Montezuma and Dolores counties, Colorado) is the lack of a regional perspective.

The study of regional variations, then, is a major aspect of the general research design; quantitative analyses of intersite differences will allow estimates of the range of cultural diversity in the project area. Investigating the role of prehistoric environment and society as factors influencing cultural diversity will be a research objective. Culture change, or cultural process, is a second major research orientation. As the project area contains sites representing the full spectrum of Anasazi prehistory and also includes remains of the Archaic predecessors to these Formative peoples, there is an excellent opportunity to conduct an in-depth study of temporal variation in local prehistoric cultures. Again, the emphasis will be not only on description, but also on identifying causal relationships.

On a larger scale, Anasazi communities in the project area will be studied as a local manifestation of the New World Formative Stage. Kent

Flannery's [1] The Early Mesoamerican Village is viewed as a suitable model for studying southwestern Formative cultures as well as those of Mesoamerica. Many of the basic concepts and study methods described by Flannery and his contributors will be applied to data generated by project operations, and their applicability tested. Adoption of these techniques and awareness of the cultural parameters for Formative Mesoamerica described in this work will allow cross-culture area comparisons.

The general research design incorporates a systems model of culture because of its suitability for studying both cultural dynamics and relationships with the environment. Archaeologists applying this model view prehistoric human behavior as articulations between numerous systems encompassing both cultural and noncultural components. The general strategy in this approach is to isolate the systems and system components that are necessary in developing a research design and to analyze their characteristics and mechanisms of interaction. The identification of systems that are fundamental and essential in the context of Anasazi communities was a critical step in conception of the project general research design. Eventually, four systems were selected; these were economy and adaptation, paleodemography, social organization, and foreign relationships. Each of these topics was subsumed in the general research design as a major problem domain; in addition, cultural process is also regarded as a critical component of study and was added as a fifth major domain. A detailed presentation of the general research design for the Dolores Archaeological Program can be found in Kane et al. [2]; a short summary of each of the major problem domains follows.

### Problem Domain 1: Economy and Adaptation

In order to fully investigate economic lifeways, program personnel will develop and investigate the implications of alternative man-resource interaction models. A key step in this process is the understanding and description of the role of human disturbance in modifying prehistoric ecosystems. Aspects of the problem to be considered include the identification of contemporaneous available resources for different areas and periods, analysis of procurement systems employed in obtaining these resources, and the investigation of processing techniques, consumption modes, and discard practices.

### Problem Domain 2: Paleodemography

Research in this problem domain is primarily directed toward establishing parameters for the prehistoric population. Major areas of study include estimates of local and regional population levels, and the establishment of population clines, the physical characteristics of prehistoric peoples in project study areas, and the distribution of sites and activities in the study area. Other important research interests are mortuary practices, population age structures, and health.

### Problem Domain 3: Social Organization

The research objectives in this problem are to reconstruct prehistoric behavior patterns (activities), where and when they were being performed, and the individuals or social groups responsible for carrying out these activities. The method will be first to establish criteria for identifying prehistoric groups and then to investigate group functions and articulations, including how task groups were organized, the degree of

labor specialization, and how groups and individuals were integrated into the community. The analysis of Anasazi settlement systems (both intra- and intersite relationships) is seen as an important research area in this domain and also in Problem Domain 1.

#### Problem Domain 4: Foreign Relationships

Foreign relationships and trade are other major aspects of culture being studied. The identification of introduced exotic materials and ideas in the project area and the recognition of local products and ideas in foreign areas is basic and necessary to this research. Once these objectives have been accomplished, mechanisms of exchange can be investigated, and the political and economic relationships of local Anasazi groups to foreign groups estimated.

#### Problem Domain 5: Cultural Process

To study cultural process in project study areas, it is first necessary to identify and describe temporal variability in the local pre-historic cultures; this requires fine temporal controls and the systematic application of dating techniques such as dendrochronology, archaeomagnetism, radiocarbon, and artifact seriation. After the nature of the variability is established, the next step in the analysis is the identification of general cultural mechanisms and processes that are reflected in this variability. Finally, the causal relationships necessitating these processes will be investigated. Change and process in Anasazi economics, demography, society, and foreign relations will be investigated using this study method. Related research areas include the causes for the abandonment of the project area by the Anasazi peoples and the implications for

modern inhabitants, and the introduction of domesticates into the project area, their changing role in the Anasazi economy, and inferences for the role of domesticates in human society in general.

## 1978 FIELD INVESTIGATIONS

Field investigations of the Dolores Archaeological Program were begun in June 1978; these investigations can be generally classified as nonintensive operations or intensive investigations (excavations). Nonintensive operations include categories such as preliminary assessment of resources, archaeological survey, remote sensing programs, geologic and vegetation surveys, and detailed surface mapping and limited testing of prehistoric sites. Intensive operations are at present limited to site-specific excavation. In 1978, several field programs classified as nonintensive operations were initiated; intensive investigations were conducted at seven prehistoric sites. All investigations in 1978 were initiated in Bureau of Reclamation primary impact areas.

### Nonintensive Operations

Nonintensive field operations of four types were carried out in 1978: archaeological survey, preliminary assessments, a magnetometer survey testing program, and archaeoastronomy. These are summarized below.

#### Archaeological Survey

The 1978 archaeological surveys of the Dolores Archaeological Program were carried out by a Young Adult Conservation Corps crew. The survey was classified as an inventory; that is, the goal was 100 percent identification and recording of sites in specified areas. The survey thus served to accomplish two goals of the program: first, the recording of cultural resources in project impact areas as required by law; and second, the formation of a sampling universe from which to select sites for further investigations. During the first year the inventory survey was

implemented in project primary impact areas; specifically, these were the dam site and cofferdam pool, main pool, Great Cut Dike, Borrow Areas A, B, and E, McPhee Recreation Area, and the proposed right-of-way of the Great Cut Dike-McPhee Dam access road. Survey operations in 1978 were thus carried out in the Grass Mesa, Periman, House Creek, Dolores, Escalante, Sagehen Flats and Cline Crest localities (see Spatial Systematics section). A thorough report of survey operations, results, and interpretation has been prepared by Dykeman et al. [3].

#### Preliminary Assessment

Goals of the preliminary assessment program in 1978 were to delineate study areas (or locations) for first-year operations, to construct a preliminary site typology for classification of sites in the study area, and to design a sampling program for 1978 excavations. This program was implemented by a careful examination of existing archaeological survey records, assessment of Bureau of Reclamation construction schedules, and actual onsite evaluations in the field. An important factor in selection was the location of project primary impact areas. As a result, two tentative study areas were selected. These were the Sagehen Flats Study Area, projected as the location of a construction borrow area, and the Grass Mesa Study Area, which included the proposed McPhee Dam site (Figure 1.1). Both study areas are located north and west of the town of Dolores, Colorado. Detailed presentations of the environment and archaeology of these areas (subsequently termed localities) are included in later reports in this volume (Kane [2], Hogan [4]).

Once study areas were defined, the next step was to consider the problem of archaeological controls (temporal and spatial units and a site typology) that could be applied to field operations. It was decided that

no real attempt to design a spatial system would be made before commencing excavation. Rather, investigations would be confined to the arbitrarily delimited study areas and a surrounding catchment area. During the field season, a literature search would be conducted for systems and terminology that might be adopted by the project.

For temporal controls, it was decided initially to use the Pecos Classification, a generalized scheme designed to categorize prehistoric cultures in the northern portion of the American Southwest, first implemented in 1927. The Pecos Classification is applicable only to the Anasazi Tradition; cultural remains thought to represent other time spans would be assigned only general cultural affiliation. This preliminary temporal framework is presented in Table 1.1.

Further tasks to be accomplished before initiation of fieldwork were the development of a site typology and the formation of a sampling strategy based on the preliminary data. The process for developing a site typology consisted of reviewing records of the archaeological remains encountered in Dolores and Montezuma counties and comparing these with site types described by Mesa Verde archaeologists (see Rohn [5], Hayes [6]). This comparison resulted in a list of site types expected to be encountered in the project study areas; this list was then organized according to three major divisions based on intensity of use by the prehistoric population and to subdivisions based on site function. Once the typology was established, sites in the study areas were classified according to the formalized criteria and according to the cultural periods established as part of the Pecos Classification. Sites included in this classification process were recorded during 1972 (Breternitz and Martin [7]) and 1976 (Kane [8]) archaeological reconnaissances of the project

Figure 1.1 The Dolores Archaeological Program study areas, 1978; excavated sites and study areas are indicated. (All site numbers are prefixed by 5MT, according to the Smithsonian system.)

# DAP STUDY AREAS, 1978

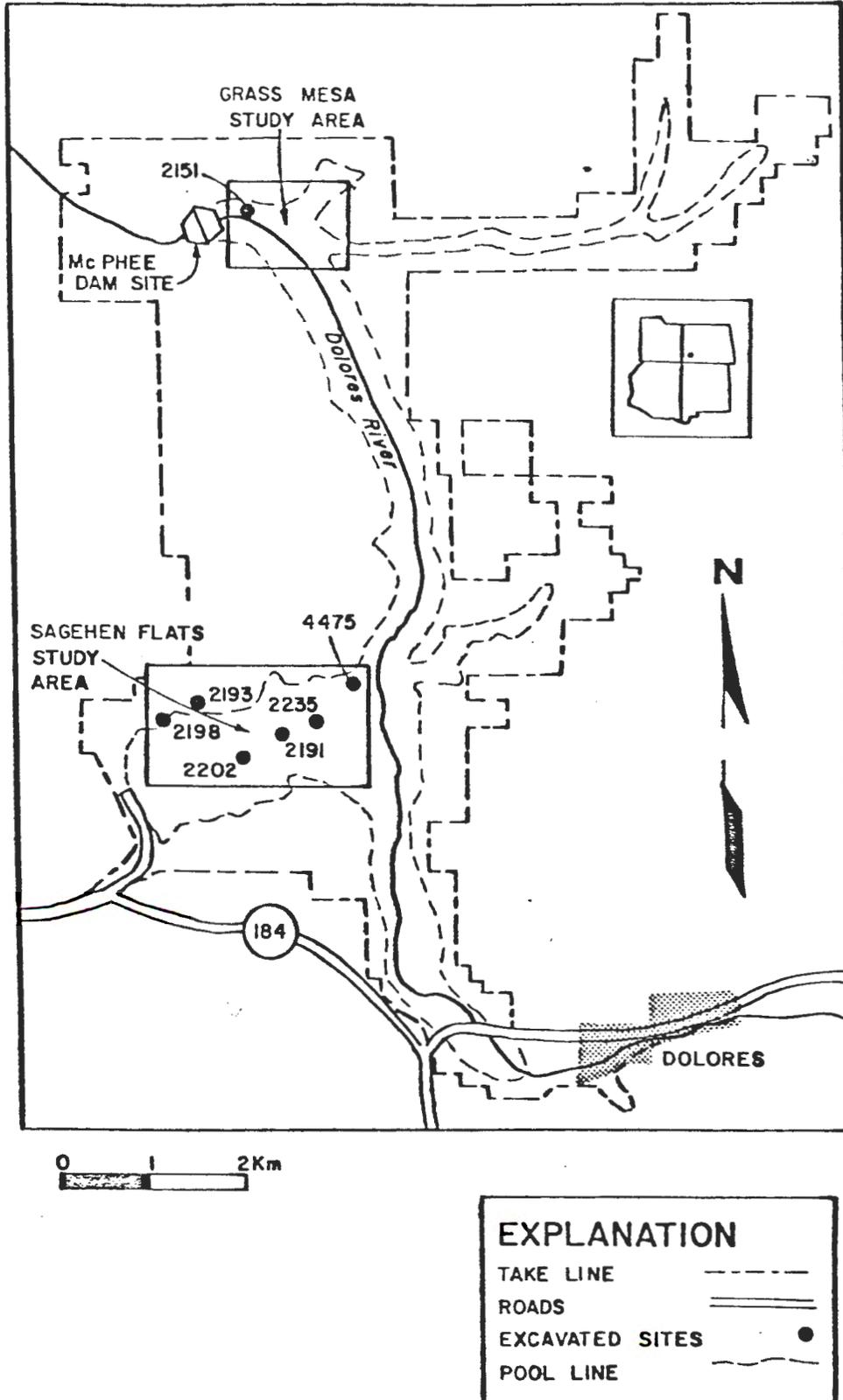


Figure 1.1 The Dolores Archaeological Program study areas, 1978.

Table 1.1 Preliminary Temporal Framework  
for D.A.P. Field Operations\*

Tradition	Time Span
Paleoindian	10,000(?) - 5500 B.C.
Archaic	5500 B.C. - A.D. 450
Anasazi	
Basketmaker III (BMIII)	A.D. 500-750
Pueblo I (PI)	A.D. 750-900
Pueblo II (PII)	A.D. 900-1100
Pueblo III (PIII)	A.D. 1100-1300
Athabascan-Shoshonean	A.D. 1300-present
EuroAmerican	A.D. 1776-present

\*adapted from Nickens [9]

area. The 1972 survey was not a 100 percent coverage effort; hence, the site lists are probably incomplete. Table 1.2 presents the results of this classification effort.

The general strategy used to actually select sites for excavation was as follows. Initially, in a study of prehistoric communities, a representative sample of different site types according to cultural period should be excavated to firmly establish the characteristics of the data set. This inaugural effort serves to verify and fine tune the initial site typology and to yield a first estimate of architecture and material culture associated with site type units. Based on initial work, more selective intensive programs can be implemented in later field seasons. Such programs will be geared to gathering data necessary to address specific questions posed in the general research designs. For example, excavations might center on large refuse middens to recover human skeletal materials necessary to establish demographic characteristics of the prehistoric population; or habitation sites thought to represent a dispersed community cluster might be intensively sampled to investigate small-scale temporal changes within a local social group.

The first step in developing a specific sampling strategy is to prepare site catalogues for areas to be investigated during the next field season. The catalogues should consist of survey site records and notes made during field examinations organized by temporal period and site type. A sampling strategy tailored to the research objective is then used to select sites to be intensely investigated. For the Dolores Archaeological Program field program of 1978, the sampling criteria were as follows:

1. The sample was biased toward habitations, as these are central bases for communities and it was thought that more evidence of

Table 1.2 Temporal Occupations and Type Classifications of  
Archaeological Sites in the 1978 Study Areas

- 
- I. Grass Mesa Study Area; total sites - 5
- A. Archaic Period
    - 1. Limited Activity Loci - 1 (suspected)
    - 2. Seasonal Loci - 1 (suspected)
    - 3. Habitations - 0
  - B. Basketmaker III Period
    - 1. Limited Activity Loci - 0
    - 2. Seasonal Loci - 0
    - 3. Habitations - 0
  - C. Pueblo I Period
    - 1. Limited Activity Loci - 1 (suspected)
    - 2. Seasonal Loci - 0
    - 3. Habitations - 4
  - D. Pueblo II Period
    - 1. Limited Activity Loci - 0
    - 2. Seasonal Loci - 1
    - 3. Habitations - 0

II. Sagehen Flats Study Area; total sites - 31

- A. Archaic Period
  - 1. Limited Activity Loci\* - 3
  - 2. Seasonal Loci\* - 4
  - 3. Habitations - 0
- B. Basketmaker III - Pueblo I Period\*\*
  - 1. Limited Activity Loci - 7
  - 2. Seasonal Loci - 0
  - 3. Habitations - 15
- C. Pueblo I Period
  - 1. Limited Activity Loci - 7
  - 2. Seasonal Loci - 0<sup>+</sup>
  - 3. Habitations - 6
- D. Pueblo II Period
  - 1. Limited Activity Loci - 5
  - 2. Seasonal Loci - 2
  - 3. Habitations - 2

---

Note: The total number of sites cited for each study area does not correspond to the total for the detailed breakdown because some sites were assigned more than one occupation.

\* Seven sites in the Sagehen Flats Locality exhibited artifacts indicating a long span of occupation, but no structures. These were assumed to be seasonal camps or procurement/processing areas used during most periods.

\*\* Some sites in the study area yielded ceramic collections that indicated a transitional Basketmaker III - Pueblo I occupation.

<sup>+</sup> It could not be determined from the survey record or surface evidence whether five small sites with Pueblo I artifacts were field houses or hamlets; these sites were tentatively placed in the habitation category.

activities and the nature of prehistoric society could be gained.

2. There was an emphasis on attempting to investigate at least one site in every site type category identified for each cultural period. The rationale is to reconstruct the full range of prehistoric settlement and activity for each cultural period (at least for Anasazi periods).

3. Where there were two or more sites of the same type and time period in the catalogue, a table of random numbers was employed to select the sample.

4. The sampling method incorporates flexibility when considering data requirements of the general research design. For example, it may be necessary to investigate the nature of a dispersed community cluster incorporating several habitations; in this case, rather than employing a random number table in selection of the sample, several neighboring habitations suspected to be members of the cluster would be chosen for excavation.

For this first season of fieldwork a pressing need in addition to investigating community parameters was the establishment of a local chronological system (phase scheme) with finer divisions than the Pecos Classification. To this end, it was decided that a site with potential for multiperiod occupations would be excavated in 1978. Otherwise, the original sampling design was adhered to; as only seven sites were excavated in 1978, some catalogue categories remain to be investigated in future years. The sites chosen to be excavated in 1978 were as follows:

A. Grass Mesa Study Area

1. Site 5MT2151. A suspected Basketmaker III, Pueblo I/Pueblo II camp chosen for excavation because it appeared to have potential for a long sequence of occupation.

B. Sagehen Flats Study Area

1. Site 5MT2202. A seasonal camp or procurement/processing locus with multiple occupations, including Archaic; selected to investigate the characteristics of limited activity sites.

2. Site 5MT2198. A suspected Basketmaker III habitation; selected to gain information on the characteristics of the early Anasazi period.

3. Site 5MT2193. A suspected Basketmaker III - Pueblo I habitation; selected as possible later analog of Site 5MT2198; may yield data that can be applied to establishing cultural sequence.

4. Site 5MT2191. A suspected Pueblo I habitation or field house; selected because it appeared by nature of the surface evidence to be later than Site 5MT2193 and this could serve to extend the cultural sequence.

5. Site 5MT4475. A suspected Pueblo I - Pueblo II village; selected "unique" resource; Site 5MT4475 is the only large village so far recorded in the study area.

6. Site 5MT2235. A suspected Pueblo II - Pueblo III hamlet or field house (also has possible Archaic component); selected because it seemed to represent the latest occupation in the study areas.

### Magnetometer Survey Testing Program

A third area of nonintensive study conducted during 1978 was a magnetometer survey testing program. The immediate objective of the program was a determination of whether the magnetometer could be employed as an effective tool in detecting subsurface archaeological features. To this end, a magnetometer survey crew was active during the summer of 1978; actual magnetometer operations were conducted at 18 prehistoric sites. A summary of field procedures, including methodology and results, is reported in Hathaway [10] and results of the analysis are summarized in Huggins and Weymouth [11].

The preliminary results of this program are very promising. For example, a portion of the test was conducted at Dos Casas Hamlet (Site 5MT2193), a small Pueblo I (A.D. 750-900) habitation in the Sagehen Flats Study Area (Emerson et al. [12]). Magnetometer survey of a 20 by 20 m grid, done while the site was in a preliminary phase of investigation, resulted in the identification of two magnetic anomalies; these were later tested by means of exploratory trenches and were determined to be pithouses. In this case the survey greatly aided the formulation of excavation strategies and scheduling at the site; the two pithouses represented an unusual orientation, as one pithouse was directly north of the other rather than in the more common east-west alignment. It would have taken much time and effort to reveal the true situation, a possible scenario that was avoided by using the magnetometer.

It thus appears that magnetometer survey operations will form a valuable part of future Dolores Archaeological Program nonintensive studies. An expanded magnetometer survey is planned for 1979 and future years. Ultimate objectives of the program are (1) survey of all

suitable sites selected for intensive investigations, as an aid in management of the field program; (2) survey of selected sites as part of the preliminary operations, to obtain data useful in the selection of a site excavation sample; (3) survey of sites in secondary impact zones of the project and sites rejected for excavation, in order to map features; and (4) better articulation of magnetic anomalies with other surface evidence and with subsurface archaeological features.

#### Archaeoastronomy

As part of nonintensive field operations, Dr. Jack Eddy of the Astrophysics Department, University of Colorado, carried out observations relating to possible knowledge and use of astronomy in local Anasazi communities. Investigations were conducted at eight major prehistoric complexes: McPhee Village, Cline Crest Ruin, Little House Ruin, Emerson Ruin, Yellowjacket Springs Ruin, Goodman Point Ruin, Mud Springs Ruin, and Yucca House. The sample included some sites outside the limits of the project area in order to gain a regional perspective; all are in Montezuma County. While none of these sites exhibited general astronomical orientations, it appears that some interior features, specifically tri-wall structures and great kivas, may be oriented according to cardinal directions or astronomical phenomena. The most promising example is the tri-wall structure at Emerson Ruin. According to field observations, the structure is aligned on a major north-south axis and incorporates a bilateral symmetry in its construction. A great kiva at Goodman Point Ruin also exhibited a major north-south orientation. A comprehensive report summarizing archaeoastronomical studies has been prepared by Dr. Eddy [13].

## Intensive Investigations

Intensive field investigations conducted by University of Colorado and Washington State University crews during 1978 consisted of excavations at seven prehistoric sites. The specific goals of the 1978 field program corresponded to the general strategy outlined for the preliminary assessment, that is, to gain a rough estimate of the characteristics and variability of the prehistoric remains in the project area. Information recovered during this first season was also used to judge the adequacy of the first year's sampling strategy (attempting to investigate the full spectrum of temporal periods and site types represented) in supplying data applicable to questions specified in the project research design. This determination will be a first step toward the formulation of specific question-oriented excavation sampling techniques to be applied in future field operations.

A second goal of first-year intensive operations was the recovery of data that could be used to design and refine the project systems of archaeological control units. These include the Dolores Archaeological Program Spatial and Formal Series and the Dolores Archaeological Program Site Typology (described in later chapter sections).

Detailed descriptions of site-specific intensive investigations and preliminary interpretations are the subjects of individual chapters in this volume; a brief summary of each site is presented below.

### Sheep Skull Camp (Site 5MT2202)

Detailed operations at Site 5MT2202 are summarized by Schlanger [14].

Spatial and temporal assignment. The site is located in the Sagehen Flats Study area approximately 2.5 km west of the Dolores River and 7.1 km

northwest of the town of Dolores. Three occupations, representing (tentatively) the Archaic Tradition and the Basketmaker III and Pueblo I periods, have been recognized. The site was probably occupied on a seasonal or sporadic basis during the period 2000 B.C.-A.D. 1000, based on a preliminary interpretation of the artifact assemblage.

Description. The site is a large, diffuse lithic and ceramic scatter situated on a prominent knoll north of the Sagehen Flats marsh. No cultural features or architecture were encountered at the site.

Interpretation. The nature of the artifact collection recovered from the site and its position in the local contemporary settlement milieu suggest that the site functioned as a hunting/gathering station or camp. People using Sheep Skull Camp as a base may have exploited the faunal and botanical resources of the nearby marshlands. During the Archaic the site may have served as a seasonal and/or limited activity locus used by members of a local migratory group. Later, during the Basketmaker III through Pueblo II periods, Sheep Skull Camp was probably used as a procurement/processing area; the site may have been used by members of local agricultural communities during the first millenium A.D.

#### Sagehill Hamlet (Site 5MT2198)

Detailed operations performed at Site 5MT2198 are presented by Hewitt [15].

Spatial and temporal assignment. Sagehill Hamlet is located in the Sagehen Flats Study Area; the site is approximately 3.7 km west of the Dolores River and 8.4 km northwest of the town of Dolores. Tree-ring analysis of construction wood recovered from the pithouse at the site and inferences from artifact analysis suggest Sagehill Hamlet was occupied in the last half of the seventh century, or approximately A.D. 660-690. This

would place the occupation near the middle of the Basketmaker III period.

Description. The site is a small habitation situated on a low hillock north of the Sagehen Flats marsh. Cultural features include a pithouse and exterior use areas. The site is located in an area with good deposits of eolian and alluvial soils that would have been suitable for horticulture.

Interpretation. The site functioned as the central base, or habitation, for one household unit; the inhabitants were probably practicing horticulture within a short distance of the site and also collecting wild resources. The site is believed to be one integral part of a local dispersed Anasazi farming community.

#### Dos Casas Hamlet (Site 5MT2193)

Detailed operations performed at Site 5MT2193 and preliminary analyses are summarized by Emerson et al. [12].

Spatial and temporal assignment. Dos Casas Hamlet is located in the Sagehen Flats Study Area approximately 3.4 km west of the Dolores River and 8 km northwest of the present town of Dolores. Two occupations have been identified at the site and both can be assigned to the early Pueblo I period. The first occupation is represented by a pithouse, later used as a refuse midden, and a row of surface rooms, later remodeled. Interpretation of tree-ring dates recovered from specimens of charred construction timbers at the site suggests this first occupation dates to the time span A.D. 750-770. Groups representing the second occupation built a new pithouse in the year A.D. 770 and also remodeled the arc of surface rooms to the north. The site was probably abandoned about 50 years after the initial construction effort.

Description. The site is situated on a low hillock north of the Sagehen Flats marsh. Architectural features include two pithouses (not contemporaneous), a five-room houseblock to the north of the pitstructure area, and ancillary use areas. The site is located in an area containing suitable farming soils.

Interpretation. The site functioned as the central base, or habitation, for one or perhaps two households. The site is believed to be an integral unit of a local community; it is spatially related to Sagehill Hamlet, but probably represents a later manifestation of the same social group. The members of the household at Dos Casas Hamlet were probably farming small horticultural plots in the vicinity of the hamlet and also exploiting wild resources in the Dolores Canyon area.

Little House (Site 5MT2191)

The excavations at Little House are fully reported by Hewitt [16].

Spatial and temporal assignment. Little House is located in the Sagehen Flats Study Area approximately 2.1 km west of the Dolores River and 7 km northwest of the modern town of Dolores. One occupation, representing a Pueblo I component, has been identified at the site. Materials amenable to tree-ring analysis were not encountered during excavation; dating by time-sensitive ceramics suggests prehistoric use of the site in the ninth century A.D.

Description. Little House is situated on a low ridge line north of the Sagehen Flats marsh. Architectural remains investigated at the site include a small four-room house block and ancillary use areas to the south and southwest.

Interpretation. The site may have been used as a seasonal field house by a household group from the McPhee Village (see below). It is

assumed that members of the household occupied Little House during the growing season and were performing activities associated with the maintenance of nearby agricultural fields.

McPhee Pueblo (Site 5MT4475)

Operations at McPhee Pueblo and results of preliminary laboratory analysis are reported by Brisbin [17]. Investigations during 1978 were confined to a small portion of this site, a major architectural unit of McPhee Village, described below.

Spatial and temporal assignment. McPhee Pueblo is located in the Sagehen Flats Study Area approximately 0.5 km west of the Dolores River and 6.2 km northwest of the modern town of Dolores. The site exhibits a lengthy occupational history spanning the late Pueblo I and early Pueblo II periods, or perhaps A.D. 850-975. It is suspected that evidence for even earlier occupations will be recovered in future investigations at McPhee; the site may have been settled during the early Pueblo I or even the late Basketmaker III period (about A.D. 700).

Description. McPhee Pueblo is situated on a low terrace west of the river in the Dolores Canyon; this position allows easy access to riparian zones along the river, to alluvial soil deposits in the valley, and to eolian soil areas and sagebrush/pinyon zones to the west. The pueblo consists of a horseshoe-shaped, double-row roomblock and an enclosed plaza area containing pitstructures; a trash midden is located to the south. The pueblo probably incorporates 40-50 rooms and six to eight pitstructures; during 1978, nine rooms, one courtyard, and one pitstructure were investigated (actually, two pitstructures representing two elements were excavated, but they are superimposed units built in the same area).

Interpretation. The site is a major architectural component of McPhee Village, the abode of a centralized Anasazi community during the ninth and tenth centuries. During the period of maximum population, the pueblo probably was the home base for 10-15 households, or 50-75 individuals (based on a reconstruction of architectural units representing households, and assuming 5-7 persons constituted a household). The population at McPhee Pueblo is assumed to represent one-third to one-half of the total population at McPhee Village. McPhee served as the hub for many intracommunity economic, technical, and social activities. It is also speculated, based on the distributions of large Pueblo I villages in the project area (see Kane [2]), that McPhee Village may have been one unit in a regional system and may have also served as a location for intercommunity social and ceremonial activities.

Marsh View Hamlet (Site 5MT2235)

Investigations at Marsh View Hamlet are presented in detail by Bussard and Wilshusen [18].

Spatial and temporal assignment. Marsh View Hamlet is located in the Sagehen Flats Study Area, approximately 1.7 km west of the Dolores River and 6.6 km northwest of the town of Dolores. Three occupations have been identified; the first, which is tentative in nature, apparently dates to the Archaic Tradition, while the second and third date to the Pueblo III period. No architectural remains that could be assigned to the first occupation were identified, and no other discrete dating techniques could be applied. It can only be said, therefore, that an Archaic occupation is represented; finer temporal definition is impossible. Dating of the second and third occupations are based on tree-ring and archaeomagnetic analysis; these methods suggest the site was reoccupied about A.D. 1075.

After a short period of use the site was abandoned again, but the area was reused sporadically as a camp or procurement locus until approximately A.D. 1200.

Description. Marsh View Hamlet is situated on a low knoll north of the Sagehen Flats Marsh. The Archaic occupation is represented only by scattered artifactual material. The second occupation is represented architecturally by a domestic pithouse, a large storage cist, and associated surface features; a hearth and use surface in the upper fill of the pithouse indicate continuing use after the abandonment of this structure.

Interpretation. Marsh View Hamlet probably functioned as a procurement/processing area during the Archaic and may have been used by members of a local migratory group. Indications are that the site served as a small hamlet during the second occupation and the site is assumed to have been used by a single household. Ancillary evidence for the nature of the occupation during this period is the mass burial recovered from the floor of the pithouse, which was perhaps placed there after abandonment. Remains of three or four individuals were identified; these may represent the total population living at the hamlet at the close of the time of abandonment. Later, the site probably functioned as a seasonal locus or camp occupied by members of one household unit. The residents probably emphasized economic activities; these may have included exploitation of wild resources in the vicinity and limited horticulture. No local communities were based in the Sagehen Flats Area during this period; a conjecture is that the camp was used by household units from communities to the south, perhaps those associated with the Escalante or Reservoir Ruins.

LeMoc Shelter (Site 5MT2151)

Investigations at and preliminary analysis of data from LeMoc Shelter are presented in detail by Hogan and Harper [19] in an in-house report; a complete report on the site excavations in 1978 and 1979 will be completed in 1980.

Spatial and temporal assignment. The site is located in the Grass Mesa Study Area, on the north canyon slope overlooking the Dolores River; it is about 13.2 km north of the town of Dolores. Three occupations, representing the Basketmaker III, Pueblo I, and Pueblo II periods, have been identified. Based on tree-ring analysis and dating of pottery types, it appears the site was used sporadically from about A.D. 700-1050.

Description and Interpretation. The site's canyon slope location afforded easy access to the arable flood plain of the canyon and the upland resource areas to the north. An architectural and occupational summary of the site is as follows:

a. During the first occupation (late Basketmaker III, A.D. 700-750) the inhabitants built a pithouse and also a row of surface rooms in the back (north portion) of the shelter. It is inferred that the inhabitants were an Anasazi household farming the river bottom lands.

b. The site may have been abandoned for a short period but was reoccupied in the first part of the ninth century A.D. (Pueblo I period). Again, the shelter was probably used by a single Anasazi household. The new occupants built a second pithouse to the east of the original area and probably reused the row of surface rooms.

c. The site was again abandoned before A.D. 900, but was used as a seasonal camp in the tenth and eleventh centuries. The latest arrivals built rooms over and south of the pithouses and perhaps reused the

original Basketmaker III rooms for a third time. Animal remains recovered from the site suggest these people may have been hunting elk and deer; since the Dolores valley was abandoned as a farming province by A.D. 1000, the camp may have been used by groups living permanently 15-20 km to the south.

### Summary of Results

A review of the investigations completed during the 1978 field season confirms that the initial goal of obtaining a broad data base ordered by site type and period was achieved; in fact, the results exceeded the expectations in that additional occupations were encountered that were not anticipated at the start of operations. A summary of the data base generated by 1978 excavations is as follows:

#### 1. Archaic Tradition

Two occupations representing temporary camps or perhaps resource procurement areas have been investigated (Site 5MT2202 and Site 5MT2235).

#### 2. Basketmaker III Period

Two occupations have been identified; both apparently represent small, single household farmsteads or "hamlets." One at Site 5MT2198 has been thoroughly investigated; the other at Site 5MT2151 will be excavated in 1979.

#### 3. Pueblo I Period

Six occupations have been identified; these are listed below by site:

i and ii. Two early Pueblo I (A.D. 750-800) occupations are recognized at Dos Casas Hamlet. These represent two single household farmsteads or "hamlets."

iii. LeMoc Shelter was apparently occupied by a household in the early ninth century (A.D. 820-850); during the occupation the site served as a farmstead or "hamlet."

iv. A Pueblo I occupation, dating to the late ninth century (A.D. 850-900), has been identified at McPhee Pueblo. Perhaps 8-10 households were living at the pueblo during this time span.

v. A Pueblo I occupation at Site 5MT2191 apparently represents a field house (a site away from the main village used as a base for agricultural activities).

vi. Sheep Skull Camp (Site 5MT2202) was probably used as a location for gathering and/or processing wild foods or raw materials during the Pueblo I period.

#### 4. Pueblo II Period

Three occupations representing the Pueblo II period were identified during 1978. These were a habitation episode at McPhee Pueblo (Site 5MT4475), use of Site 5MT2202 as a gathering and processing location, and use of Site 5MT2151 as a seasonal camp.

#### 5. Pueblo III Period

Two occupations representing use of Site 5MT2235 as first a hamlet and later a camp or processing area have been identified.

The initial sampling strategy was judged adequate to recover data that can be used to establish general characteristics of prehistoric communities; however, it was obvious that this approach resulted in gaps in the data base that would have to be filled by designing more specific, problem-oriented strategies.

The initial data base proved useful in formulating more rigorous systems of controls. During the fall and spring of 1978-1979, the preliminary constructs were discarded and more detailed schemes developed; these were tailored to better fit the data from project investigations. These systems are presented in the following three sections of the chapter.

## SPATIAL SYSTEMATICS

The general research design of the Dolores Archaeological Program emphasizes the definition and explanation of regional relationships. To effectively investigate regional aspects of the five major problem domains, a systematic and well-conceived scheme of spatial study units is critical. During the 1978 field season, arbitrary study units were defined to serve as spatial controls. These were considered inadequate for future investigations and the Dolores Archaeological Program Spatial Series was developed after the initial fieldwork. Since the focal point of the research design is the Anasazi community, the basic unit for this spatial system must reflect the physical manifestation of the community: this unit is the community cluster. Ideally, the division in the spatial hierarchy should reflect cultural reality; however, this may not be feasible when defining large spatial units because of uncertainty in describing the nature of intercommunity and long distance Anasazi relationships. It must be emphasized that the series in its present form is really a "model" based on ethnographic and archaeological analogies, inferences from excavation and survey data available from previous work in southwestern Colorado, and logic. As such, the construct serves to draw the researcher's attention to certain intra- and intersite phenomena and to structure his inferences and notes in a standard way. The series is not primarily predicated on locally-derived, inductive formulations; the current model will undergo periodic revision based on interpretations of excavation data. In the following presentation of the Dolores Archaeological Program Spatial Series, as utilized by program archaeologists, the intracommunity units are based on those presented by

Flannery [1]. Many of the intersite or intercommunity units have been derived from previous efforts to devise regional systematics in the area (see Bullard [20], Lehmer [21], Gillespie [22]). The D.A.P. system is hierarchical in nature; that is, smaller units are always combined to form larger ones.

### Intracommunity Units

#### Activity Area

An activity area is a physical locus where an identifiable single or main activity was performed. The activity area often represents a location where an individual member of a household carried out a task; however, it is possible that a number of individuals or a task group utilized the area either simultaneously or during different periods.

Activity areas may consist of groupings of features (permanent or semipermanent facilities and associated artifacts). Activity areas can also be defined minimally by a single feature (for example, a hearth or a metate bin) or artifact cluster (for example, a hammerstone and debitage). Spatially clustered activity areas can be grouped to form use areas (see following discussion) and spatially isolated examples can be termed limited activity loci (see discussion in Site Typology Section). The relationships among activity areas and other intrahousehold spatial units are illustrated in Figure 1.2.

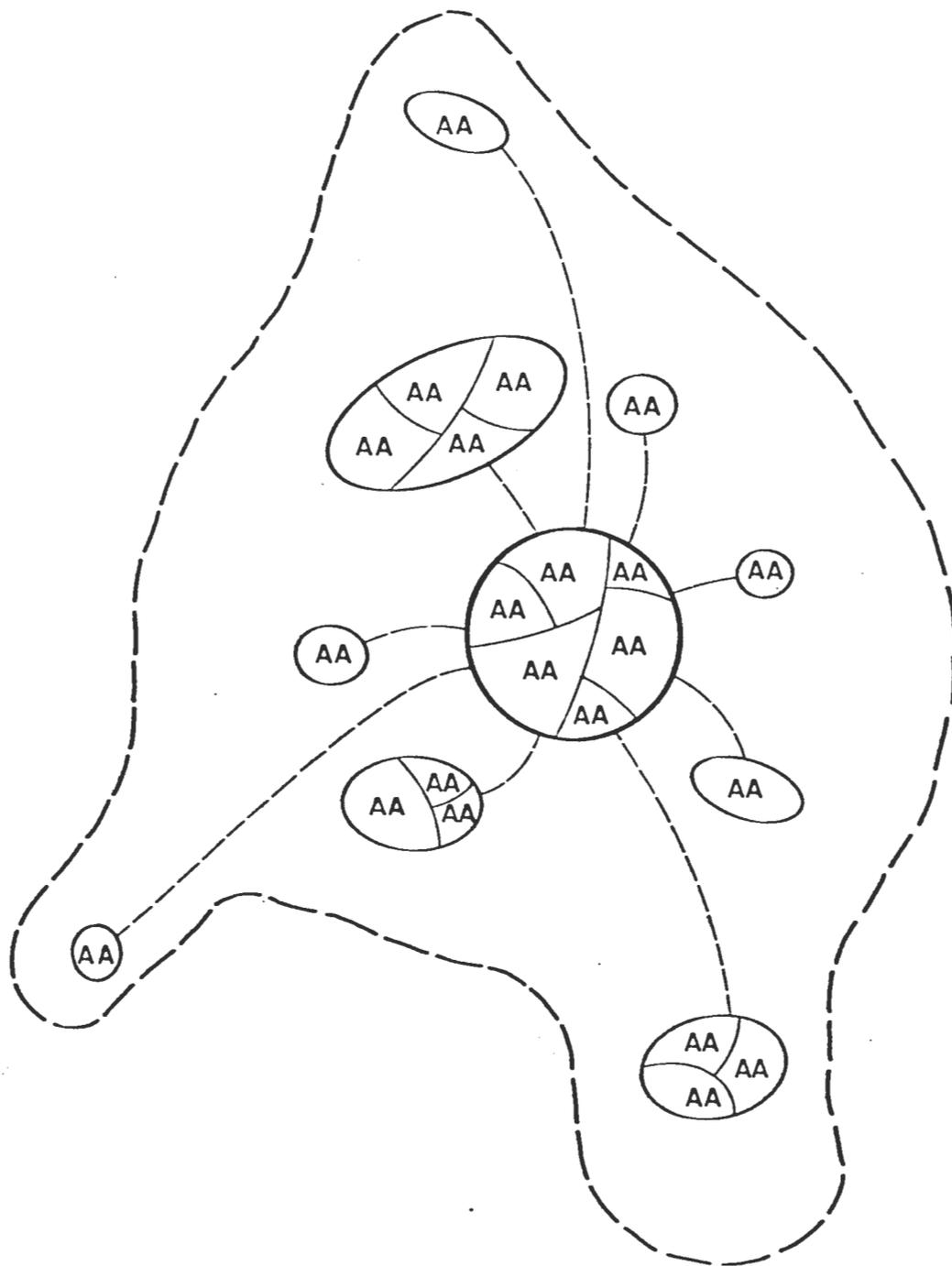
#### Use Area

A use area is a space used by a group for multiple activities; the use area incorporates several or even numerous activity areas. The activity areas, facilities, and spatial relationships integral to a use area reflect the general purpose of the group in using that space (for

Figure 1.2 The relationship of intrahousehold spatial units in the D.A.P. Spatial Series. Note that outlying activity areas are considered part of the household cluster.

# D.A.P. FORMAL SERIES

## INTEGRATION OF INTRAHOUSEHOLD UNITS



ACTIVITY AREA— AA

Figure 1.2 The relationship of intrahousehold spatial units in the D.A.P. Spatial Series.

example, the domestic functions of a household, storage, discard, integration, and ritual). Use areas may be enclosed spaces (surface rooms or pitstructures), architecturally bounded open space, or unbounded, irregularly shaped areas. The house is a specific use area type and is an architecturally bounded space where the members of a household centralized their processing, maintenance, and other domestic activities. Houses usually incorporate a central hearth and recognizable storage and food processing facilities; distinct male/female activity areas may be present. Within large, multiple household habitation units specialized interhousehold use areas (such as middens, shared processing facilities, and integrative structures) are present. Spatially isolated use areas constitute the broad D.A.P. site typology category termed seasonal loci.

#### Household Clusters

The household cluster incorporates the space and facilities used by a household; it can be considered as the property of or homebase of this social unit. Household clusters usually consist of the house, surrounding outdoor use areas, and more distant activity or use areas (family burial plots and disposal areas, exterior storage pits, field houses and surrounding agricultural plots, trap lines and other hunting facilities used by individuals, etc.). The overriding concept is association with the same individual household (Winter [23:25]). For analytical purposes, the household cluster is the material remnant of a household.

A household cluster must contain a house, that is, the centralized living and working space of a household. Other clusters of use areas and features might have served as interhousehold task areas rather than functioning specifically as a locus for one household group.

### Interhousehold Cluster

This unit is a spatially or otherwise related grouping of household clusters. By comparing architecture styles, artifact inventories, activity area locations, etc., related households may be identified. In large habitations (villages) such units might share the same roomblock and a patio area; these groupings can be termed courtyard groups (Flannery [1:75]). In the case of dispersed habitations, spatially related hamlets may exhibit sufficient similarities to be defined as an interhousehold group. This unit reflects social organization on a level intermediate between household and community.

### Habitation

A habitation is defined as one or more household clusters and (if present) specialized use areas in a centralized location. Habitations represent the location where most community activities take place, and as such represent the home base of the community. Conceptually, the relationship between habitations and communities is similar to the one between houses and households. The habitation unit is normally only applied to nucleated communities (see subsequent discussion) where central habitations (or villages) and satellite habitations (termed outlying barrios, see Flannery [1:16]) can be easily delimited. The definition of such units is more difficult in dispersed communities with isolated household clusters. In such cases, it may be possible to think in terms of a "habitation zone," or core area, in which the isolated household clusters are located, or each individual household cluster can be termed a habitation.

### Community Cluster

A community cluster is defined as the space, facilities, and archi-

ecture normally used by a community; the community cluster is the material remnant of the community. Conceptually, community clusters are to communities as household clusters are to households. The community cluster normally consists of habitations or habitation zones plus outlying camps, and other seasonal loci and limited activity sites. (Relationships among household clusters, interhousehold groups, habitations and community clusters are depicted in Figures 1.3 and 1.4.)

Community clusters are segregated into subtypes based on the degree of site dispersal exhibited within the cluster; the division is based upon the discussion of community types presented by Murdock [24:79].

a. Nucleated community clusters. The type is characterized by a large central habitation with outlying use and activity areas (Figure 1.3). These clusters may contain satellite habitations or barrios within a few kilometers of the central locus. According to Murdock [24:80], the communities using nucleated clusters employ a subsistence strategy compatible with a fixed residence; agriculture, fishing, and hunting - under exceptional conditions (plentiful and nonmigratory game) - are cited as economies consistent with nucleated clusters. Communities occupying a concentrated cluster of dwellings near the center of an exploited territory are termed villages. An example of a nucleated community cluster is McPhee Village and its limited-use outliers; the social group using these facilities was viable about A.D. 900.

b. Dispersed community clusters. Dispersed clusters consist of dispersed household clusters, usually within a limited habitation zone, and outlying use and activity areas (Figure 1.4); the household clusters exhibit little or no tendency toward centralization. Communities using dispersed clusters are also characterized by fixed residence, but

Figure 1.3 Relationships among intracommunity units in the D.A.P. Spatial Series (for nucleated community clusters).

# DAP SPATIAL SERIES

## INTEGRATION OF INTRACOMMUNITY UNITS NUCLEATED COMMUNITY

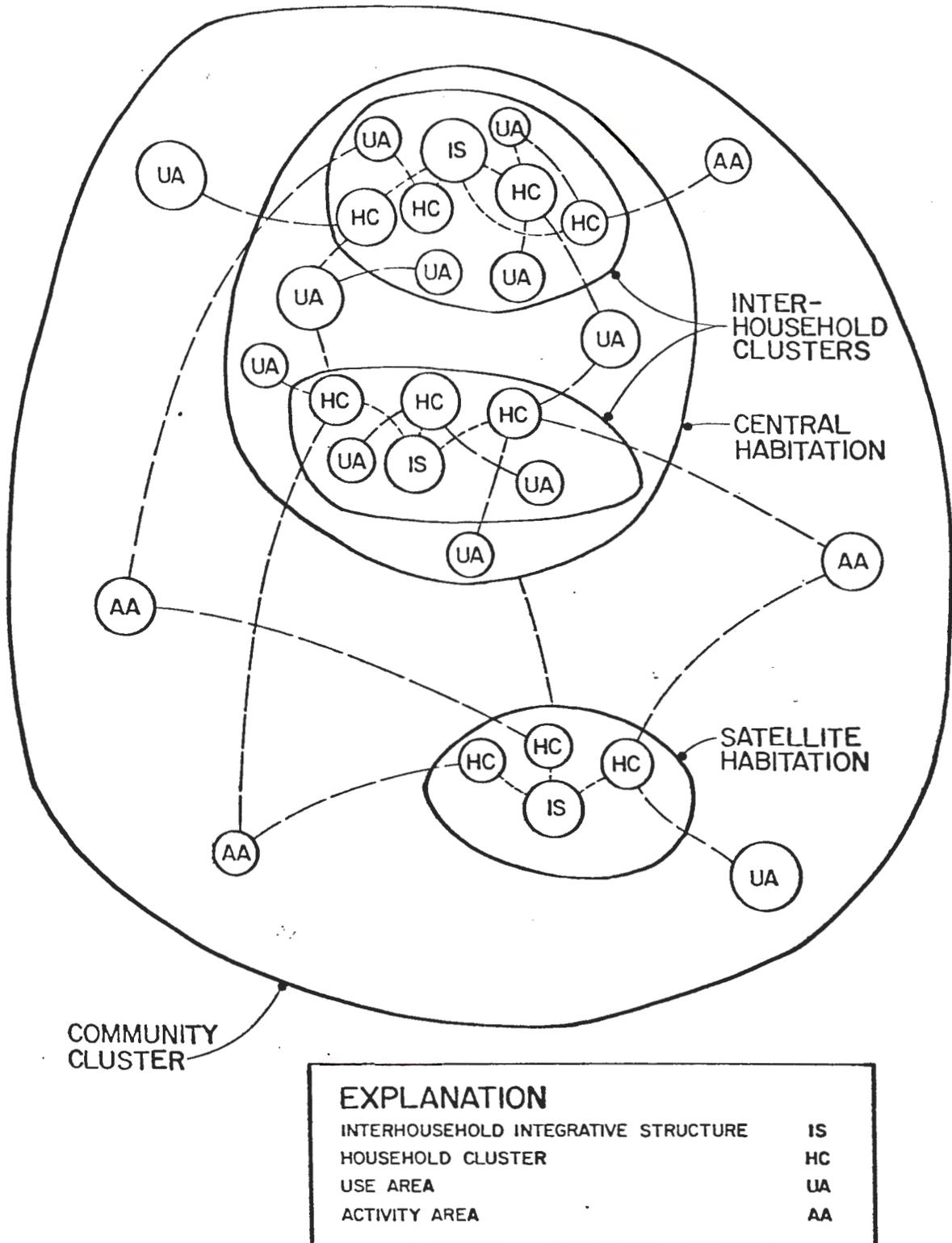
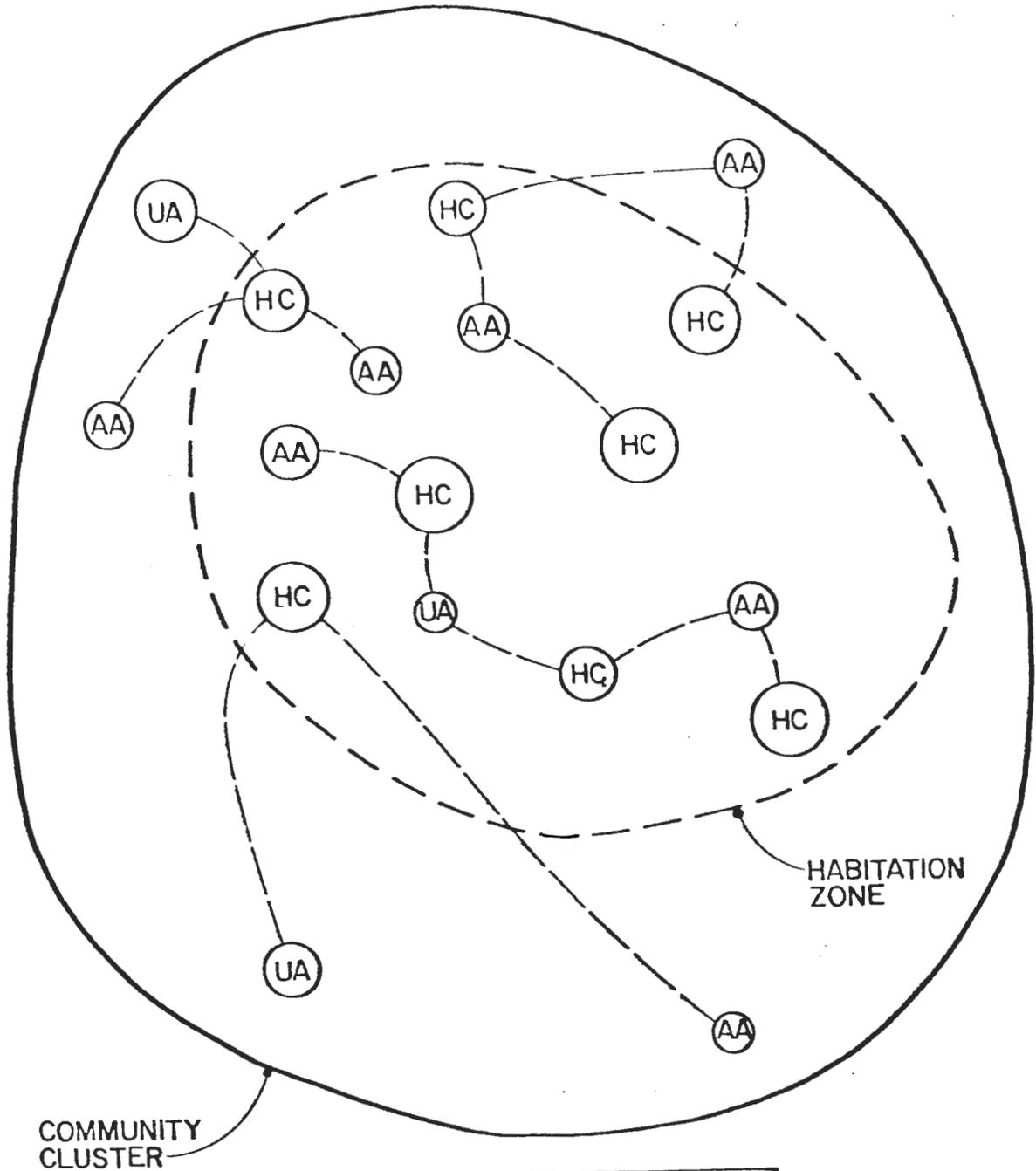


Figure 1.3 Relationships among intracommunity units in the D.A.P. Spatial Series (for nucleated community clusters).

Figure 1.4 Relationships among intracommunity units in the D.A.P. Spatial Series (for dispersed community clusters).

# DAP SPATIAL SERIES

## INTEGRATION OF INTRACOMMUNITY UNITS DISPERSED COMMUNITIES



EXPLANATION	
HOUSEHOLD CLUSTER	HC
USE AREA	UA
ACTIVITY AREA	AA

Figure 1.4 Relationships among intracommunity units in the D.A.P. Spatial Series (for dispersed community clusters).

household groups live in isolated homesteads, as in the modern rural American Midwest (Linton [25:216]); these communities are termed neighborhoods (Murdock [24:80]). An example of this type of cluster from the project study areas is the West Sagehen Neighborhood, a group of isolated household clusters, located a few kilometers west of the Dolores River, which was viable about A.D. 750. Nucleated and dispersed clusters represent opposite ends of a continuum with temporal implications; intermediate types are anticipated in the archaeological record available in the project area.

c. Band territories. Band territories are characterized by widely dispersed seasonal or temporary campsites and limited activity loci. Communities using this type of cluster have mobile residence patterns, as their subsistence strategies (gathering, hunting, or herding) necessitate place-to-place migration (Murdock [24:80]); these types of communities are termed "bands." An example in the project area is the proposed North Marsh Band, an Archaic community located in the Sagehen Flats area, that was viable during the Archaic Tradition.

#### Intercommunity Units

##### Locality

Localities are units that are intended to reflect intercommunity social entities and resource procurement zones. In this sense they are subdivisions of the sector, regarded as the maximum subsistence-settlement unit (see following discussion). At present, little data regarding the nature of intercommunity relationships in the project area are available, and hence spatial definitions based on the nature of these relationships are not possible. Some criteria that have potential applications are

limits of central place systems that incorporate several community clusters, and spatial arrangements of intercommunity defensive or communicative facilities.

A more applicable criterion for establishing localities in current project study areas is environmental variability. Divisions based on environmental characteristics have social overtones, as they may represent prehistoric resource procurement zones or political territories. Environmental variables used in defining locality boundaries are drainage systems, topography, vegetation zones, soils, and bedrock geology.

Sixteen locality units have been defined in the Escalante Sector, the spatial unit including the study areas for 1978-1979 mitigation efforts (Figure 1.5). Environmental characteristics were the primary criteria used in establishing the localities, although potential social implications were considered as well. Localities within the Escalante Sector were defined with potential use of the canyon resource zones in mind. The localities and their defining characteristics are presented below.

1. Willow Draw, Project Number 001.

Area: 1310 ha

Environmental characteristics: The locality encompasses the lower portion of the Dolores River canyon in the Escalante Sector. The locality includes the bottomlands along the river and the north and south canyon slopes to the canyon rim. It encompasses a variety of vegetation zones, including a riparian community along the river course, pinyon-juniper woodlands and mountain scrub on exposed slopes, and pockets of forest with ponderosa, aspen, and Douglas fir in protected locations. Arable lands are found along the river course.

Figure 1.5 The Escalante Sector and incorporated localities. The locations of large Pueblo I (PI) Anasazi villages are indicated.

# ESCALANTE SECTOR

## ARCHAEOLOGICAL LOCALITIES

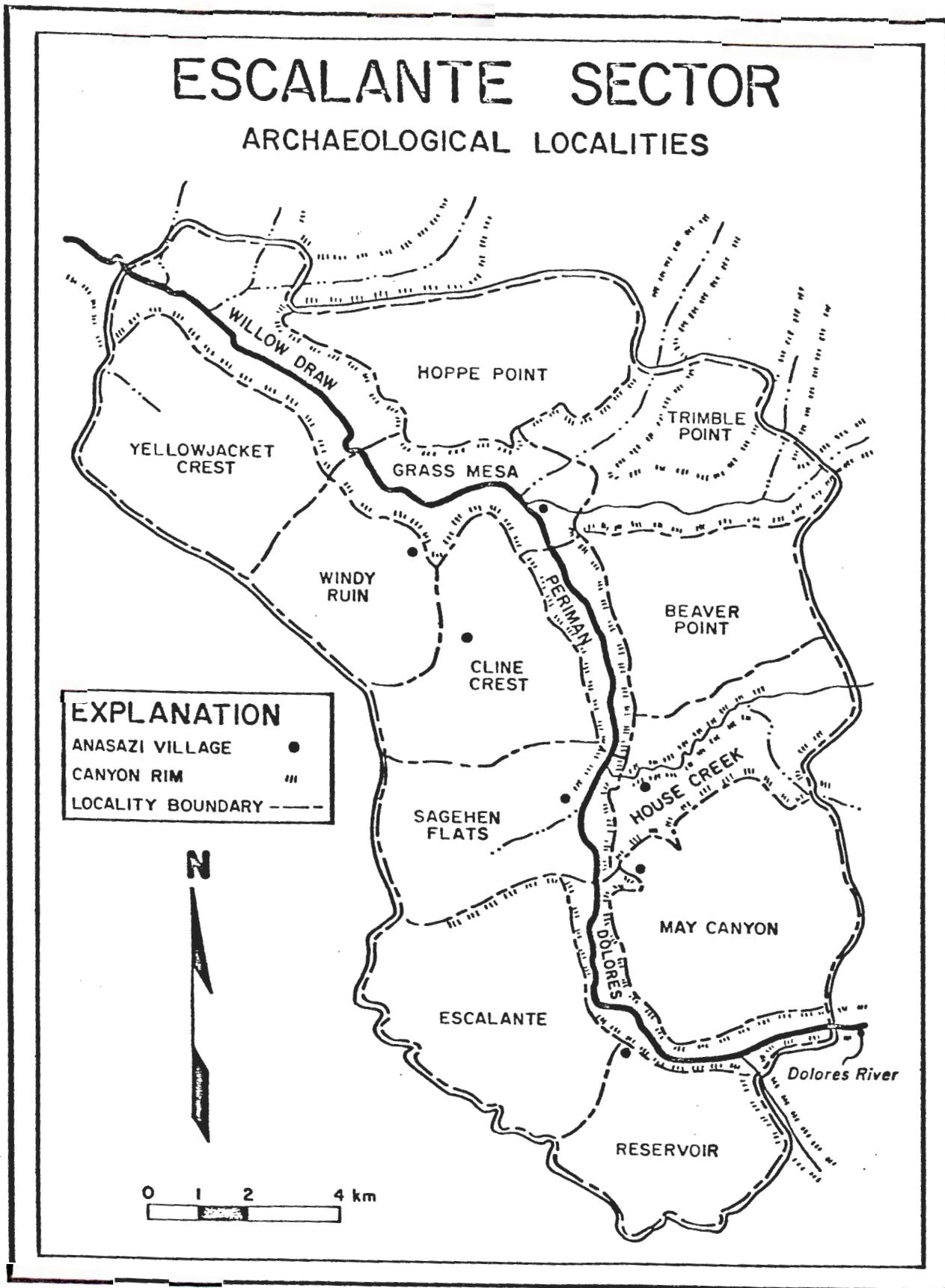


Figure 1.5 The Escalante Sector and incorporated localities.

Social characteristics: Survey data indicate the locality may have been the abode of a farming community or communities during the Anasazi Tradition. Small hamlets are located on terraces with southern exposures, and prehistoric fields were presumably located in the bottomlands. The cultural pattern appears to be similar to that of the Grass Mesa Locality to the east, although no large habitation comparable to Grass Mesa Village has been identified. The data also indicate Archaic peoples used the locality, but the nature of this earlier occupation has not been established.

2. Salter Canyon, Project Number 002.

Area: 1520 ha

Environmental characteristics: The locality encompasses the major parts of Salter Canyon and Willow Draw plus a plateau area to the north that drains into Salter Canyon. Vegetation communities native to the area include pinyon-juniper woodland, mountain scrub, oak scrub, Douglas fir, aspen forest, and ponderosa parkland. The canyons are V-shaped and lack both a permanent stream and an established riparian zone. The locality hence lacks arable land, as the plateau to the north that is otherwise suitable does not have an adequate growing season. Varied and plentiful wild resources are readily available, however. Among these are large game (elk and deer), small animals, wild plants, and firewood.

Social characteristics: The area is virtually unknown archaeologically; from the little evidence that is available, it appears that the area served as a seasonal procurement zone rather than as a home base.

3. Hoppe Point, Project Number 003.

Area: 1600 ha

Environmental characteristics: The locality is delimited by Salter, Dolores, and Dry canyons; these drainages nearly circumscribe a highland plateau with elevations from 2375 m to 2475 m. Most of the plateau is ponderosa parkland with Douglas fir; protected slopes exhibit stands of aspen-Douglas fir forest. The locality is unsuitable for agriculture because of an inadequate growing season; wild plant and animal resources, however, are varied and plentiful.

Social characteristics: Archaeological survey data reveal that all sites within the locality are limited activity or seasonal loci; architectural remains are very limited. It is inferred, therefore, that the locality was exploited as a resource procurement zone. Both the Archaic and Anasazi traditions appear to be represented in the survey record.

4. Yellowjacket Crest, Project Number 004.

Area: 1500 ha

Environmental characteristics: The locality encompasses a portion of the plateau highland south of the Dolores Canyon. The area includes the headwater drainages of Yellowjacket Canyon plus one minor tributary of the Dolores River. Elevations range from 2225 m at the southern boundary to over 2380 m at the northern crest. Vegetation is typically oak-mountain scrubland interspersed with small grass- and forb- covered meadows. Soils and ground water are suitable for agriculture.

Social characteristics: The area is virtually unknown archaeologically. It is believed that the prehistoric use pattern here should be similar to the better-known Cline Crest Locality to the east. The area may have been used during the Archaic by peoples exploiting

seasonal resources, and then by early Anasazi groups (A.D. 600- 900) as a farming province.

5. Windy Ruin, Project Number 005.

Area: 1150 ha

Environmental characteristics: The locality adjoins the Yellowjacket Crest Locality on the east side. The area includes the headwater drainages of Brimley Draw, a major tributary of Yellowjacket Canyon. Elevations, vegetation, and other natural features are similar to the Yellowjacket Crest and Cline Crest localities.

Social characteristics: The area is virtually unknown archaeologically. It is believed that the prehistoric use pattern in this locality is similar to that of the Yellowjacket Crest and Cline Crest localities. Windy Ruin, a large Pueblo I village, is located in the northeastern quadrant of the locality.

6. Grass Mesa, Project Number 006.

Area: 1360 ha

Environmental characteristics: The locality encompasses a portion of the Dolores Canyon upstream from the Willow Draw Locality; the limits include the bottomlands along the river and the north and south slopes to the canyon rim. The locality exhibits a variety of vegetation zones, including a riverside riparian community, pinyon-juniper woodland, mountain scrub, and Douglas fir-aspen forest. The locality possesses a considerable amount of arable land along the river and outcrops of malleable stone for manufacture of tools.

Social characteristics: The locality has been the setting for a long history of prehistoric occupation. Characteristics of sites located near the rimrock on the northern periphery of the locality suggest an Archaic

occupation. During the early Anasazi period (A.D. 600-900), the area played host to an intensive farming culture. These peoples built and maintained a large village center at Grass Mesa, a formidable headland on the east side of the valley. A post-Anasazi occupation is suspected, but not documented.

7. Trimble Point, Project Number 007.

Area: 1550 ha

Environmental Characteristics: The locality includes the lower portion of the Dry Canyon and Beaver Creek drainages and the highlands in between. The locality exhibits a variety of natural zones with stands of different vegetation. These include oak scrub, ponderosa woodland and parkland, and aspen-Douglas fir forest. A small amount of arable land is present along the Beaver Creek drainage, and outcrops of workable lithic raw materials are plentiful.

Social characteristics: The locality is not well known archaeologically. Present evidence indicates the area served as a seasonal resource procurement zone, as recorded sites do not possess permanent architecture.

8. Beaver Point, Project Number 008.

Area: 1180 ha

Environmental characteristics: The locality includes a portion of the highlands east of the Dolores Canyon. The area is bounded on the north, west, and south by Beaver Creek Canyon, Dolores Canyon, and House Creek Canyon, respectively. The eastern boundary corresponds to a vegetation change from mountain scrubland (oak, serviceberry, pinyon, and juniper), within the locality, to ponderosa woodland. Soils and elevations are suitable for cultivation.

Social characteristics: The locality is virtually unknown archaeologically; it is presumed that the area was utilized primarily as a hunting and gathering province. It is possible that small farmsteads representing the Anasazi occupation are present as well; a survey will have to be conducted to gain a better estimate of prehistoric usage.

9. Cline Crest, Project Number 009.

Area: 1250 ha

Environmental characteristics: The locality is defined as a plateau highland bounded by the Dolores Canyon on the east and north. The west boundary is formed by a major drainage between this locality and the Windy Ruin Locality. The southern boundary is somewhat arbitrary, but generally corresponds to the upper part of the Sagehen Flats drainage system. Vegetation zones common within the locality are oak scrubland and pinyon-juniper-oak woodland. The locality contains a high percentage of arable lands.

Social characteristics: The locality was used intensively by prehistoric peoples. It probably served as a hunting and gathering province during the Archaic and later became the home base for several farming communities. Local prehistoric society in the ninth century was probably dominated by Cline Crest Village, a large habitation located near the west limit of the locality. The area was virtually abandoned by Anasazi farmers by A.D. 950 and was used again by hunting and gathering groups. A later, post-Anasazi occupation is suspected, but not documented.

10. Sagehen Flats, Project Number 010.

Area: 1440 ha

Environmental characteristics: The locality is situated west of

the Dolores River valley and encompasses the Sagehen Flats lowland and surrounding slopes. The locality is delimited on the east by the Dolores valley, on the west by the divide between streams feeding Sagehen Flats and those draining into Yellowjacket Creek, and on the south by the escarpment formed by the House Creek Fault. The northern boundary corresponds to a somewhat arbitrary division between the northern and southern parts of the Sagehen Flats drainage system. Prehistoric vegetation zones in the locality were probably mostly pinyon-juniper-oak woodland and sagebrush scrubland; Sagehen Flats itself may have supported an intermittent bottomland community. The locality contains a large percentage of arable lands, except near the southern boundary, and easily accessible lithic raw materials along the House Creek Fault.

Social characteristics: The locality has a long history of intensive use by prehistoric peoples. The area was used initially by Archaic groups who probably centered their activities near the Sagehen Flats itself. The unit was used during the early portion of the Anasazi Tradition (Basketmaker III) as a homeland for several dispersed communities with households residing in isolated farmsteads. Beginning in the 800s the Anasazi moved to other localities, but still used the area as an agricultural zone. After A.D. 950, the locality reverted to a hunting and gathering province.

11. Periman, Project Number 011.

Area: 650 ha

Environmental characteristics: The locality is defined as a section of the Dolores Canyon south of the Grass Mesa Locality. The east and west boundaries correspond to the rim of the canyon; the north boundary is formed by the appearance of outcrops of Entrada Sandstone

slickrock and the southern boundary by the House Creek Fault. Vegetation within the locality is varied, consisting of riparian woodlands in the canyon bottom and pinyon-juniper-oak woodlands and mountain scrubland on the slopes. Ample arable lands are found on the canyon floodplain.

Social characteristics: Anasazi groups used the locality as a home base for agricultural practices during the Pueblo I period and for more limited activities during the Pueblo II and Pueblo III periods. Two large habitations (McPhee Village and Rio Vista Village) were centers of social activity during the Pueblo I period. A later, post-Anasazi occupation is suspected, but not documented.

12. House Creek, Project Number 012.

Area: 1360 ha

Environmental characteristics: The locality is defined as the lower portion of the House Creek Canyon. Northern and southern boundaries are formed by the limits of the canyon; the eastern boundary corresponds to the approximated change in vegetation zones between the pinyon-juniper-oak woodland within the locality and the ponderosa pine forest to the east. The west boundary is the mouth of the canyon. Vegetation in the locality is dominated by the pinyon-juniper-oak zone; riparian woodlands and shrublands and mountain scrublands are also present. Areas of arable soils with favorable slopes are located in the canyon bottom and on terraces to the north and south of the inner canyon.

Social characteristics: Evidence available from archaeological surveys indicates the locality was used prehistorically during the Archaic and Anasazi periods. No characteristics have been established for the former; it is suspected that the locality served as a hunting and gathering province. Sites representing the Anasazi Tradition have been

classified as Basketmaker III, Pueblo I, and Pueblo II. Dispersed Basketmaker III farmsteads were replaced by a nucleated community centered at House Creek Village. This center was abandoned soon after A.D. 900; a remnant population lived in rock shelters along the inner canyon of House Creek. These people apparently also left about A.D. 1100. The presence of post-Anasazi Shoshonean groups is suspected, but not documented.

13. May Canyon, Project Number 013.

Area: 1550 ha

Environmental characteristics: The locality is defined as a plateau province east of the Dolores Canyon. The north, west, and south limits of the locality are demarcated by the canyon rims of House Creek and the Dolores River. The east boundary corresponds to a vegetation change from pinyon-juniper-oak woodland within the locality to ponderosa forest further to the east. Besides pinyon-juniper-oak woodland (the dominant type) a riparian zone is found along the May Canyon drainage within the locality. Ample arable lands are located on plateau tops.

Social characteristics: The locality is relatively unknown archaeologically, except near the western limit. Large areas within the locality are currently farmed and apparently were also used for agricultural purposes by the Anasazi. Several small Basketmaker III farmsteads and one large Pueblo I habitation (May Mesa Village) have been recorded within the area. May Mesa Village probably served as a center of prehistoric society in the locality in the ninth century A.D.

14. Dolores, Project Number 014.

Area: 1040 ha

Environmental characteristics: The locality encompasses a section

of the Dolores River canyon south of the Periman Locality. The northeast and southwest boundaries are formed by the limits of the canyon system; the north boundary corresponds to the House Creek Fault. The eastern boundary is arbitrary and corresponds to the alignment of two minor side canyons east of the town of Dolores. Canyon bottomlands within the locality support riparian woodlands and meadows, while the canyon slopes feature pinyon-juniper-oak woodland. Arable lands are located in the canyon floodplain and on large benches located on the east canyon slope.

Social characteristics: The locality exhibits a long history of prehistoric occupation commencing with use by Archaic groups. No characteristics have been established for this early occupation; the area is believed to have served as a hunting and gathering domain. Anasazi sites assigned to the Basketmaker III, Pueblo I, and Pueblo II periods have been recorded, but no large villages or especially noteworthy sites have been identified. A post-Anasazi occupation is suspected, but has not been documented.

15. Escalante, Project Number 015.

Area: 1640 ha

Environmental characteristics: The locality is defined as a segment of plateau highlands southwest of the Dolores Canyon. The north boundary is formed by the House Creek Fault and the east boundary by the canyon rim. The western and southern boundaries were arbitrarily determined and generally follow elevation contours and major drainages. Most of the locality is currently in cultivation but was probably pinyon-juniper woodland and sagebrush scrubland during prehistoric times. Most of the plateau and terraces along drainages are suitable for agriculture.

Social characteristics: Anasazi and Archaic groups are known to have used the locality. No range of behavioral inferences for the Archaic occupation can be made with the present data. The Anasazi occupation is apparently continuous from Basketmaker III to Pueblo III. Escalante Ruin, commanding a superior vantage point near the rim of the Dolores Canyon, is believed to have functioned as a regional trading center about A.D. 1150.

16. Reservoir, Project Number 016.

Area: 1550 ha

Environmental characteristics: The locality is a segment of the plateau south of the Dolores River canyon. The north and northeast boundaries are formed by the rims of the Dolores Canyon and Lost Canyon.

The other limits are arbitrary and correspond to elevation contours and major drainages. Much of the locality is currently in cultivation; during the prehistoric period, pinyon-juniper woodland and sagebrush scrubland were probably the dominant vegetation types. Most of the plateau area and benches along drainages are suitable for agriculture.

Social characteristics: The locality exhibits a relatively intensive usage by prehistoric groups. Several small Basketmaker III and Pueblo habitations have been excavated, and a large Pueblo II - Pueblo III habitation (Reservoir Ruin) is located in the northwestern corner. One unique site, a Pueblo III tri-wall structure (a possible redistribution center controlled by local community leaders), has also been recorded.

Sectors

Sectors are composed of spatially related groups of localities. In a social sense, sectors are intended to be spatial divisions within which the inhabitants of the internal communities and localities experience a sense of cultural identity. No concrete social organization at this level

is implied by employing this unit; the nature or even presence of macrolevel social units in Anasazi culture is speculative at best; the most promising evidence for intercommunity organization among these Pueblo peoples has been found in the Chaco Region of northwestern New Mexico. Data produced during studies of Chacoan road networks (Morenon [26], Lyons and Hitchcock [27]) suggest that a sophisticated system of regional communication, and perhaps polity, was centered in northwestern New Mexico about A.D. 1100. It is presently speculative whether analogies of this system existed in the project study areas and what physical manifestations they would exhibit. Perhaps the best social analog for the sector is what Struever [28] terms the "maximum subsistence-settlement unit," a societal unit which "includes all people integrated at one or more intervals in the functioning of a subsistence-settlement system." Neighboring communities within a sector are expected to share many of the same behavior patterns and to react in a similar manner when confronted with phenomena requiring adjustments in the cultural system (droughts, influxes of foreign groups, technological innovations, etc.).

Environmental criteria can also be applied to define sectors. For this purpose environmental variables considered are large, inclusive categories such as physiographic divisions (plateaus, valleys, etc.), drainage systems, and vegetation zones. Depending on the available data, social and environmental criteria can be assigned differential priorities when evaluating individual areas.

The primary criterion used to define the Escalante Sector (the only such unit studied in 1978) was proximity to the Dolores River; that is, boundaries for the unit were established with access to the river

ecosystems in mind. It is possible to walk into the main canyon within one to two hours from each archaeological site within the sector.

Phase sequences developed for project studies are to be applied at the sector level; temporal variations are expected to conform to the same general pattern within sectors and to exhibit different patterns within districts (see following discussion). Field operations in 1978 were confined to the Escalante Sector, as initial construction activities planned by the Bureau of Reclamation were to be carried out in the Sagehen Flats, Periman, and Grass Mesa localities within the sector. In future years operations will be expanded to other sectors in order to obtain the desired regional perspective. The locations of the Escalante and neighboring sectors are depicted in Figure 1.6.

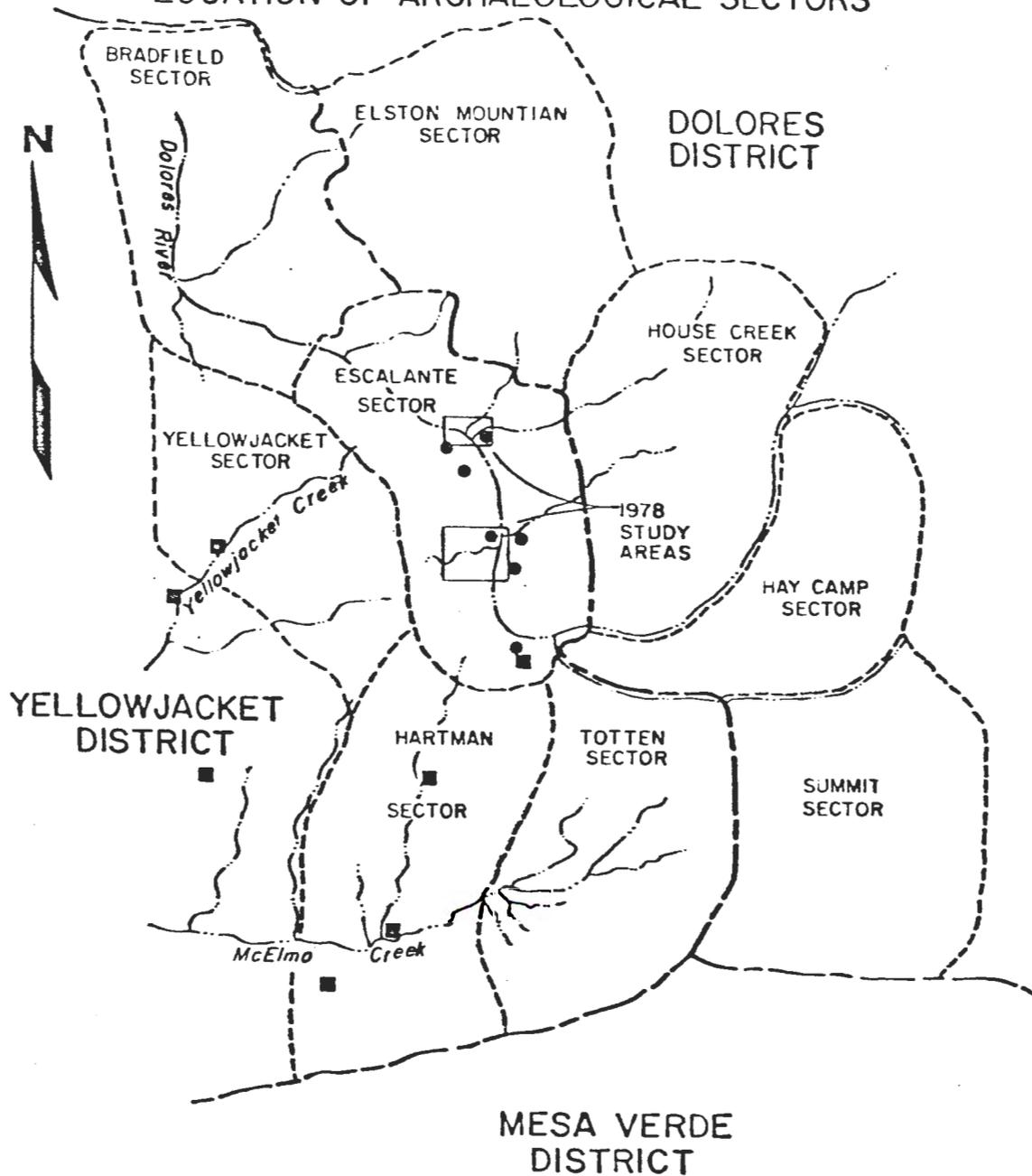
#### Districts

The term "district" has been previously employed by archaeologists working in southwest Colorado (see Morris [29], Bullard [20], Gillespie [22]); the units have previously been established to correspond approximately with recognizable general differences in cultural patterns. For our purposes, districts can be considered as units composed of sectors; the district concept as used by program personnel is similar to that employed by other archaeologists studying the Northern San Juan Culture Area. District communities shared the same general cultural patterns and are assumed to have shared a general sense of cultural identity. Districts do not reflect large divisions of Anasazi social or political organization. Most sectors investigated by Dolores Archaeological Program personnel during the duration of the project will be subdivisions of the Yellowjacket District; it is anticipated that comparative studies will be initiated using project data and information from studies done in other

Figure 1.6 Defined sectors in the Yellowjacket and Dolores districts. Early and late Anasazi villages are indicated.

# DOLORES AND YELLOWJACKET DISTRICTS

## LOCATION OF ARCHAEOLOGICAL SECTORS



### MESA VERDE DISTRICT

EXPLANATION	
DISTRICT BOUNDARY	— — — — —
SECTOR BOUNDARY	- - - - -
EARLY VILLAGE - Pre-900	●
LATE VILLAGE - Post-900	■

Figure 1.6 Defined sectors in the Yellowjacket and Dolores districts.

districts (for example, the Dolores, Western, and Mesa Verde Districts, see Figure 1.7).

### Region

On a larger scale, the Yellowjacket District is a subdivision of the Mesa Verde Region; for D.A.P. purposes, the definition and boundaries of this unit correspond with those outlined by Breternitz et al. [30]). The regional boundaries correspond roughly with the area where Mesa Verde ceramic wares were being manufactured and used and where other general cultural traits were probably being shared as well.

In order to investigate several of the questions posed in the general research design (for example, those posed in Problem Domain 4: Extra-regional relationships), research into cultures removed from the Mesa Verde Region is important. Comparative data is potentially available from the Chaco Canyon and Kayenta areas to the south and southwest.

Figure 1.7 The Mesa Verde Region and archaeological districts defined in the Northern San Juan Culture Area. Prominent topographical features and major water courses are also depicted (after Gillespie [22]).

# THE NORTHERN SAN JUAN CULTURE AREA

## ARCHAEOLOGICAL REGIONS AND DISTRICTS

-21-

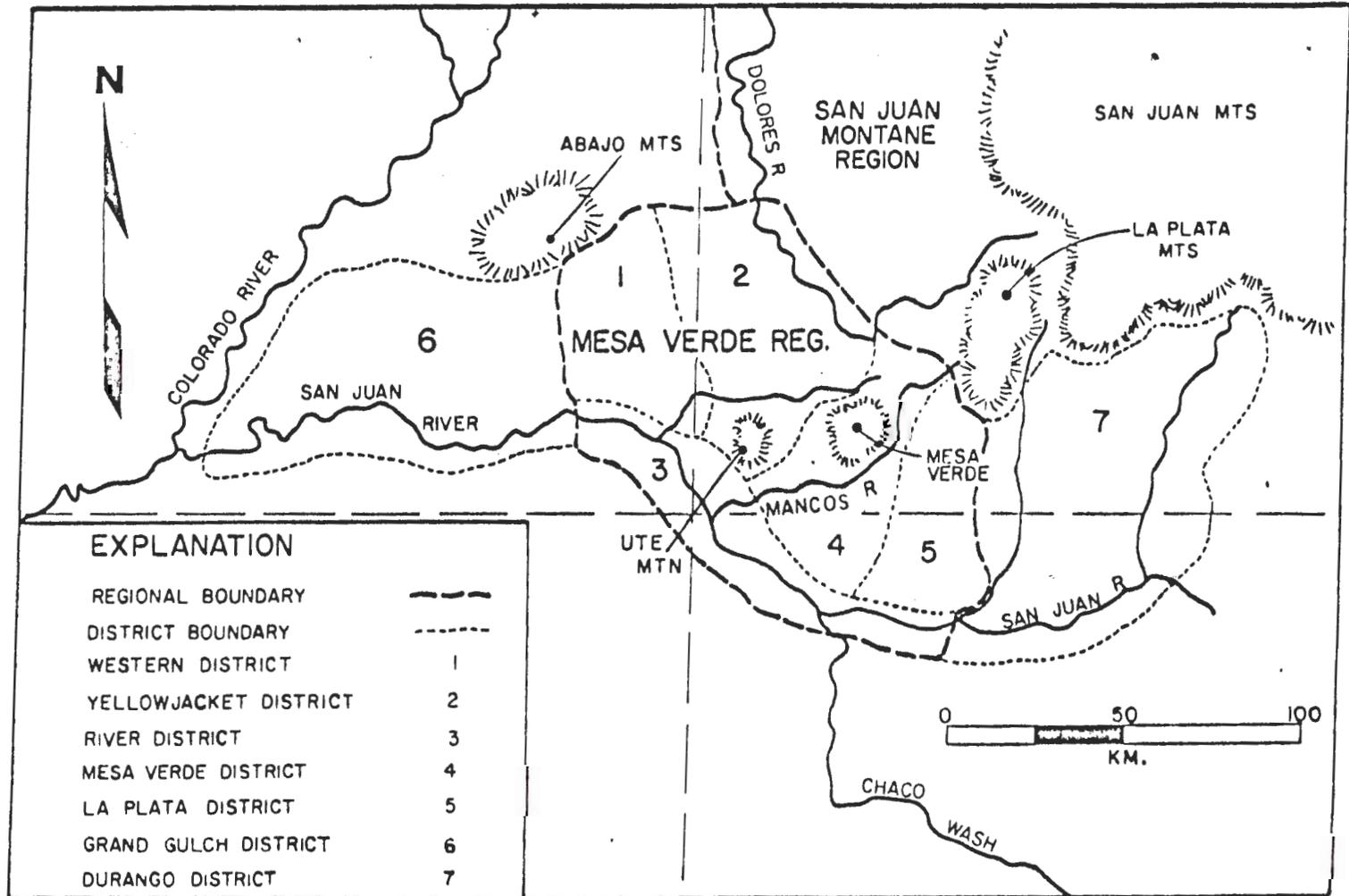


Figure 1.7 The Mesa Verde Region and archaeological districts defined in the Northern San Juan Culture Area.

## DOLORS ARCHAEOLOGICAL PROGRAM SITE TYPOLOGY

One result of the 1978 field season was a detailed Dolores Archaeological Program Site Typology based on sites expected or known in the project area. A system of site classification based on formal attributes is a necessary adjunct in describing settlement patterns and implementing sampling programs. The updated project system employs the same basic categories as were used in selecting the excavation sample for the 1978 field season: an initial division based on intensity of occupation, and subcategories based on visible characteristics and inferred function. A detailed presentation of the D.A.P. Site Typology, or system of site classification, is presented below. Correlations among units of the typology and the D.A.P. Spatial Series, and social groups utilizing the units, are depicted in Table 1.3.

### Limited Activity Loci

Limited activity loci are archaeological sites where a minimal range of activities took place; they are similar to activity areas as defined for the D.A.P. Spatial Series. However, limited activity loci are in isolated locations and are separated from centralized areas of prehistoric activity. Limited activity loci are believed to have been integral settlement pattern components during both the Archaic and Anasazi traditions, but individual sites may be difficult or impossible to date because they usually lack temporally diagnostic artifacts or features.

These sites were generally used for only a short period of time (from an hour or so up to a few days) and the use was often limited to a single economic season (hunting season, growing season, etc.). The activity



or perhaps activities carried out at the site were probably performed by one, or at most a few, individuals. Limited activity loci can be subdivided based upon functional interpretations. (Note that in some cases it may be necessary to combine these subtypes at a single site; for example, a kill site/butchering station or a petroglyph panel/storage cist. However, as long as the activities performed at the site were limited and the occupation transitory in nature, it should be classified as a limited activity locus.)

#### Economic or technical loci

Sites classified as economic or technical loci are isolated areas where resource use strategies (as defined in Problem Domain 1) were implemented. In most cases activities performed at these sites can be viewed as one step in a behavioral chain integral to a subsistence subsystem (for example, tools, domestic food, wild food, shelter). Several discrete subtypes are recognized:

Procurement loci. This category is defined as areas where resources were procured; a further division can be made based on the object resource, as follows.

Quarries: Quarries are areas where mineral resources were procured. These might include ceramic clay and temper sources, outcrops of cherts and quartzites suitable for manufacture of flaked stone tools, fossil shell beds where raw materials for ornaments could be collected, sandstone outcrops for building stone and tools, gravel deposits for cobbles, limonite and hematite deposits for pigments, etc.

Kill sites: These are locations where animals were killed. Examples are snare locations, ambushes, hunters' lookouts, etc.

Gathering stations: Gathering stations are areas where vegetal resources were procured. These include fiber, firewood, and construction materials sources as well as areas where vegetal foodstuffs could be obtained.

Agricultural sites: These include prehistoric fields, terraces, garden plots, etc., where domestic crops were grown.

Water control sites: These include modified springs, check dams, ditches, enlarged potholes, etc., where water was obtained or controlled.

Primary processing loci. These are sites where a procured resource was preliminarily processed before returning to the habitation or base camp; processing sites can be divided into categories, depending on the broad class of resource (animal, vegetable, or mineral) being processed. Examples of processing loci are butchering stations, where game was cut up and divided, or areas where temper material for ceramic construction was graded and prepared before transport to the habitation. Sites can often be classified as joint procurement/processing loci.

Secondary processing (manufacturing) loci. These differ from processing areas in that the goal of the activity is the production of a finished product rather than preliminary modification of a recently procured resource. Examples are pottery kilns, chipping stations, etc. Sites can be classified as joint primary processing/manufacturing loci (that is, sites where both steps were performed).

Maintenance loci. These are locations where maintenance was performed upon tools or gear. An example is a shelter with axe-sharpening grooves on a rock face.

Storage loci. These are locations where processed or unprocessed resources are stored before processing or consumption. An example is a masonry granary on a cliff face used to store maize.

Consumption loci. These are isolated locations where consumption took place. An example would be a picnic spot. An isolated firepit used to roast meat consumed on the spot could be classified as a joint processing/consumption locus.

Discard loci. Discard loci are isolated locations used for disposal of unwanted, broken, or consumed items; these are often termed "middens" or "refuse deposits."

#### Social or Ceremonial Loci

Sites classified as social or ceremonial loci are isolated areas where activities integral to the social systems of prehistoric communities (as defined in Problem Domain 3) were performed. Such locations often served to implement integrative mechanisms or to emphasize the roles of social groups. Some recognized site types are as follows: shrines, petroglyph and pictograph panels, sentry posts, signal fire locations (if used for warning or intracommunity communication), and cemeteries.

#### Communications Loci

Sites classified as communications loci are isolated locations where activities integral to intercommunity communications or exchange networks (as defined in Problem Domain 4) were performed. As such, they served to facilitate communication of ideas and materials among local and foreign communities. Some individual site types are trails and roads, signal fires (if used for intercommunity communication), and border markers.

### Seasonal Loci or Use Areas

Seasonal areas or sites were occupied on a short-term basis, usually by small social groups. The occupation of these sites was typically seasonal and periodic in nature. "Seasonal," as used here, is not limited to climatic seasons, but also may refer to economic seasons such as "growing season," "harvest season," or "deer season." The span of occupation at seasonal areas ranges from a few days to several weeks, conceivably to a month or two. These sites were often utilized on a periodic schedule, such as three times a year or annually.

Activities performed at seasonal loci were diversified, but such sites would be established with a definite purpose (usually economic or social) in mind. The number and range of activities were less than performed at a habitation; in this sense, at least for the Anasazi period, seasonal sites are similar in concept to use areas (see discussion detailing the D.A.P. Spatial Series), and in many cases can be considered isolated examples of such spatial units. Seasonal sites may contain architecturally bounded spaces that are similar to houses at habitations and are considered as such. The distinction is that living rooms at seasonal sites were occupied for shorter periods and were generally used for fewer activities; therefore they generally can be expected to be architecturally less complex. A distinction can be made between seasonal camps or sites that contain no substantial domestic architecture and seasonal loci that incorporate living quarters (often called field houses).

Most commonly, the seasonal locus can be considered a central location where a household, or members of a household, performed activities that were more conveniently accomplished at certain times of the year at that place. Therefore, in many instances the seasonal locus can be

considered a secondary habitation or centralized area of activity; occupations at seasonal loci are often directed more toward a specific activity or activity set and are less intensive when compared to habitations.

Infrequently, seasonal loci might be used by task groups representing different households. This would be the case when the main activity performed is integral to overall community or intercommunity operations. Subdivisions of seasonal loci, based on functional criteria, are presented below.

#### Economic or Technical Seasonal Areas

These sites are locations where several economic or technical activities (as defined in Problem Domain 1) were performed. Generally speaking, the activity set is dominated by one particular activity, or several activities, in one behavior chain representing a subsistence subsystem.

However, other tasks (such as tool maintenance at a procurement camp or simple ceremonies at a field house) may be carried out. Because the occupation at such sites is more time- and labor-intensive than at limited activity loci, and as identifiable social units (task group or households) may be represented, research at such units supplies basic data to the study of prehistoric social organization. Recognized types of economic or technical seasonal loci are as follows.

Procurement/processing seasonal loci. These are seasonal sites that functioned as centers for procuring and processing natural resources. Individuals and groups could harvest the resource directly from the camp or could utilize a network of limited activity loci; primary processing was then performed at the central camp. Such camps might be utilized by more than one Anasazi or Archaic household. In such cases, they are

intended to be similar in concept to microband settlements as defined by MacNeish [31]. Examples of procurement areas are hunting camps, camps established for the gathering of pinyon nuts or Opuntia fruits, etc.

Agricultural camps or field houses. These seasonal areas functioned as bases away from the habitation, where tasks associated with horticulture or agriculture were performed. Activities such as field preparation, planting, weeding, predator control, harvesting, initial processing, and temporary storage were either performed or based at these areas. Field houses are examples of such sites and are common in the later divisions of the Anasazi period. In the project area, field houses consist of small houses (usually one living room and several storage rooms) of jacal or masonry-based construction and outlying features; no pitstructures are present.

Reservoirs and irrigation systems. Elaborate water control systems are classified as seasonal loci because of the large labor expenditure required to construct and repair such edifices. Routine use and maintenance may require only a small number of individuals for a short period.

#### Social/Ceremonial Seasonal Loci

Sites classified as social/ceremonial seasonal loci are locations where sets of activities integral to the social systems of local communities (as defined in Problem Domain 3) were performed. Other types of activities were carried out as well, but these were peripheral to one or more activity sets representing a part of a behavior chain functioning as part of the local social system. Subdivisions of social/ceremonial seasonal loci are as follows.

Towers. The functional implications of Anasazi towers have long been a controversy in Southwestern archaeology. Recent research by Winter ([23]:210-215) near Hovenweep National Monument (about 40 km southwest of the Escalante Sector) suggests towers in that area were multifunctional, serving as ceremonial rooms, grinding rooms, processing or manufacturing areas, and/or cooking or living areas. Winter ([23]:210) concludes that towers may be an architectural rather than a functional classification.

Other proposed functional interpretations for towers include defense (Eastwood [32]:360), storage and ceremonial use (Fewkes [33]), and astronomical observation (Riley [34]).

A preliminary assessment of those project area sites classified as towers is that an important function of these edifices was local communication. This inference is based on the topographic setting of individual tower sites and on their spatial distribution when considered as a group; that is, towers are situated at elevated, prominent locations with a commanding overview of the surrounding territory and seem to be distributed according to a pattern that is suitable for observation of the Dolores Canyon and for intertower communication. If these sites are part of a local communications system, it is logical to assume that groups using the towers would be performing other activities as well, such as tool maintenance and domestic tasks.

Forts. These sites probably served as refuges when the community was threatened by other groups. They are manifested as walls or enclosures located on easily defended topographic features. Forts have not been identified in the Escalante Sector, although examples are known in the Yellowjacket District: for example, the site at the western end of Cannonball Mesa, reported in Fewkes ([35]), and ruins on promontories

described by Jackson ([35]:428-429). These locations are 40-50 km southwest of the Escalante Sector.

Isolated kivas or great kivas. These sites were probably utilized by kin groups or village and intravillage groups for socio-religious activities. Because of the size of great kivas, it is supposed that the effort in constructing and maintaining them, and in conducting specified activities, involved a group of people larger than would normally live together on a day-to-day basis; that is, the presence of interhousehold groups is implied by such structures.

#### Communications Seasonal Loci

Communications seasonal loci are locations where activities facilitating exchange of ideas and materials with foreign groups (as defined in Problem Domain 4) were performed. Sites of this nature have not been recognized in the project area, nor are they reported in the archaeological literature available for the Yellowjacket District. Possible examples are travelers' huts and border check points.

#### Habitations

Habitations are archaeological sites where a wide range of activities was performed; they were occupied continuously, or for a major portion of the year. Habitations in the D.A.P. Typology are congruent to habitations as defined in the spatial systematics section. They consist of one or more household clusters in a centralized location; as such, substantial architectural remains such as rooms, pitstructures, and outside work areas are usually present. Habitations represent the locations where most community activities took place, and they represent the home base of the community. Divisions of this category are presented

below; the divisions are based on architecture, number of social units, and function, rather than on function as the primary criterion, as was done with the other two major site categories.

#### Base Camps

Base camps are sites occupied by one or more household groups for a multiplicity of purposes. The intent in establishing this category is to allow for the study of Archaic sites as well as Anasazi types.

Substantial domestic architecture is absent although smaller facilities and features, such as hearths, ramadas, and brush screens, are standard accompaniments. Base camps were occupied by one or more households and served as central locations for endemic and outlying activities.

#### Hamlet

A hamlet is a small habitation containing one to three household clusters; it served as the home base for one to three households. A special case in this category is the unit hamlet, which consists of one household cluster. Hamlets contain permanent domestic architecture, such as roomblocks and/or pitstructures. Hamlets are the central abodes of small communities and may exist as isolated units in larger dispersed communities or neighborhoods.

#### Large Hamlet

Large hamlets are permanent habitations incorporating several household clusters (usually four to eight). A potentially important discriminator is the presence of an intracommunity integrative structure such as a "big" pithouse or kiva; such structures are reported (note Sender [36]) for Pueblo III hamlets in the Mesa Verde District. It has not yet been established that such structures are present at earlier

Basketmaker III-Pueblo I hamlets, the time span most frequently encountered in the project area.

#### Village

The village is a permanent habitation incorporating many household clusters (usually more than eight). Intracommunity and intercommunity integrative structures such as "big" pithouses or kivas and great kivas are often present. The village incorporates many architectural units such as pitstructures and large roomblocks; the architecture may be arranged in an orderly fashion according to a preconceived plan.

#### Functional Types

Further subdivisions might be made based on functional criteria. The divisions described above are nonfunctional by definition and are based on the assumption that the types are functionally similar; that is, the sites were established as loci for general sets of subsistence and social activities. It is conceivable that hybrid types might exist that combine specialized activities and general domestic functions. For example, a trading post established by a foreign group or an observatory for ceremonial observation might be maintained by several permanent household groups as well as a cadre of specialists. Such sites might be identified by specialized architecture and site layouts. Escalante Ruin, a suspected Chaco culture trading site, is one example in the Escalante Sector.

## TEMPORAL SYSTEMATICS AND THE D.A.P. FORMAL SERIES

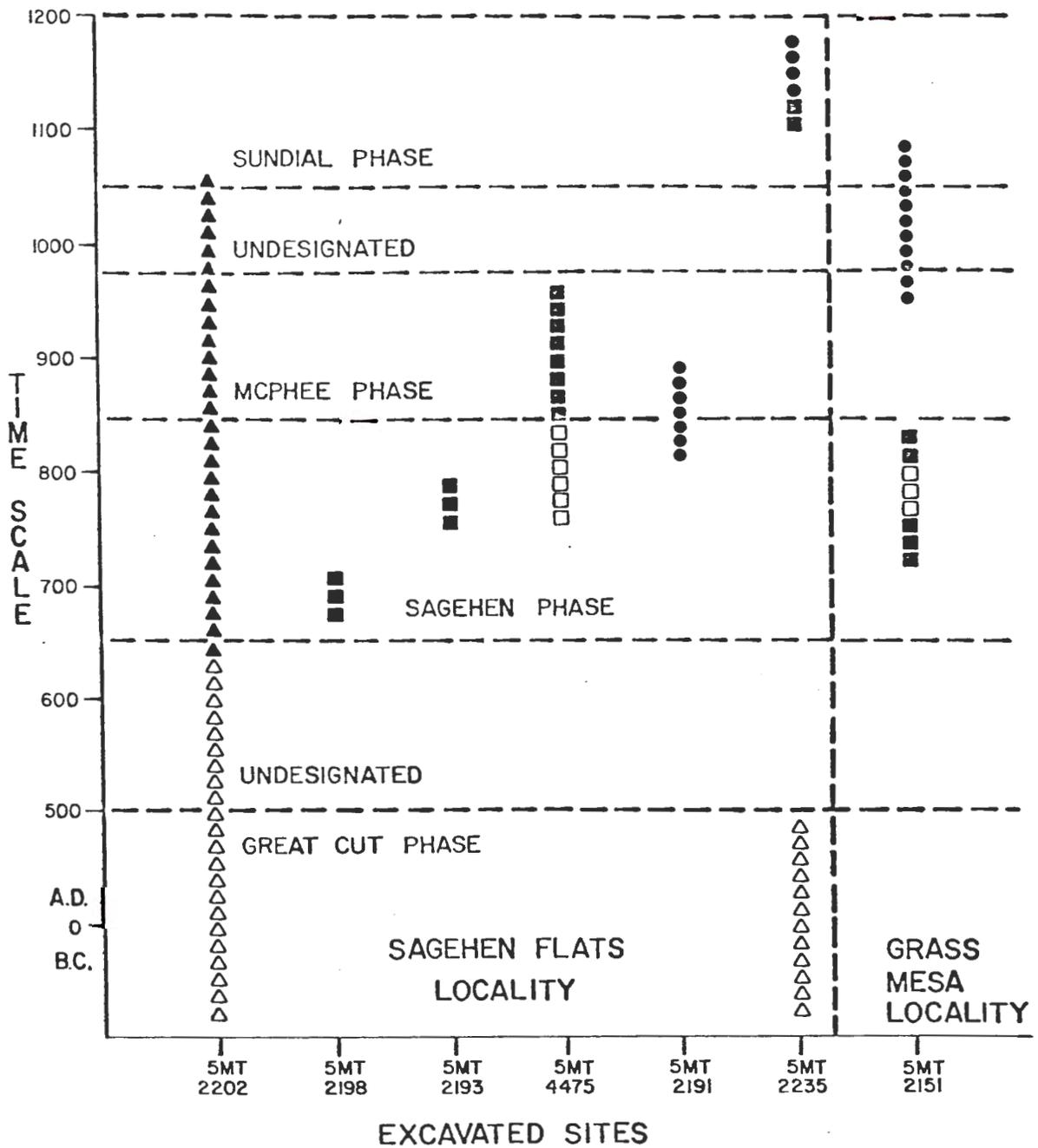
Regional relationships and cultural process are primary orientations of the general research design; cultural process is also integrated into the research design as a major problem domain. A comprehensive and well-designed set of temporal controls is necessary to investigate variability in cultural phenomena; spatial elements should be included in control systems so that cultural similarities and diversities can be described as multidimensional units. Development of such a rigorous multidimensional system, designated the D.A.P. Formal Series, was a major goal during the initial year of Dolores Archaeological Program operations.

Because the prehistoric sequence in the first-year study area was relatively uncertain, temporal assignments of site occupations for preliminary investigations (see section on 1978 field investigations) were based on the widely applied Pecos Classification. This scheme of temporal classification consists of broad, flexible units for which one of the major sorting criteria are artifact types and architecture. Such a flexible system was well suited for initial temporal classification of sites in the project area; survey data indicated that most sites would yield a suitable collection of artifactual materials. Occupational spans of sites excavated in 1978 are depicted in Figure 1.8. As more intensive operations progressed through the summer and fall, it became apparent that the Pecos scheme was not a good reflector of cultural stability and change in the initial-year study area, and that it could not accommodate spatial variability; hence a more modified temporal system with more suitable units needed to be developed. Such a system was formulated during the fall and winter of 1978-1979.

Figure 1.8 Occupational span and gross functional classification of sites excavated in 1978.

# ESCALANTE SECTOR

## OCCUPATIONAL SPANS OF SITES EXCAVATED IN 1978



EXPLANATION	DOCUMENTED	SUSPECTED
HABITATION	■	□
SEASONAL AREA	●	○
LIMITED ACTIVITY LOCUS	▲	△

Figure 1.8 Occupational span and gross functional classification of sites excavated in 1978.

## Basic Formal Units

The Dolores Archaeological Program Formal Series is based upon units originally proposed by several well-known archaeologists (see McKern [37], Kidder [38]) and then combined by Willey and Phillips ([39]:11-44) into a single integrated system. The units adopted by D.A.P. personnel have stipulated spatial and temporal connotations; therefore the system should be regarded as one consisting of archaeological units (Willey and Phillips [39]:21), rather than merely temporal divisions. The system is hierarchical in nature: smaller units can always be combined to form larger entities. The basic units of the project scheme are defined as follows.

### Element

The element is a single major building or remodeling episode within a community cluster and often reflects use histories within household clusters. The intent is to reflect periods of stability within prehistoric communities. For example, at Dos Casas Hamlet (Site 5MT2193, Emerson et al.[12]), the inhabitants abandoned the original domicile and built a second one slightly to the north during the history of occupation. The period of time during which the people inhabited the early house (Pithouse 1) is termed Element 1 and the time span during which the people were using the more northerly house is Element 2. The usual time span for an element is probably  $25 \pm 10$  years during the Anasazi Tradition, reflecting the typical use period for a house. During other traditions, elements were probably more lengthy. Assemblages of elements in the same community are combined to form components, and sequences of elements in the same and closely related communities form subphases (Figure 1.9

depicts the relationships among these units of the D.A.P. Formal Series). The same element may be manifest at more than one site, as the element is designed to reflect changes within the community and prehistoric communities normally incorporated more than one site. Different element sequences are employed for different habitations, however. Elements are assigned sequential numbers beginning with the earliest occupation of a community cluster; the sequence is not interrupted for phase changes.

#### Component

The definition of a component is similar to that originally proposed by McKern ([37]:308): it is the manifestation of a phase at a specific community cluster. In the abstract, a component consists of a sequence of elements; however, one element may be sufficient to define a component. The transition from one component to another at a community cluster involves far greater change than from element to element. The change is one in basic lifestyle, rather than building or remodeling episodes.

#### Subphase

The concept of the subphase is similar to that proposed by Willey and Phillips ([39]:24). They are divisions of phases and consist of assemblages of elements. For our purposes, subphases are used to define closely related community clusters and hence are not community-specific. A single element may define a subphase. Subphases are often limited spatially to related communities in the system adopted by the D.A.P.

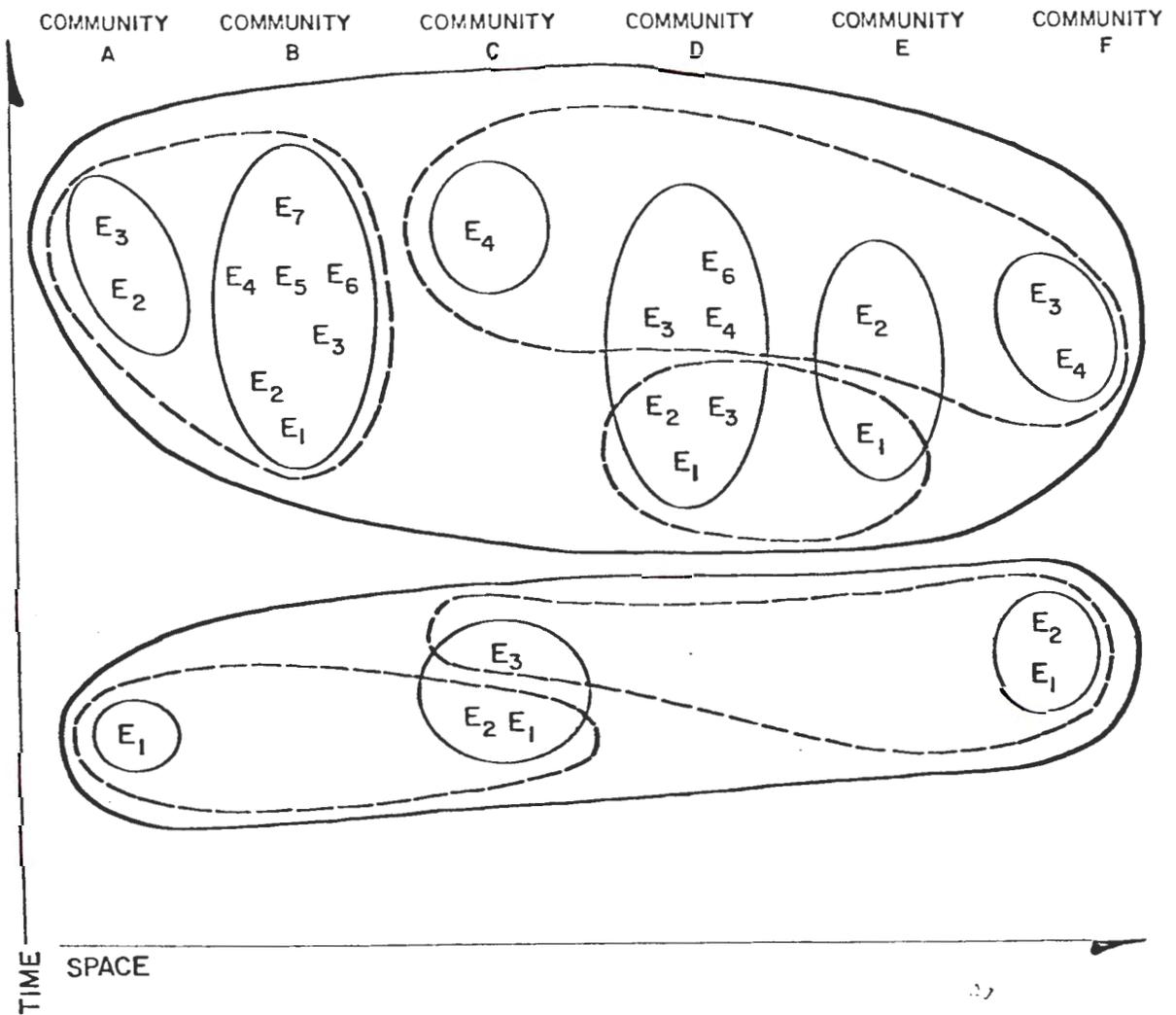
#### Phase

Again, for D.A.P. purposes, the definition of a phase is very similar

Figure 1.9 Relationships among elements,  
components, subphases, and phases  
in the D.A.P. Formal Series.

# D.A.P. FORMAL SERIES

RELATIONSHIPS AMONG ELEMENTS,  
COMPONENTS, SUBPHASES, AND PHASES



EXPLANATION	
ELEMENT	E
COMPONENT	○
SUBPHASE	○
PHASE	○

Figure 1.9 Relationships among elements, components, subphases, and phases in the D.A.P. Temporal Series.

to that given by Willey and Phillips ([39:22]); it is

an archaeological unit possessing traits sufficiently characteristic to distinguish it from all other units similarly conceived, whether of the same or other cultures or civilizations, spatially limited to the order of magnitude of a locality or region and chronologically limited to a relatively brief interval of time.

Phases are not standardized as to the amount of space and time they occupy, but, in the D.A.P. system, during the Anasazi Tradition they often approximate a sector in area and are of no more than 150-200 years in duration. The term "often" is emphasized, as the phase is a flexible unit; according to Willey and Phillips [39:22].

A phase may be anything from a thin level in a site reflecting no more than a brief encampment to a prolonged occupation of a large number of sites distributed over a region of very elastic proportions.

A single element representing a single component, therefore, may be sufficient to define a phase.

#### Local Sequence

The definition of a local sequence is again extracted from Willey and Phillips ([39]:25). For our purposes a local sequence is a chronological series of components within the geographical limits of a community cluster. A single component is sufficient to define a local sequence. A local sequence may crosscut phase boundaries and hence can be viewed as the manifestation of a tradition at a community cluster. Shifts between local sequences at community clusters often involve hiatuses in occupation at individual sites or changes in site types and functions.

#### Sector Sequence

A sector sequence is the manifestation of a tradition in a single

sector and consists of sequences of phases. One phase in a sector is sufficient to define a phase sequence. The transition from one phase sequence to another within a sector involves drastic changes, including basic alterations in subsistence modes and material technologies and large-scale shifts in population parameters. The relationships among phases, sector sequences, subtraditions, and traditions are depicted in Figure 1.10.

#### Subtradition

Subtraditions are divisions of traditions and consist of assemblages of phases. Subtraditions are used to delineate closely related phases and may crosscut sector and phase sequence boundaries. Subtraditions are limited spatially to a district or several sectors in the D.A.P. system. The intent in using this unit is to provide for close cultural relationships in space.

#### Tradition

We are perhaps using the term tradition in a broader sense than Willey and Phillips ([39]:37); they view a tradition as, "... a (primarily) temporal continuity represented by persistent configurations in single technologies or other systems of related forms." In the D.A.P. concept, traditions are subunits of "full cultural traditions" or "cultures" (see Willey and Phillips [39]:47-78, Willey [40]:4); hence, they are neither primarily temporal in orientation nor restricted to a single or a few technologies or systems. Traditions are regarded as temporal and spatial divisions of cultures and thus would be considered as "subarea traditions," employing the Willey and Phillips terminology. In a broad sense, traditions are viewed as local manifestations of stages (see Willey and Phillips [39]:64-78); in this sense they are primarily temporal in

Figure 1.10 Relationships among phases, sector sequences, subtraditions, and tradition in the D.A.P. Formal Series.

# D.A.P. FORMAL SERIES

## PHASES, SECTOR SEQUENCES, SUBTRADITIONS, AND TRADITIONS

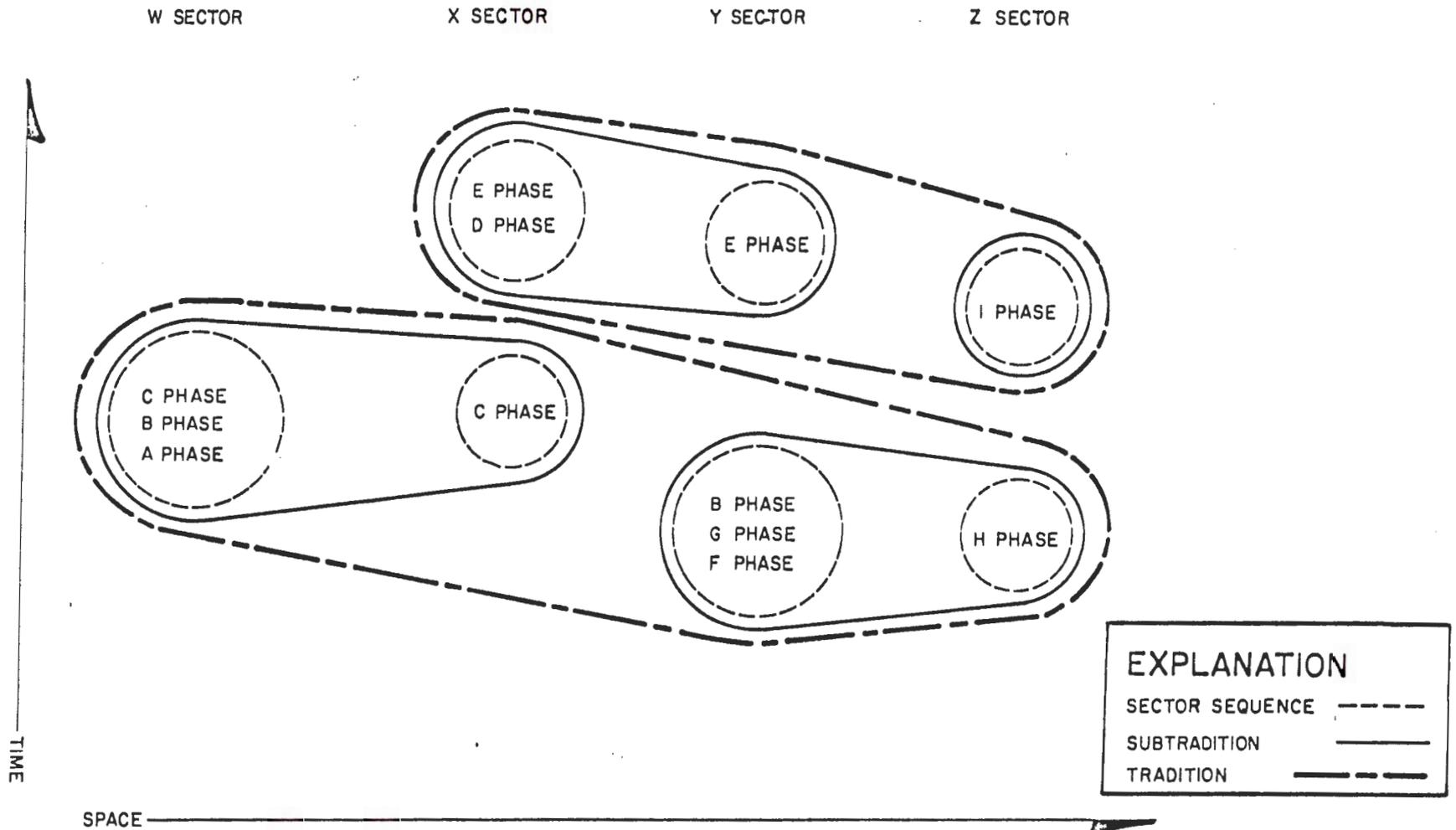


Figure 1.10 Relationships among phases, sector sequences, subtraditions, and traditions in the D.A.P. Formal Series.

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nature. Traditions consist of assemblages of phases, sector sequences, and subtraditions; one phase may be sufficient to define a tradition.

#### Criteria Employed in Definition

Archaeologists studying the Northern San Juan Culture Area have formulated temporal schemes for the Mesa Verde Region (for example, the Wetherill Mesa Phase Scheme, Hayes [6]) based on cultural characteristics. These formulations often employ artifact variability, particularly the evolution of ceramic types, as major determining criteria. The Dolores Archaeological Project has selected a different priority of defining criteria; it is felt that in many cases artifact variability may not accurately reflect differences in adaptive strategies and lifeways.

The characteristics used by project archaeologists are intersite patterns, intrasite patterns, and artifact patterns, with intersite patterns assigned the highest priority. The criteria are presented in detail below:

1. Variability in patterns at the intersite level, including:
  - a. form of community clusters, including total area, degree of nucleation evident in habitation units, and relationship among habitations and other site types
  - b. the site set employed by the community (an inventory of site types and frequencies of these types)
  - c. evidence for polity and intensiveness of foreign relations (are site types reflecting these areas present, what areas were inhabited, densities, etc.)

2. Variability in patterns at the intrasite level, including:
  - a. the relationship among household clusters (spatial relationships; the presence or absence of integrative structures)
  - b. the presence or absence of structures or facilities implying polity or formalized trade
  - c. the physical form of the household cluster (which spaces are used for domestic purposes, the form and amount of storage space, the types and frequencies of facilities present, etc.)
3. Variability in patterns at the artifact level, if the variability is evidence of adaptive or technological change; this includes:
  - a. the types and amounts of raw materials procured
  - b. architecture and construction modes
  - c. types and frequencies of artifacts if such changes indicate change in technology or adaptation (for example, the introduction of new design elements on painted pottery might be regarded as a mere style preference, while a 75 percent increase in the mean size of storage jars would probably be more indicative of a change in technology)

These criteria are applied when defining individual units for four of the five levels in the formal hierarchy (that is, when defining individual subphases, phases, subtraditions, and traditions). As previously discussed, elements, the first level in the hierarchy, are defined by building episodes, and the other units in the system (components, local sequences, and sector sequences) are integrative constructs dependent on the prior definition of the basic units.

Magnitudes of cultural change are considered when defining units. For example, in defining a tradition, distinctive characteristics in all

three major criteria and most subcategories must be present. For subtraditions, changes of definitive characteristics in two of the major categories, including intersite patterning, might suffice.

Phase definitions are based on distinct intersite patterning or on significant changes in the lower priority subcategories, while subphase definitions might involve lesser changes in the subcategories.

#### Application to the 1978 Study Area

Based on the data recovered from 1978 field operations and previous archaeological investigations in the Yellowjacket District, four prehistoric traditions, six phases, and numerous elements have been defined in the initial-year study area. The definition of other units, such as specific components, subphases, local sequences, sector sequences, and subtraditions, has been deferred until a more comprehensive data base can be obtained. A summary of temporal classifications made in 1978 is presented in Table 1.4; these assignments, and the proposed communities and integral components listed, should be regarded as a preliminary framework. Figure 1.11 depicts relationships between the D.A.P. Formal Series and other temporal systems employed for Anasazi cultures. A discussion of specific traditions and phases suspected or identified in the project area is presented below.

#### The Four Corners Paleoindian Tradition

No phases or elements representing a local manifestation of the Paleoindian (lithic) stage (Willey and Phillips [39]:79-104) have been defined. The evidence for this early occupation is very scanty and is confined at present to a few projectile point fragments. One such fragment, recovered by a project survey crew, appears to be the base of a parallel

Table 1.4 Preliminary Listing of Suspected and Identified Traditions,  
Phases, and Elements in the 1978 Study Areas (page 1 of 2)

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- I. Four Corners Paleoindian Tradition (11,000?-7,000 B.P.?)  
No phases or elements identified
  
  - II. Four Corners Desert Tradition (5000 B.C.-A.D. 500?)
    - A. Great Cut Phase, Escalante and perhaps other sectors (2000 B.C.-A.D. 500)
      - 1. Sagehen Flats Locality
        - a. North Marsh Community Cluster
          - i. Marsh View Hamlet (Site 5MT2235)  
Element 1 (Dates conjectural)
          - ii. Sheep Skull Camp (Site 5MT2202)  
No element specifically identified (Dates conjectural)
- 
- III. Anasazi Tradition (A.D. 450-1300)
  - A. Sagehen Phase (Escalante Sector, A.D. 650-850)
    - 1. Grass Mesa Locality
      - a. LeMoc Community Cluster
        - i. LeMoc Shelter (Site 5MT2151)  
Element 1 (A.D. 700-750)
        - ii. LeMoc Shelter (Site 5MT2151)  
Element 2 (A.D. 800-825)
    - 2. Sagehen Flats Locality
      - a. West Sagehen Community Cluster
        - i. Sagehill Hamlet (Site 5MT2198)  
Element 1 (A.D. 670-700)
        - ii. Dos Casas Hamlet (Site 5MT2193)  
Element 1 (A.D. 750-770)
        - iii. Dos Casas Hamlet (Site 5MT2193)  
Element 2 (A.D. 770-800)

able 1.4 Preliminary Listing of Suspected and Identified Traditions,  
Phases, and Elements in the 1978 Study Area (page 2 of 2)

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- B. McPhee Phase (Escalante Sector, A.D. 850-975)
    - 1. Sagehen Flats Locality
      - a. McPhee Community Cluster
        - i. Little House (Site 5MT2191)  
This site is assumed to be a field house used by the inhabitants of the McPhee Community. One element has been identified; however, the dates of use are uncertain. (A.D. 800-875?)
        - ii. McPhee Pueblo (Site 5MT4475)  
Element 1 (A.D. 870-900)
        - iii. McPhee Pueblo (Site 5MT4475)  
Element 2 (A.D. 900-940)
        - iv. McPhee Pueblo (Site 5MT4475)  
Element 3 (A.D. 940-975)
  - C. Sundial Phase (Escalante Sector, A.D. 1050-1200)
    - 1. Sagehill Flats Locality
      - a. North Periphery Community Cluster
        - i. Marsh View Hamlet (Site 5MT2235)  
Element 2 (A.D. 1075-1125)
      - b. Escalante Community (?)
        - i. Marsh View Hamlet (Site 5MT2235)  
Element 3 (A.D. 1125-1200) A temporary hearth and a use area indicate a late seasonal occupation at this site; as the Escalante Ruin (Site 5MT2149) represents the nearest known pre-historic community at this time (Escalante was constructed in the 1130s, see Halasi [41]), this seasonal occupation has been assigned to that community.
    - 2. Grass Mesa Locality
      - a. Unknown community
        - i. LeMoc Shelter (Site 5MT2151)  
Element 3 (A.D. 1000-1100)
- IV. Shoshonean Tradition (A.D. 1500-1900)
  - A. Beaver Point Phase (Escalante and perhaps other sectors, dates conjectural); represents occupation by Shoshonean (?) groups. No elements identified.
-

# D.A.P. FORMAL SERIES

## RELATIONSHIPS TO OTHER ANASAZI CHRONOLOGIES

1000 BC A.D. 0 400 500 600 700 800 900 1000 1100 1200 1300	PECOS CLASSIFICATION		WETHERILL SURVEY	DOLORS ARCHAEOLOGICAL PROGRAM
	Watson	Morris	Hayes	
	Basketmaker II			Great Cut Phase
	Basketmaker III	Basketmaker III	La Plata Phase	Undefined Phase
	Pueblo I	Pueblo I	Piedra Phase	Sagehen Phase
	Pueblo II	Pueblo II	Ackmen Phase	McPhee Phase
	Pueblo II	Early Pueblo III	Mancos Phase	Undefined Phase
	Pueblo III	Late Pueblo III (Mesa Verde Phase)	McElmo Phase	Sundial Phase
			Mesa Verde Phase	?

Figure 1.11 Relationships between the D.A.P. Formal Series and other classificatory systems employed to describe Anasazi cultures.

flaked spear point and therefore would suggest use of the area during the Plano Horizon, or about 8000 - 5500 B.C. Such slight evidence, of course, does not permit the establishment of intersite, intrasite, or artifact patterning; for the present it is assumed that the local Paleoindian population conformed to the general cultural patterns characteristic of the Paleoindian stage. Willey ([40]:38-39) describes Paleoindian peoples in North America as band-organized hunters who preyed on big game species such as the mastodon, bison, and horse. Spears were the primary offensive weapon and were either hurled or employed as thrusting weapons; favorite hunting grounds were shallow lakes and swamps, where the prey species would have difficulty in maneuvering. Big game hunting was a diagnostic practice of these cultures, but is probably overemphasized in the archaeological record; smaller game and collectable plants probably also contributed significantly to the diet.

#### Four Corners Desert Tradition

One tentative phase (the Great Cut Phase, see Table 1.4), has been assigned to the Archaic Tradition in the Escalante Sector; the establishment of this unit is based on the presence in the 1978 study areas of projectile points assignable to middle and late Archaic cultures.

It is certain that peoples utilizing the Desert lifestyle were in the project area in the period 3000 B.C.-A.D. 500, but definitive parameters for the local branch of the Desert Tradition have not been established. The lifeways of these early occupants are viewed as quite similar to the general description provided by Jennings for the Desert Tradition; the local population can be regarded as an eastern peripheral manifestation of that culture. According to Jennings [42:149-174]:

The effective social unit was small. An extended family - man, wife or wives, children and children-in-law, some infants - numbering no more than 25 or 30 in all, would constitute a normal, year-round grouping...The pattern of life was a cyclic wandering, but it was not truly a nomadic one. The small groups moved regularly from place to place, from valley to upland, in search of the seasonal animal or plant resources which centuries of experience had taught them were to be had...Under such conditions, the material possessions were few, utilitarian and durable, or easily manufactured at need... The twin hallmarks of the Desert Culture were the basket and the flat milling stone. The orientation of the culture toward small seeds was well-established by 7000 B.C., as these utensils testify. Supplementing vegetable foods, or perhaps of equal importance, was the hunt - virtually every animal of the desert fell prey to trap, snare and weapon.

The lifestyle and subsistence strategy described by Jennings would not necessitate complex intersite or intrasite patterns. The expected site set consists of a number of limited activity loci associated with hunting and gathering practices, procurement camps, and base camps. Communities incorporating a seasonal round of restricted wandering into their settlement patterns are termed "bands" (Murdock [24]:79), and this nomenclature has been adopted for project purposes (hence the proposed Archaic community that used Sheep Skull Camp and Marsh View Hamlet is called the North Marsh Band).

During the last part of the Archaic Tradition, it is possible that the local peoples were experimenting with the raising of domestic plants introduced from the south; such practices may have resulted in a more sedentary existence. The nature of the Archaic-Anasazi transition is virtually unknown in the project area. The search for and the investigation of sites representing this transition will be assigned a higher priority in future operations.

#### The Anasazi Tradition

The Anasazi Tradition is well documented in the 1978 study area.

Three phases, the Sagehen Phase, McPhee Phase, and Sundial Phase, and 12 elements have been defined in the Escalante Sector. Lifestyles are generally viewed as being similar to the Southwestern Tradition as described by Willey ([40]:178-245); the Anasazi Tradition is the local manifestation of the Formative Stage.

Distinctive Anasazi traits include the manufacture and use of ceramic artifacts and the presence of permanent settlements consisting of pitstructures and associated roomblocks and other features. Subsistence strategies emphasized food production or farming, and intensive methods such as irrigation were adopted later in the cultural sequence. Common cultigens were corn, beans, and squash; dogs and turkeys were animal domesticates. The society was organized by households living in distinct architectural divisions; during the early portion of the tradition (at least in the Escalante Sector) the people lived in dispersed communities, but an aggregative trend is evident in later periods. Besides ceramics, the general inventory included ground stone items (metates, manos, mortars, lapstones, polishing stones, hammerstones, etc.), flaked stone implements (projectile points, denticulates, drills, etc.), bone tools (awls, needles, fleshers, etc.), basketry, and ornaments (necklaces, pendants, bracelets, etc.). For the duration of the Anasazi Tradition, the local farmers were influenced - probably indirectly - by the Mesoamerican civilizations; possible imports were new forms of cultigens, ornaments, and social and ceremonial concepts.

A more detailed discussion of identified phases is presented below; note that settlement characteristics weigh heavily in the phase definitions. Settlement criteria are regarded as sensitive indicators of lifestyles and are currently more easily obtainable than technological or

social parameters. A model of settlement hierarchies for each phase is presented in Table 1.5.

Sagehen Phase. The Anasazi population during the Sagehen Phase was distributed in small hamlets located in favorable farming areas. Each hamlet was the primary domicile and center of activity for one household or, infrequently, two or three. In the Sagehen Flats Locality, the spacing between hamlets is more even than a randomly generated model, perhaps indicating interhabitational competition (Kane [43]).

Sagehen Phase settlement patterns incorporate a more limited site type set than do those of the later McPhee Phase. Limited activity loci and seasonal areas associated with hunting and gathering activities are well represented, but specialized farming or social sites are absent. Only one type of habitation, the hamlet, is present in the site set. The local Sagehen Phase peoples were apparently practicing a diverse-base subsistence strategy with emphasis on both hunting and gathering and horticulture. Farming practices are assumed to be of a simple nature because of the apparent lack of specialized sites. While there may have been interhousehold competition for lands with good agricultural potential, Sagehen societies were uncomplicated in organization. No trend toward centralization is evident; local communities in the Escalante Sector consisted of dispersed habitations and can be classified as "neighborhoods," rather than as nucleated settlements.

Within the habitation the center of activity was the subterranean pithouse, often subrectangular in outline with a central hearth, an antechamber or ventilator system, and a four-post roof support pattern. A wingwall often divided the pithouse into north and south areas, the north area serving as a space for general activities and cooking and sleeping,

Table 1.5 Proposed Settlement Hierarchy According to Phase,  
Escalante Sector, Anasazi Tradition (page 1 of 2)

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I. Sagehen Phase (A.D. 650-850)

A. Limited Activity Loci

observed: procurement/processing areas (component at Sheep Skull Camp is positive evidence for these types)

expected: quarries, kill sites, horticultural plots, manufacturing and maintenance sites, petroglyph and pictograph panels, trails

B. Seasonal Areas

observed: none

expected: procurement camps

C. Habitations

observed: hamlets (Element 1 at Sagehill Hamlet, Elements 1 and 2 at Dos Casas Hamlet, Elements 1 and 2 at LeMoc Shelter)

expected: no additional types

II. McPhee Phase (A.D. 850-975)

A. Limited Activity Loci

observed: processing areas and gathering stations (component at Sheep Skull Camp)

expected: quarries, kill sites, agricultural sites, water control sites, manufacturing sites, maintenance areas, shrines, petroglyph and pictograph panels, trails, boundary markers

B. Seasonal Areas

observed: field houses (Element 1 at Little House),

expected: procurement camps

C. Habitations

observed: Large hamlets (Site 5MT2651, Site 5MT4628, others from survey data), villages (multiple elements at McPhee Pueblo, other surveyed sites such as Grass Mesa Village, May Mesa Village, etc.)

Table 1.5 Proposed Settlement Hierarchy According to Phase,  
Escalante Sector, Anasazi Tradition (page 2 of 2)

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III. Sundial Phase (A.D. 1050-1200)

A. Limited Activity Loci

observed: none

expected: quarries, kill sites, gathering stations, processing areas, manufacturing sites, maintenance areas, shrines, petroglyph and pictograph panels, sentry posts, signal locations, trails, boundary markers

B. Seasonal Areas

observed: towers (from survey data), procurement camps (Element 3 at Marsh View Hamlet, Element 3 at LeMoc Shelter)

expected: field houses

C. Habitation

observed: hamlets (Element 2 at Marsh View Hamlet, villages (multiple elements at Reservoir Ruin)

expected: large hamlets, perhaps function-specific habitations

---

while the south area was often reserved for food preparation (mealing) and storage.

Technology and material culture endemic to Sagehen Phase societies were similar to those described by other archaeologists for the late Basketmaker III - early Pueblo I periods (for example, Willey [40]:202-207; Brew [44]).

McPhee Phase. The MCPhee Phase represents a demographic and organizational climax in the Escalante Sector. The population was distributed in nucleated villages or large hamlets rather than in dispersed hamlets. Thus, MCPhee Phase communities are termed "nucleated communities" or "villages" rather than "bands" or "neighborhoods." Aggregation into large settlements was also accompanied by changes in intrasite patterns; surface rooms were assigned a wider range of activities, and pitstructures probably assumed more of a ceremonial function.

The site set used by MCPhee Phase communities was larger than that of the preceding period. In addition to a full range of site types associated with hunting and gathering activities, the inventory included specialized farming sites such as field houses and perhaps check dams and terraces. Agricultural practices were becoming more intensive, as is shown by the proliferation of agricultural site types and numbers. Recognized habitation types for the MCPhee Phase are large hamlets and villages. Eight MCPhee Phase residential clusters (villages) have been identified in the Escalante Sector, all located within easy access to the Dolores River. The larger MCPhee Phase Villages probably served as the permanent residence for a maximum of 40-50 households, or 200-350 individuals each. Intersite patterns show some conformities to a central place model; this

correspondence may indicate intercommunity competition or the possibility of interlocality social organizations. A trend toward a more nucleated settlement pattern may be related to increased reliance on intensive agricultural practices (Birkedal [45]). Nucleation and a more complex settlement pattern may also imply a more complicated organizational structure in general.

Within the village habitation units, roomblocks were fronted by a plaza area incorporating pitstructures. Activity area and floor features located in the latter structures indicate more of an emphasis on ritual or at least multifunctional purposes. Formal architectural characteristics are different than in the preceding Sagehen Phase; post-A.D. 900 pitstructures are round rather than subrectangular and do not have a wingwall. Very late (post-A.D. 925) McPhee Phase pitstructures may incorporate masonry walls. The general impression is that these round edifices can be classified as "kivas," as defined in southwestern archaeological literature (e.g., Martin and Plog [46:120-121]), Gillespie [22:82-98]). The D.A.P. has not yet excavated any pitstructures assigned to the early part of the McPhee Phase; hence their characteristics must remain unreported.

With this apparent basic change in the role of the pitstructure, Anasazi households used suites in surface roomblocks as domestic headquarters. The suites often consisted of a living room with a hearth and one or two connected storage rooms. Storage rooms were constructed of horizontal masonry coursing, perhaps to keep out rodents and other pests. Living rooms were often of less substantial construction. Other technological and social characteristics for this period probably approximate general descriptions given for late Pueblo I - early Pueblo II cultures (Willey [40]:205-208, Hayes and Lancaster [47]).

Sundial Phase. During the last part of the McPhee Phase there was a rapid population exodus from the Escalante Sector. The succeeding Sundial Phase is characterized by low population levels and the return to a simple settlement pattern. Procurement camps, hamlets, and towers representing this period have been recorded in the sector. Escalante Ruin and Reservoir Ruin, in the southern part of the sector, may represent specialized habitations serving limited functions; for example, Escalante Ruin has been inferred to be a trading post perhaps representing an outlying unit of a larger trade network originating in the Chaco Canyon area in northwest New Mexico (Reed [48]).

Economically, it appears that most of the Escalante Sector had reverted to a hunting and gathering province; small settlements oriented toward limited farming were present in the southern portion (Sagehen Flats, Escalante, and Reservoir localities). Socially, the Escalante Sector can probably be regarded as a frontier during the Sundial Phase. The presence of towers as a settlement type may indicate a warning system or communications network staffed by members of more southerly communities. Large habitations such as Escalante and Reservoir Ruins may have incorporated facilities and activities associated with the frontier (such as storage areas for trade items or special defensive features).

Lifeways were probably simple for the farming households living in the southern half of the sector. The pitstructure at Marsh View Hamlet probably served as a domicile and may have been used on a seasonal basis. Lifeways at the larger hamlets or function-specific habitations in the southern part of the sector were more complicated; they are believed to have shared some similarities to those described for early Pueblo III societies by other authors (e.g., Willey [40]:208-209, Swannack [49]).

### Shoshonean Athabascan Tradition

No phase or element assignments representing a local occupation by the Shoshonean or Athabascan peoples have been made. The 1978 field investigations did not reveal a post-Anasazi component at any of the investigated sites; however, the D.A.P. survey crews recorded several sites with Shoshonean-style pottery fragments and projectile points. It thus appears that there was post-Anasazi use of the project area by Shoshonean peoples, and this is documented in early historic records of the area (e.g., Bolton [50]). More definitive descriptions of post-Anasazi cultures will be based on future D.A.P. fieldwork and analysis.

## CONCLUSION

As part of the Dolores Project Cultural Resources Mitigation Program, archaeological field operations were executed in the period June-November 1978 by the University of Colorado. During this span field crews conducted nonintensive operations and intensive investigations: nonintensive operations included an inventory archaeological survey, preliminary assessment of recorded sites to aid in selection of an excavation sample, a magnetometer survey testing program, and archaeoastronomy. Intensive investigations included the excavation of seven prehistoric sites; this latter program revealed that the project area has probably been the scene of human activity for at least the last 5000 years. Both the Archaic Tradition (5500 B.C.-A.D. 500) and the Anasazi Tradition (A.D. 500-1300) are well represented in the present site universe.

The goals of the 1978 field program were the amassing of a general data base for application to the research design and the establishment of base parameters for the Anasazi occupation; both goals were realized. The data from 1978 investigations were used to design the Dolores Archaeological Program Spatial and Formal Series and Site Typology; these are basic classificatory systems which are vital in compiling raw data and presenting results of analyses in a standardized reporting format amenable to comparison.

The 1978 field operations program was also necessary as input for designing future operations. The 1979 field program will be greatly expanded when compared to 1978; again, work scheduled to be performed can

be classified as nonintensive operations or intensive investigations. Goals and directions in these research areas are summarized below.

### Nonintensive Operations

#### Goal 1: Expansion of the archaeological data base.

The following specific programs will be conducted to reach this goal:

1. Inventory survey. The University of Colorado will employ two survey crews in continuing the inventory survey of project area lands required by the Bureau of Reclamation. Goals for 1979 are to complete survey coverage of the proposed reservoir pool area and to do the bulk of the effort required in two proposed recreation areas.

2. Probability survey. Washington State University will employ one field crew to initiate a probability survey in parts of the Escalante Sector not designated for inventory survey. The probability survey will adopt a sampling strategy based on the selection of random 400 m<sup>2</sup> quadrats.

3. Magnetometer survey. The Program will employ a magnetometer crew to record subsurface features at archaeological sites. Thirty-five sites have been scheduled for magnetometer investigation in 1979.

Since the feasibility of such operations was proved in 1978, goals of 1979 operations will be expanded; these include the evaluation of magnetometer data in predicting characteristics of pitstructures (size, depth, and degree of burning) and in mapping large habitations.

4. Remote sensing. Mann and Associates of Albuquerque has been engaged to conduct an aerial mapping program of large sites in the project area. Seven sites will be included in the 1979 program; the specific

objectives of these operations are accurate mapping of village site plans and evaluation of potential application of this technique.

Goal 2: Preliminary assessment of the project area data base and selection of a sample for intensive studies in 1979.

Realization of this goal will involve the following processes:

1. Review of pertinent survey records
2. Onsite evaluations
3. Review of magnetometer survey results and additional testing if needed
4. Classification of all sites according to the Dolores Archaeological Program Temporal and Formal Series
5. Definition of a site universe and selection of a sample to be intensively investigated in 1979; the site selection process will be implemented by using a stratified random sampling design pursuant to the goals established for later intensive investigation

Goal 3: Reconstruction of the prehistoric environment.

A necessary preliminary step in investigating the problem domains specified in the general research design is to estimate the characteristics of the prehistoric environment. Such a step is critical in assessing adaptive strategies employed by Anasazi cultures in the Escalante Sector. The methodology to be adopted in obtaining a first estimation specified the following procedures:

1. The characteristics of the present-day environment are established by conducting a literature search and then initiating field studies; the goal is an inventory of modern resources

present in project study areas and maps of their distributions, if appropriate.

2. Post-abandonment processes resulting in the modern environment are studied by formulating and testing appropriate models.
3. A tentative model of prehistoric conditions is established based on the data generated by these procedures. This is tested and modified, if necessary, by comparison with the information recovered from excavation of prehistoric sites. To implement this design, the following specific programs will be undertaken in 1979:
  - a. Geology. A geologic studies subcrew will survey the Escalante Sector for geologic features, possible sources of raw materials for lithic and ceramic manufacture, and domestic water sources.
  - b. Climate. Four small weather stations will be established in the 1979 study area; these will be monitored daily. In addition, a crew from the Laboratory of Tree-Ring Research, University of Arizona, will undertake a climatic reconstruction study based on coring of living trees.
  - c. Vegetation and soil. An environmental studies crew will survey the Escalante Sector for vegetation and soil zones.
  - d. Fauna. A faunal studies crew will be collecting faunal samples in the Escalante Sector; regularly monitored trap lines will be established for this purpose.
  - e. Experimental agriculture. Experimental farming plots will be established and maintained by an environmental studies

subcrew. Crops grown in the plots will include several varieties collected from modern Native American farming cultures to determine how successfully these items can be grown under local conditions.

### Intensive Investigations

Intensive field investigations (excavation) in 1979 will be conducted within the limits of the Escalante Sector. Overall strategy for the operations is directed toward assembly of a general data base suitable for application to the two primary research orientations (regional and temporal relationships) and the five major problem domains. To investigate cultural relationships on a regional scale, excavation of selected sites will be done in four localities: Sagehen Flats, Grass Mesa, Periman, and House Creek. Because the analyses necessary to answer specific questions in the research design require a broad data base when considered in total, the 1979 excavation strategies will not emphasize collection of data in specific problem-domain areas, but rather the accumulation of a wide range of data. Exceptions to this general strategy may be made in future years in reference to data requirements for Problem Domains 2 (demography) and 4 (foreign relationships). General and specific goals of the 1979 program of intensive operations are outlined below.

#### Goal 1: Augmentation of data base for Sagehen Flats Locality.

Specific objectives are as follows:

1. Further investigation of the proposed North Marsh Band (Archaic Tradition). This objective will be implemented by further investigations at Marsh View Hamlet (Site 5MT2235), magnetometer

survey at Sheep Skull Camp (Site 5MT2202), excavation of Horse Bone Camp (Site 5MT2199), and magnetometer survey and other operations at Ridgeline Camp (Site 5MT2242).

2. Investigation of Archaic site(s) in north part of Sagehen Flats Locality; the objective is twofold: establishment of parameters for the Archaic community in this area, and recovery of data for comparison with the North Marsh Band. Specific operations include magnetometer survey, surface pickup, and testing at Site 5MT4640 and/or Sites 5MT4647 and 5MT4649.
3. Further investigation of the proposed West Sagehen Neighborhood (Sagehen Phase). Operations will include completion of efforts at Dos Casas Hamlet (Site 5MT2193), and excavation at Sites 5MT4512, 5MT4545, 5MT2194, 5MT4614, 5MT2844, 5MT2848, 5MT2853, and 5MT2236.
4. Initial investigation of the proposed Milhoan Neighborhood (Sagehen Phase). Operations will include excavation of Sites 5MT2858, 5MT4644, and 5MT2854.
5. Further investigations of the proposed McPhee Community (McPhee Phase). Operations will be confined to potential field houses in the western farming province of this community. Sites to be investigated include Sites 5MT2192, 5MT2203, and 5MT2205.

Goal 2: Augmentation of data base for Periman Locality.

Specific goals are as follows:

1. Investigation of relationship between Periman and Grass Mesa localities (McPhee Phase). Operations will include excavation of Site 5MT4671.

Goal 3: Augumentation of data base for Grass Mesa Locality.

Specific goals are as follows:

1. Identification of possible early community in locality.  
Operations include testing at Site 5MT4651.
2. Further investigations of proposed LeMoc Neighborhood (Sagehen Phase). Operations include completion of work at LeMoc Shelter (Site 5MT2151) and excavation of Site 5MT2161 or Site 5MT4650.
3. Further investigations of proposed Grass Mesa Community (McPhee Phase). Operations include excavations at Grass Mesa Village (Site 5MT0023).

Goal 4: Augmentation of data base for House Creek Community (McPhee Phase

Operations include excavations at House Creek Village (Site 5MT2320).

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