

ARCHAEOLOGICAL REPORT OF THE  
UNC SYLVAN DALE RANCH PROJECT

1990

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## SECTION I

### History and Background to Archaeological Investigations of the Sylvan Dale Project

#### INTRODUCTION

In the spring of 1985, this author was contacted by Sylvan Dale Ranch, a guest ranch and cattle operation in the foothills region west of Loveland, Colorado. At the time, the owners of Sylvan Dale were interested in the investigation and salvage of a small "tipi ring" site on a small terrace overlooking the main lodge of the ranch. After a short preliminary investigation, the owners of Sylvan Dale and this author agreed that it would be mutually useful to conduct a longer term archaeology research program on ranch lands.

Preliminary research at Sylvan Dale was conducted during the late spring and early summer of 1985. This included an initial survey of the stone ring site, now known as the Jessup site(5LR1049), by an archaeology class from Colorado State University at Fort Collins. Further surveys and initial testing of a nearby cave shelter, Echo Cave(5LR349), were accomplished later in the summer and early winter of that year. The following year, in spring of 1986, survey reconnaissance was extended to another portion of the Sylvan Dale Ranch landholdings, an inter-hogback valley and confining ridges known as Big Valley. Several new sites were noted in that area of investigation and included in the overall research project schedule.

Formal fieldwork for the Sylvan Dale Archaeological Project began in the late spring of 1986 with an archaeological field school offered through the University of Northern Colorado. The first field season began on June 23 with initial surveys and excavations at selected sites in the Lodge and Big Valley study units. The first UNC field season was completed in the first week of July, 1986. A second field school was conducted in the third week of June, 1987, with a third season being completed in early August, 1989. The fourth and final formal field season, excavation at the Valley View Site locality, was

completed in August, 1990. The following report is a general description of Sylvan Dale archaeological research up to, but not yet including, the final 1990 field season. However, data analysis for project will continue for the next few years after which a final project report will be issued.

#### HISTORY OF ARCHAEOLOGICAL INVESTIGATION IN THE SYLVAN DALE REGION

Background research for the Sylvan Dale Project revealed that only a limited amount of fieldwork had taken place in the immediate region. The earliest documented research was conducted by Elizabeth Yelm, now Elizabeth King, as part of her Master's Thesis work at the University of Denver(Yelm 1935). Yelm recorded a significant number of archaeological sites along the Big Thompson drainage corridor from Loveland into Rocky Mountain National Park during the summer of 1933. Her subsequent thesis briefly described five sites which are now part of Sylvan Dale Ranch property(cf. Yelm 1935: 18-23). Three of Yelm's sites are in the immediate Sylvan Dale Ranch headquarters area and two more are located in a ranch-owned hogback valley two miles southeast of those headquarters.

After Yelm's work, no further "formal" archaeological research was done on the Sylvan Dale region until the mid-1950's, when Joe Ben Wheat of the University of Colorado recorded sites from the personal records of a local amateur archaeologist and artifact collector, E.P. Lohr. Wheat also spent some time in the area, supervising limited survey reconnaissance in the Carter Lake Reservoir area south of Sylvan Dale Ranch.

The next archaeological activity took place in the early 1960's when a University of Colorado team excavated a small, three-pit, burial site in the Buckhorn Creek Valley, a few miles northeast of Sylvan Dale(Wade 1966). That site, known as the Hutcheson site, was both uncovered and subsequently destroyed by pipeline laying activity. Human bone from the Hutcheson site was later radiocarbon-dated to A.D. 145 and is believed to represent a very early Plains Woodland occupation in the area(cf. Eighmy 1984: 86). The Hutcheson site area is part of a Sylvan Dale Project archaeological study unit that has, to date, only been subject to survey reconnaissance.

In the early 1980's, a CSU graduate student, Lauri Travis, conducted limited survey and surface collection work along the easternmost hogback immediately west of Loveland(Travis 1986, 1988). In her survey, Travis covered some 800 acres and located 27 sites ranging from the Early Archaic to the Historic periods. Analyzing sites locations in reference to environmental variables, she found a marked preference for wind-sheltered benches on eastern slope hogback ridges. Preliminary Sylvan Dale Project survey data support that inferred settlement pattern, with some notable exceptions, in the more westerly hogback valleys as well.

To date, other recent, local field activities have included a brief cultural resource impact study of a proposed outlet for Carter Lake Reservoir(Kranzush 1982) and initial 1988 field surveys in foothills margins west and northwest of Loveland by the Anthropology Department at CSU (C. Jennings, personal communications). The Carter Lake field survey re-investigated a camp and burial site(5LR42) originally recorded by Joe Ben Wheat in 1955. During the study, contract archaeologists found both a fragmentary human burial and a camp hearth eroding from a bank cut in Dry Creek. Unfortunately, further work on the site was suspended when plans for the proposed dam outlet were dropped. The more recent CSU fieldwork has a goal of extending the earlier Travis surveys and recovering data on areas specifically endangered by modern housing developments.

## SECTION II

### Environmental Background and Research Units of the Sylvan Dale Project

#### INTRODUCTION

The Sylvan Dale research area consists of some seventeen thousand acres in the Front Range foothills west of Loveland, Colorado. A significant proportion of that area incorporates nearly three thousand acres of Sylvan Dale Ranch while the remainder includes several additional privately owned parcels of land. The large area involved, along with limited resources for

archaeological investigation, dictated that total coverage of the project area was not feasible. Instead, it was decided that sample environmental blocks, called study units, would be used as part of the overall research strategy. Study units were chosen to be as representative as possible of available local environments and their associated archaeological and potential economic resources. The following section outlines the environmental parameters of the Sylvan Dale project area, both in general terms and in relation to its individual study units.

#### CLIMATIC PARAMETERS OF THE NORTHERN FOOTHILLS

Climate in the Northern Front Range Foothills has and continues to vary in terms of long, medium and short term climatic cycles. As noted in the earlier prehistory section, climatic cycling has played a major role in determining both the form and extent of human adaptation to the region. At present, we have only a broad outline of climatic and environmental history on which to "hang" the region's known culture historic record. However, in time, as more environmental data is gathered, the complex picture of prehistoric human and climatic-environmental interactions will become increasingly clear.

Present-day environmental studies, in part, help provide a baseline for reconstructing past climates and environments. Such studies also give us important clues to understanding local and regional climatic patterns as they are influenced by various geomorphic and topographic phenomena. In particular, the high mass of the Continental Divide, immediately to the west, heavily modifies both the scope and character of foothills weather and climate. The Colorado Rocky Mountains serve as a major barrier to air masses which arrive in the area from the west and northwest in winter and the west and southwest in summer. During the winter months, polar air from the northwest slows significantly with its ascent over the east slopes of the Rockies. As a result, the slowed, cold air masses sink quickly into the adjacent lower elevation prairie plains. While much of this cold winter air also affects the foothills, the full brunt of cold polar air flow has its greatest impact on the plains beyond the foothills. The eastern plains, as a general rule, average 2-5

degrees F. cooler than the foothills in the immediate "shadow" of the high mountain ranges.

The presence of the Rockies also creates another condition which has served to make the foothills more amenable to human habitation during the winter season, the Chinook. Chinooks are warm, drying, high velocity winds which often descend the eastern slopes of the Rockies and cause substantial warming of the immediate eastern foothills corridor. They also extend a short distance eastward into the plains margins, but their warming effect tends to drop off quickly beyond the foothills themselves. Chinook winds are generated by larger-scale westerly upper-level air currents striking the high Continental Divide peaks, then slowing and sinking into the adjacent foothills. The sinking-slowing process causes the air to "pile up", then accelerate against the descending hills, causing the rapidly moving air to adiabatically heat and dry. When Chinook winds develop in the foothills and plains margins, they break the winter cold by raising air temperatures three to as much as thirty degrees F. As a result, seasonal Chinooks cyclically warm the foothills throughout the winter and continually melt its snowcover.

Aside from the effect of winter, and springtime, Chinooks, smaller-scale seasonal wind patterns of other types are important environmental factors to reconstructing prehistoric lifestyles. In particular, there is a great deal of influence on wind patterns from the local topography, specifically the alternating northerly-southerly trending hogback ridges and hogback valleys. As an example, there is a strong tendency for summer cooling breezes to blow up or down hogback valleys depending on such factors as air temperature, time of day and the relative locations of heat-retaining rock masses. Any and all of these factors can and do affect the locations of summer season archaeological sites. Winter camps appear also to reflect winter wind patterns as they tend to concentrate on the eastern lee sides of hogback ridges away from the common cold or occasional high velocity, but warmer, Chinook winds which arrive from the west and northwest. As a rule, storm systems enter the region from the northwest or west in winter and spring and from the south and southwest in

summer and fall. However, the impending arrival of storm fronts are also accompanied by rapid windshifts in the foothills from any number of directions.

Seasonal temperatures in the foothills vary according to different factors such as terrain shadowing, biomass density, water body concentrations and slope exposures and gradients. Relative elevations, which range from 5100 to more than 5500 feet, also play minor roles in localized micro-zone temperature variations. Mean daily temperatures range from 69.5 degrees F. in the warmest month, July, to 27 degrees F. in January, the coldest month.

Precipitation in the northern foothills, based on modern records, averages between 15 and 15.8 inches per annum. This contrasts with 11 to 12 inches in the adjacent eastern plains and 19 to 30 inches in the Front Range mountains to the west. Maximum annual snowfall amounts are 48 inches and snow provides roughly 30 to 40 percent of all annual precipitation. The earlier described Chinook winds usually reduce snowcover to groundcover and runoff within a week of most snowfalls. This phenomenon of frequent snowmelt provides a steady renewal of subsurface and sandstone formation aquifers which, until recent decades, fed thousands of foothill springs and active seeps. However, increased human habitation and well drilling, along with upstream water diversion from major streams, has caused local water tables to drop substantially in the past thirty years. Interviews with local older residents and archaeological surveys have established springflow cessation very recently in at least two of the Sylvan Dale study units.

The heaviest precipitation occurs in the spring months between March and June. In those months, moisture initially arrives in the form of snow, but as air temperatures begin to rise, snowfall precipitation translates into rainfall. Rain precipitation continues to fall, mostly as afternoon thunderstorms, through summer into early fall, but total amounts steadily diminish into early winter. The greatest single rainfall event recorded for the Sylvan Dale-Masonville area was 7 inches.

#### LANDSCAPE AND GEOMORPHIC ENVIRONMENTS



Physiographically, the Sylvan Dale research area can be broken down into two zones; outer hogback ridges and valleys and the steeper, innermost montane foothills. The first zone, the easterly hogbacks, varies between five and ten miles in depth as a boundary corridor between the Colorado Piedmont Plains and the Front Range Mountains. Hogback ridges, with intervening drainage valleys, are part of a master geological structure consisting of a massive eastward dipping (c.30 degrees) monocline. The foothills monocline began forming in the Late Cretaceous Period(c. 140 million years ago) when continental plate activity in the west initiated crustal upthrust in the present Rocky Mountains.

Individual hogbacks form a series of folded and faulted sedimentary formations(expressed largely as anticlines) with intervening hogback valleys eroded from softer shale and friable sandstone formations. Western slopes of the project area hogback ridges are generally sharp and steep with exposed formation beds dating from the Pennsylvanian through Cretaceous Periods. Younger formations are found in two ridgelines east of the project area and include the famous "Devil's Backbone", a resistant sandstone of the Dakota Formation group. Eastern slopes of the project area's hogbacks, due to eastward downtrending of the regional monocline, are much gentler and have less exposed bedrock.

The second physiographic division consists of the inner foothills or the montane foothill zone. The inner foothills consist of steep jutting ridges and mountains of Pre-Cambrian granites, schists and gneisses which rise abruptly west of the outer hogback zone. Elevations of the montane foothills range from 5500 to some 7000 feet where they merge into the Front Range mountains. Except for occasional benches and rocky meadows, the inner montane foothills tend to be quite rugged. In part due to their rugged nature, no archaeological research has been conducted in that zone and none is planned in the immediate future.

Water courses and drainages in the hogback zone provide ideal sheltered habitats for an extensive cross-section of biological populations, including humans. The largest concentrations of habitable landscape are found in hundreds of small drainage valleys or swales between the parallel hogback ridges. These

valleys drain either northward or southward into a small number of major streams and rivers which headwater at the Continental Divide and cut through the hogbacks on their way to and across the eastern plains. The Sylvan Dale project area is part of the Big Thompson River drainage system and the river itself either runs through or borders most of the study units currently under investigation.

Hydrology of the montane foothills zone is quite different from that of the eastern hogback valleys. Terrain relief in the inner montane zone is high, consisting of largely steep, often rounded, hillslopes and projecting ridges of uplifted igneous and metamorphic rocks. Drainage patterns strongly reflect these relief conditions and streams and rivers often cut deep gullys and canyons toward the lower elevation hogbacks. There are, however, occasional open meadow and low profile woodland valleys in portions of the inner foothills. This is particularly true where enormous arkose granite ridges intrude into western hogback margins as in the case with Green Ridge, part of one of the study units described below.

#### ANALYTICAL RESEARCH UNITS OF THE SYLVAN DALE PROJECT

The Sylvan Dale project area is particularly valuable for research purposes because it presents a cross-section of three basic environmental units of the northern Front Range foothills. Those representative units include hogback ridge valleys and adjacent ridges, a well-defined piedmont valley at the inner/outer foothill boundary, and constrained hogback/inner montane foothill margin canyons rising into the higher montane forests.

As noted earlier, several sampling study units have been designated for intensive field investigation. Each of these study units include well-defined land blocks constituting specific ecological and environmental transects, each with their own important microenvironmental traits. This choice of environmentally-based study units rather than a holistic regional approach was dictated by several factors. A prime consideration was the limited amount of time and archaeological resources available for basic research. Other factors included inherent constraints placed on sampling procedure, i.e. suburban

expansion into the foothills west of Loveland. During the past three decades, extensive housing developments have swallowed up Big Thompson river terraces and adjacent lands in tributary hogback valleys. Background research using previous archaeological site reports has established that several reported sites were subsequently destroyed by development activity. In fact, modern development along the Big Thompson River corridor appears to have erased nearly all evidence of prehistoric occupation in that particular riparian ecological zone. Fortunately, some tributary streams in the region, such as Buckhorn Creek, are still largely undeveloped and are targeted for stream terrace surveys. However, even in more remote areas where development is still minimal, land ownership patterns of highly fragmented small units create significant logistical problems in coordinating, and receiving permission for, fieldwork.

At the present time, it is easier and more effective to deal with larger single-owner land tracts of the desired sampling environments within the designated study units. However, in several cases, permission has been sought and granted to work in smaller land tracts adjacent to, and part of, those study units. In conclusion, it is believed that the use of designated study **areas** allows critical sampling and accumulation of primary archaeological and environmental data essential for the success of the Sylvan Dale Project.

#### OUTLINE OF THE STUDY UNITS

At the present time, five archaeological study units have been designated for the Sylvan Dale Archaeological Project. These geographic units are described below and their locations are illustrated in figure 1.

FIGURE 1

Sylvan Dale Research Units Map

Current research efforts are concentrating on two primary study areas; the Sylvan Dale Lodge Unit(No. 1) and Big Valley Unit(No. 2). A third unit, Sulzer Gulch Canyon(No. 3), will be investigated at a still undetermined time in the future. Preliminary field preparations and owner contacts have been made for two successive hogback valleys to the east and north of Sylvan Dale Ranch. These study units have been designated the Green Glade-Eden Valley Unit(No. 4) and the Masonville-Buckhorn Valley Unit(No. 5). Major descriptions of the currently investigated study units and preliminary descriptions of the yet uninvestigated units are as follows:

(1) Sylvan Dale Ranch Lodge Unit

The Sylvan Dale Lodge unit was the initial investigative area of the Sylvan Dale research project(See Figure 2 below). It presents an extremely rich set of micro-environmental resources for human and animal populations. The primary landform of the Lodge unit consists of a pediment plain fan spreading out from the abrupt inner montane foothills to the outer foothill hogbacks. The pediment plain itself is bounded on the south by a terrace ridge where State Highway 34 runs from east to west into the Big Thompson Narrows. Below and north of the high highway ridge is the Big Thompson River which flows eastward out of the Narrows until, after a quarter mile, it abruptly curves northward, breaking against the first of the north-south ridges, known locally as Red Ridge for its reddish-color Ingleside and Lyons sandstone formations.

Diverted northeast by the inter-layered sandstone ridge, the Big Thompson flows northeast until it meets the sheer cliffs of the granitic Green Ridge and turns eastward through a narrow canyon out of the Sylvan Dale Valley. On the north side of the valley, the massive northwest-southeast trending Green Ridge

stretches from the northwest corner of the Lodge unit for several miles into the montane foothills of the Roosevelt National Forest. The ridge itself consists of ancient Pre-Cambrian schists, gneisses and arkosic granite. At the southern slope base of the ridge is a deeply cut seasonal stream known as Sulzer Gulch. It parallels the ridge in its extension far up into the montane foothills and creates a rough but passable alternate route to the Big Thompson Narrows into the Front Range mountains.

FIGURE 2

Sylvan Dale Lodge Unit Map

(2) Sylvan Dale Big Valley Unit

The Big Valley study unit is a typical inter-hogback ridge valley(See Figure 3 below). It is a wide U-shaped swale valley which drains the confining sandstone hogback ridges on the east and west. The west ridge is an isolated southern section of a much more extensive ridge across the Big Thompson River with lower beds of Ingleside and Satanka formations and capped with Lyons sandstone. The eastern margins of Big Valley is confined by a hogback ridge consisting largely of massive Dakota sandstone. The valley drains directly into the Big Thompson River with lower, northern edge. At its widest point, the Big Valley unit is a half mile wide and its headwaters boundary extends

approximately a mile south of the river. Along the interior ridge bases are low, rocky, colluvial talus benches with thin soil and outcroppings of Entrada and Jelm sandstones. At most locations, the talus benches drop fairly steeply to the outer margins of the alluvial drainage basin.

FIGURE 3  
Big Valley Study Unit Map

(3) Sulzer Gulch Canyon Unit

This unit has yet to be investigated. It is a narrow gorge-like canyon which cuts through the inner montane foothills from near Drake, Colorado. Sulzer Gulch parallels Green Ridge for much of its length and enters the Sylvan Dale Lodge unit shortly before draining into the Big Thompson River. The unit is important in that it offers access into the montane environments of the inner foothills and, ultimately, the Front Range mountains.

(4) Green Glade-Eden Valley Unit

This unit consists of a 7.5 mile long hogback valley with a southern boundary at the Big Thompson River. It lies east and north of the Sylvan Dale Lodge unit and is confined by the inner foothill Green Ridge on the west and a hogback ridge to the east. The unit includes the Loveland Reservoir at its southern end and is drained by Green Glade Creek. Pre-survey and file research have turned up a number of reported sites along ridge benches and alluvial terraces within the valley. Early reports also note the presence of active springs in Green Ridge to the west and Ingleside and Lyons sandstone formations in the east ridge. The unit is similar to the smaller swale valley described

for the Big Valley unit above.

(5) Masonville-Buckhorn Unit

Only pre-surveyed thus far, this unit is defined as starting just south of the town of Masonville and extending northwest up Buckhorn Creek for five miles. The primary drainage is Buckhorn Creek which originates in the inner montane foothills of Roosevelt National Forest. The Masonville-Buckhorn unit is particularly interesting in that it represents a gradual geomorphic and geologic transition from the inner granitic foothills to the upper hogback foothills of the Buckhorn Valley. Buckhorn Creek itself is one of the few perennial streams in the region and pre-survey has shown the presence of presently or recently active springs. The upper Buckhorn Valley blends into the ponderosa pine forests which typify the inner montane foothills.

GENERAL ECOLOGICAL ASPECTS OF THE PROJECT AREA

It is important to note that all the study units are part of a relatively narrow environmental corridor which make up what is often called an ecotone between the mountains and plains. The term ecotone is defined as:

"...a transition between two or more diverse communities as, for example, between forest and grassland or between a soft bottom and hard bottom marine community. It is a junction zone or tension belt which may have considerable linear extent, but is narrower than the adjoining communities themselves. The ecotonal community commonly contains many of the organisms of each of the overlapping communities and, in addition, organisms, which are characteristic and often restricted to the ecotone."  
(Odum 1965: 287)

Archaeologists have long known that ecotones are rich sources for archaeological investigation since:

"Biological activity tends to be high at both primary and secondary levels in these situations, and they offer maximum variation in the availability of species. They are therefore precisely the areas likely to be chosen by generalized gatherer-hunter-fisher populations because they provide optimum access to the most assured and variable supply of wild plants and animals."  
(Harris 1969: 9)

As a varied and rich ecotone, the Sylvan Dale project area represents a high potential for not only discovering prehistoric archaeological sites, but

also reconstructing environmental constraints and lifestyles of their previous inhabitants. For this reason, ecosystems research has a high priority as part of the overall project goals. At present, that research is being conducted within the physical parameters of each study unit as they come under investigations. In that regard, a preliminary ecological outline can be given for the two units investigated so far, the Lodge and Big Valley units. Data on the remaining three study units will be included in future versions of this report once research emphasis is transferred to those areas.

Ecology of the Lodge and Big Valley units includes several important microenvironments which were potentially critical for their prehistoric inhabitants. The most important, or at least the most obvious, microenvironments are the riparian corridors of the Big Thompson River and Sulzer Gulch. The Big Thompson crosses through portions of both units while Sulzer Gulch, a seep creek, forms the northerly border of the Lodge unit. At first look, the much larger Big Thompson River appears to be a biologically and economically richer microenvironment than Sulzer Gulch. However, initial survey indicates that Sulzer Gulch, a quiet, lush and rocky streambed may well contain a more diverse and economically useful series of plant and animal habitats.

Viewed as a whole, both riparian ecosystems present a wide range of economic resources and special environmental conditions of great attraction to prehistoric human populations. The riparian microenvironments provide cooler and moister atmospheric conditions in summer and warmer, sheltered conditions in winter for a diverse array of economically valuable plant communities. Most of those communities grow within the narrow riparian corridors themselves although a handful of species are found on adjacent rocky hillslopes, older terraces and open pediment meadows. The riparian microenvironments, with their high plant density and available water, also attract a varied range of animal species. Some lived mostly within the microenvironments while others frequently visit but have their primary habitats in adjacent environments. The high availability of animal prey in the riparian microenvironments certainly increased its value for prehistoric humans.



The banks of the Big Thompson River are lined with woodland strips of mainly cottonwood and willow trees. Normally, these woodland strips are less than a hundred feet wide and are confined to the first of two or three terraces that rise above the current river bed. Mixed in with the cottonwood and willow are shrubs and thickets of current, snowberry, wild rose, chokecherry, wild plum and hawthorn. One interesting feature of Sulzer Gulch is the presence of a number of hackberry trees whose seeds appeared with regularity in a nearby cave excavation.

Wax current thickets are found along the upper terraces of both the Big Thompson River and Sulzer Gulch. Terrace and streambed margin groundcover is provided by saltgrass, blue grama and sand dropseed grasses. Non-grass forbs include sunflowers, poison ivy, lamb's quarter(chenopodium), wild strawberry and wild licorice.

Animal communities in the riparian zones are varied and reflect the mountain-plains ecotonal nature of the foothills. Large mammals, such as elk and mule and white-tail deer frequent the area, mostly in the fall, winter and spring months when they "winter" in the protective foothills. In summer, most elk and deer migrate to higher elevation mountain pastures. Another species, big-horn mountain sheep, were hunted from the area in the early 1900's. However, big-horn sheep were recently reintroduced into the Big Thompson Canyon and were observed in the Lodge study unit during the excavation of a cave site in 1986. Smaller mammals include occasional raccoons, jack and cotton-tail rabbits, squirrels, fox and prairie dogs. Only rarely are mountain lions found in the area and there have been occasional reports of wild turkeys still inhabiting the more thickly vegetated and sparsely inhabited foothills areas. Historically documented, but now absent, were bison, beaver and moose.

Various fish populations in the Big Thompson must have been a year-round food source for prehistoric humans. The swift-running Big Thompson has bass, perch, sunfish and trout. Sulzer Gulch joins the river at a sharp bend where the Big Thompson flows eastward through the earlier described canyon at the southeast corner of Green Ridge. At that section, a flat backwater basin

present a swampy, ponding micro-environment for fish, frogs and western box turtles, all prime food resources for prehistoric peoples.

Birds and waterfowl flourish along both the Big Thompson and Sulzer Gulch riparian zones. Red-wing blackbirds, robins, owls, swallows, bob-whites and chickadees commonly nest in the shrubs and trees. Migratory birds, such as wood ducks, ruddy ducks, mallards and northern geese, use the area for seasonal rest-stops and a large number winter there. It is important to stress that the Front Range foothills are a significant part of a major North American fly-way over which thousands of birds migrate annually.

A second important micro-environment consists of the Lodge unit's pediment fan valley and the wide swale valley in the Big Valley unit. It also includes upper terraces of the Big Thompson and Sulzer Gulch and the lower grassy colluvial slopes at the base of ridges in both units.

Geologic traits of this micro-environment include shallow to deep and gradual to steep, well-drained loam, fine sandy loam and clay loam soils. Several medium to coarse gravel deposits are found in the upper area of the Lodge unit's pediment fan. Deep gully cuts in the northwestern quadrant of the Lodge unit fan have exposed red sandstone and shale deposits belonging to folded beds of the Fountain formation.

County soil surveys classify these alluvial and colluvial soils as being mainly useful for grass rangeland, although many more gently sloped sections are used to grow alfalfa and forage grasses. Wheatgrass and blue grama dominate non-cultivated areas along with scattered prickly pear cactus and such forbs as blite goosefoot, wild onion, amaranth and sunflowers, all economically important to humans.

Animal communities in the fan, swale and lower hillslope areas duplicate many of those listed earlier for the riparian micro-environments. Cotton-tail and jack rabbits are found along with seasonally represented deer and elk. Now absent bison and pronghorn antelope certainly once grazed in the same meadow pastures. Coyotes are common, but black bear and mountain lions are rarely seen today. Grizzly bear and the grey wolf are now gone, but certainly lived in the

area in times past.

The third micro-environment of both Lodge and Big Valley units consists of the upper slopes and ridgetops. In all, four primary ridges are present; Green Ridge and Red Ridge in the Lodge unit and the east and west hogback ridges of the Big Valley. Of the four, Green Ridge has the greatest area and diversity of plant and animal resources. As noted earlier, Green Ridge is an extension of the inner montane foothills which juts eastward into the hogback valley physiographic zone. It forms the northern rim of the Lodge unit valley and is a mildly dissected ponderosa pine woodland with intervening grass meadows, usually found adjacent to several seasonal drainage draws. A blend of lower montane and plains vegetation dominate the half mile wide ridgetop, including mountain mahogany, buffalo and blue grama grasses, yucca, prickly pear and several forb species.

Green Ridge support the same fauna described for the other micro-environments of the Lodge and Big Valley units. Mule deer use its open grass meadows for grazing in all seasons, but are most in evidence when they winter in the area in large numbers. Cottontail and jack rabbits are common on the ridge throughout the year. Also, it is probable that bison once grazed on the Ridge's grass meadows, but they have been absent for at least a century. Like the mule deer, bison probably wintered in the foothills in large numbers and mostly migrated to plains and mountain grasslands in mid-spring to early summer, returning again in the fall.

The broken hogback surfaces of Red Ridge(Lodge unit) and Big Valley's east and west ridges are somewhat more limited in economic potential, but do present a number of unique resources for prehistoric humans. At several locations in the ridgetop Dakota sandstone of the Big Valley, large potholes have eroded into natural cisterns filling with both snowmelt and rainfall water. Northern margins of both Big Valley hogback ridges overlook the Big Thompson River and the surrounding foothills landscape. Field surveys have established the earlier presence of artesian springs, active until recently, in the Big Valley's east ridge. Gentler slopes and benches, particularly on the

east ridge, have allowed the accumulation of some soil depth and support light to heavy growth of mountain mahogany, thickets of wax currant, chokecherry, prickly pear, yucca and a lush cover of buffalo and blue grama grasses and assorted forbs. Stunted ponderosa pine, wedged in deep cracks in the Dakota sandstone, are scattered over the tops of both ridges and the protected east slope of east ridge. Mule deer and Nuttall's cottontail rabbit are the most commonly seen fauna along with occasional rattlesnakes and lizards.

In the Lodge unit, Red Ridge, forming the eastern rim of the valley, overlooks the Big Thompson River at its western base. The top of Red Ridge is rough and broken with scattered ponderosa pine, mountain mahogany, prickly pear, yucca and buffalo-blue grama grass patches growing in soil-trapping hollows. An important economic resource of Red Ridge can be found in good quality fine sandstone useful for grinding stones. The top of Red Ridge, particularly the north end, has a commanding view of the surrounding hogback valleys and the Big Thompson River below.

### SECTION III

#### Archaeological Investigations of the Sylvan Dale Project

#### CURRENT ARCHAEOLOGICAL RESEARCH RESULTS

Preliminary UNC surveys have uncovered a minimum of thirteen prehistoric sites in the project units under investigation (See Figure 4, succeeding page). Six of the units occur within the confines of the Lodge unit and three have been located within a unit designated the Big Valley. Pre-survey in the Green Glade-Eden Valley and Masonville-Buckhorn units have already located several new sites, including well-preserved "tipi rings" and a new cave site. These latter study unit sites are not discussed below since they have not been adequately investigated to date.

All of the sites located by project personnel so far appear to be dated from Late Archaic through Late Historic time periods. However, Plano Paleo-Indian and Early Archaic sites and isolated artifacts have been documented from

the general project area from other sources. Early Ceramic Plains Woodland sites are the most numerous and are found on exposed river and stream terraces, buried in valley floodplains, and on hog-back slope benches. Descriptions and analysis of currently recorded sites are given below within the context of the Lodge and Big Valley units in order of the official state site numbers.

ARCHAEOLOGY OF THE LODGE STUDY UNIT

As noted above, six well-defined sites have been identified within the Lodge study unit. Full documentation and mapping of each of these sites has been largely accomplished and three were at least partially excavated during 1985 and 1986 field work. In addition, several more ephemeral campsites or knapping localities were noted during 1986 field season surveys, but will require further study to document archaeological status. Primary documented Lodge unit sites include:

Echo Cave (5LR326)

Echo Cave is situated at the southwestern periphery of a massive granite ridge known as Green Ridge (Figure 1).

FIGURE 1

MAP OF THE SYLVAN DALE ECHO CAVE AREA

Green Ridge is a wedge-shaped batholithic extrusion of Pre-Cambrian Arkosic meta-igneous granite and meta-sedimentary gneiss and schist extending nearly two kilometers into the Tertiary hogbacks (cf. Choate and Hines 1954). The cave is embedded in the western wall of a steep drainage canyon which runs from the ridgetop to Sulzer Gulch, more than 100 meters below (Figure 2).

FIGURE 2

ECHO CAVE

Echo Cave extends some eight meters into the solid rock and tapers to a squared point at the back. The entrance is two and a half meters high by some three and a half meters wide. The cave opening faces the southeast, making it ideally protected from cold winter winds and open to winter sunlight. In the late spring and summer, the cave locality is cooled by light breezes blowing upvalley from the Big Thompson River. Echo Cave is dry during the summer through late winter, but melting spring snows percolate through fissures in the granite rock mass to soak the cave floor and walls. At that time of year, the cave is and, undoubtedly was, prehistorically, a damp and uncomfortable place to live.

The environmental and ecological context of Echo Cave is ideally suited for its prehistoric hunter-gatherer inhabitants. Its location is adjacent to a diverse and rich ecosystem in a seep stream at the base of Echo Canyon. Above the cave on Green Ridge are rolling ponderosa pine woods and open buffalo grass meadows which form rich habitats for mule deer, Nuttall's cottontail rabbits and, certainly, at one time, small bison herds. Firewood for Echo Cave is easily available from the ridgetop from ponderosa pine and arrow and dart shaft materials present in numerous mountain mahogany bushes dotting the ridge.

A triangular-shaped, rolling piedmont meadow is located below and south of the cave site and would have provided edible prairie plants and grazing area

for mule deer and mountain sheep as well as the now-absent bison. This piedmont is confined by the Big Thompson River which borders it on the south and, striking a massive, sandstone hogback ridge, turns north-north-east for a kilometer before cutting a small canyon through the southeastern edge of Green Ridge. Important riparian economic resources of the Big Thompson River, a short distance from Echo Cave, include fish, aquatic birds, chokecherry and wild rose. Willow shrubs and trees stretch along the river bank and up into Sulzer Gulch. These presented additional material for darts, bows and arrows, and other tools.

#### **Previous Research at Echo Cave**

Although known to local arrowhead hunters, Echo Cave was not reported outside the Sylvan Dale area until 1933. In that year, Elizabeth Yelm, a graduate student at the University of Denver, surveyed the site as part of her Master's Thesis after being told of its existence by local ranchers. While investigating Echo Cave, Yelm discovered that local collectors had thoroughly scoured its surface for stone tools, including grinding stones and hand stones, as well as some fragmentary pottery.

During the summer of 1933, Yelm spent a few hours excavating a small two foot square test pit at the cave entrance. She discovered a stone-lined firepit at a depth of 9-10 inches below the surface. According to Yelm's thesis report, excavation continued below the firepit, encountering eight inches of sterile deposits before striking bedrock (1935: 21).

#### **Recent Echo Cave Excavations**

UNC research at Echo Cave was initiated in 1985 as part of the newly inaugurated Sylvan Dale Project. Using a permanent metric grid system, three one-meter test pits were initially opened in the spring of 1985. In June of 1986, a University of Northern Colorado field crew extended the test pits down and in a long axis to the front, central cave section. Excavation proved to be slow and difficult due to the extremely rocky matrix of the cave fill. Due to the presence of substantial fragmented rockfall and decomposing granite, much of the actual excavating was accomplished through the use of dental probes and



brushes. Nevertheless, when excavation at Echo Cave was finally suspended in 1986, sufficient data were recovered to establish an accurate stratigraphy and cultural sequence for the site. Further work at Echo Cave is being considered at a later date in order to enlarge and enhance the current database.

### **Stratigraphy and Cultural Features**

Prior to excavation, two modern, generalized disturbance areas were noted on the Echo Cave floor surface. These consisted of a modern firepit at the very front edge of the cave entrance and a crude rock wall across the rear southwest corner. Once the rock wall was recorded, photographed and removed from the rear area, two shallow depressions were discovered below and in back of its former location. When these were cleaned out, they were found to contain modern trash including .22 cal. rifle brasses, a Lucky Strike cigarette wrapper, aluminum foil, and a plastic Rainbow Bread wrapper. These artifacts corresponded to an early 1970's occupation of the cave by "hippies" as reported by the Sylvan Dale Ranch owners. The surface hearth at the entrance of the cave also dated from that time since it contained burnt 2X4 inch boards with modern steel nails. This modern and essentially surface-bound occupation of the cave (c. 1972) was designated the latest archaeological component, A, and referred to as the "Hippie Culture". However, due to its stratigraphically surficial nature, component A was not given a cultural level number.

Once the cave surface was examined and cleared, a one meter grid system, aligned with the cave's long axis and oriented to magnetic north, was laid out with steel stakes and nylon cord (cf. Figure 3).

FIGURE 3-ECHO CAVE EXCAVATION PLAN

Initial excavation, in the early spring (April) of 1985, began in a central grid (C6) about meter back of the cave entrance opening. AT that time, the soil was damp from seepage of snowmelt through fissures in the cave's granite walls. Also, soil was heavily mixed with medium to small angular rocks, disintegrated granite gravel and coarse angular sand.

All excavated soil was initially sifted through 1/4 inch hardware mesh screen. Shortly after excavation began, however, it was decided to screen all excavated earth with 1/16th inch hardware mesh. Wherever possible, vertical excavation was conducted down along natural strata. However, these strata were often obscured by ashy and wet soils. When this was the case, excavation procedure reverted to the recovery of soil in 5 cm increments. Horizontal controls were imposed through the excavation in specific grid quadrants and sub-quadrants in order to focus on provenance areas where both artifacts and economic materials tended to be masked by the damp ashy soil.

Early in the Echo Cave excavations it became evident that the upper five cm contained prehistoric materials, but had been subject to mechanical turbation by human, and possibly animal, visitors. However, the extremely rocky nature of the soil matrix helped limit the depth of turbation to a significant degree, in most places no more than 2-3 cms.

At approximately six centimeters below the surface, the rough outlines of a small, rock circle emerged with excavation and brushing. Subsequently, the disturbed upper five cm were designated cultural level 1 and component Ba. Cleaning down to 7-8 cm below the surface revealed a small rock-ringed hearth which was designated feature 1. At the same time, an ash and trash-filled lens was found to extend towards the back of the cave from the hearth area. After this point in the excavation, all hearth contents, their surrounding area, and other detectable culturally-associated areas were fine-screened through 1/16th

inch hardware mesh. The hearth level was originally designated cultural level 2 and later named as sub-component Bb, a continuation of the uppermost cultural level,

B. Once the level 2 floor was defined, excavation and soil screening were accomplished in grid sub-quadrants of 25 cms. square. Attempts were made to recover significant artifacts in situ, but wet, ashy conditions of the soil often prevented artifact discovery until screening. The hearth occupation level was found to extend from 6 to 14 centimeters below surface datum where a third set of occupation deposits was defined (cultural level 3, component Bc).

In level 2, the feature 1 hearth was found to be ringed by medium-sized fire-cracked, angular granite rocks. The lower hearth interior consisted of an unlined, shallow basin with reddish-orange fire-burnt gravelly soil (Figure 4).

FIGURE 4

PLAN OF ECHO CAVE HEARTH/FEATURE 1

Legend-

Reddish, burnt firepit soil with charcoal and ash.

Concentrated flaking debitage.

Small charcoal fragments for future radiocarbon testing and soil for floatation separation were removed from the hearth. The distribution of ash and charcoal behind the hearth, toward the rear of the cave, indicated that the hearth had been used over an extended period of time. Ash and charcoal had been periodically swept out of the immediate hearth area and back along the rear cave living floor.

Depositional materials in grids adjacent to the feature 1 hearth were excavated in 25 cms horizontal sub-quadrants and 5 cms arbitrary vertical layers. Once screened, interior and adjacent hearth soils yielded large amounts of primary, secondary and tertiary flake debitage as well as numerous artifacts. Distribution of some debitage material not swept back from the fire into the rear cave ash area formed a rough U-shaped pattern with the open end towards the rear of the cave. This suggested the presence of a primary stone-knapping position with the knapper facing the open cave entrance from the interior side of the hearth (cf. figure 5 above).

The feature 1 occupation floor, once excavated, was estimated to have varied between 11 and 14 centimeters below the modern-day cave floor, reflecting a slight rear to front cave slope. However, in some areas, cultural material identified with the feature 1 (component Bb) floor appeared as low as 17 centimeters below the surface level datum due to foot traffic and body movement turbation of the prehistoric floor.

The component Bb floor was also cut through by a scooped out pit located 1.2 meters back and towards the southwest cave wall. That pit, designated, feature 3, extended in an amorphous shape some 8 to 26 cms below the level 2 occupation floor. The pit was found to contain ash, charcoal, bone, simple tools and debitage, and is believed to have served as a trash pit.

Excavation in three grids below the level 2 occupation was unable to define further features. Bedrock was encountered at roughly -.40 mbd. Pending further excavation, these lowest and relatively homogenous deposits have been given the designation cultural level 3 and sub-component Bc. Near the base of cultural level 3/component Bc, at -.37 cm mbd, the lower portion of a

triangular, tri-notched projectile point was recovered. Other cultural, but non-diagnostic, materials included secondary and tertiary stone debitage, charcoal, bone fragments, and seeds. Taken as a whole, contents of the level 3 deposit were similar enough to those of the overlaying level 2 to be designated a closely related cultural sub-component. A schematic illustration of the Echo Cave stratigraphy is given in figure 6.

FIGURE 6  
SCHEMATIC OF ECHO CAVE STRATIGRAPHIC PROFILE

#### **Interpretation of the Echo Cave Stratigraphy**

Cultural deposits at Echo Cave, on present evidence, can be attributed to numerous successive visits by small prehistoric groups, possibly belonging to the same or closely related cultural traditions. The upper cultural level

1/component Ba deposit appears to represent the latest prehistoric occupation, immediately underlying the modern "Hippie" component A. Subsequent deposits, including levels 2 and 3, are considered similar enough in geoarchaeological composition and cultural materials to be designated further probable sub-components, Bb and Bc, of the same cultural tradition.

**Echo Cave Economic Data**

Economic data from the Echo Cave excavations have, to date, been highly productive. The analysis of economic materials is not entirely complete, but the overall character and content of the cultural levels have been well-established.

Screening of the entire excavation soil load yielded substantial amounts of economic material including charred and unburnt bone and seeds. Analysis of the excavated seeds has shown the presence of six plant resources, including minute amaranthus spp. (pigweed) seeds found in hearth content flotation. Screen-recovered plant seeds included hackberry, wild plum, prickly pear, wax currant, chokecherry and a yet unidentified plant species. Distribution of the seeds in relation to established cultural levels is given in table 1.

TABLE 1

SEED DISTRIBUTION BY CULTURAL LEVEL

Species	Level 1	Level 2	Level 3
Hackberry	X(4)	X(33)	---
Prickly Pear	X(3)	X(2)	X(1)
Wild Plum	X(1)	---	---
Wax Currant	X(1)	X(1)	---
Chokecherry	X(1)	---	---
Pigweed	---	X(2)	---
Unidentified	X(2)	X(2)	X(1)

Hackberry, which now grows sparingly in nearby Sulzer Gulch, is the most highly represented food resource. As might be expected, its highest representation is in the main level 2/component Bb occupation with the feature

1 hearth and feature 3 trash pit. Ethnobotanic evidence for the use of hackberry is relatively sparse, but the berries are known to have been eaten whole or crushed and mixed with meat and parched corn for flavoring (Elmore 1976: 34; Gilmore 1919: 24).

Prickly pear is found in all three sub-surface cultural levels as were the unidentified seeds. Pigweed was only preserved by charring in the level 2 hearth while wax currant is found in both the disturbed level 1 and the primary culture level 2. Wild chokecherry is represented by a single seed in the upper disturbed level 1 as was a single wild plum pit. All four of these latter seed species were important Native American plant food sources which still grow abundantly in the area.

The seeds found in Echo Cave certainly are a biased sample of economic plant materials. Other economic plants with soft tissues would have been lost fairly quickly in the cave's depositional environment. One interesting facet of the preserved plant materials is that they generally represent late summer through fall availability. This provides indirect evidence for a fall and winter occupation of the cave site. A generalized lack of evidence for late spring-early summer plant remains indicate that the cave's occupants probably abandoned the cave for more nomadic foraging activities during the summer months.

Non-seed material preserved in the cultural levels includes wood fragments and charcoal belonging to ponderosa pine and mountain mahogany, both of which grow today on the adjacent ridgetop. Wood and charcoal samples from the cave were identified by microscopically comparing thin-sections with age and charcoaled samples collected from the adjacent ridgetop. The samples were identified by this author at UNC's anthropology lab.

Identification of animal bone from the cultural levels is somewhat tentative due to its fragmentary nature. However, a preliminary distribution of culturally altered bone is given in table 2. In that table, species identifications are based in part on bone cross-section size, bone wall thickness, and reference to comparative collections. All species represented

in the table, except bison, are found in the area today.

TABLE 2  
DISTRIBUTION OF BONE BY CULTURAL LEVEL

Species	Component Ba	Component Bb	Component Bc
Mule Deer	X	X	---
Bison	---	X	---
Rabbit	X	X	---
Bird(unidentified)	X	---	X
Unidentified Frags	---	X	X

Initial identification of the faunal material from Echo Cave reveals a systematic exploitation of local game species. All of the bone is fragmentary and appears to originate from "meatier" body segments which were brought to the cave from outside kill and primary butchering localities. This is to be expected considering the site's small size and difficulty of access. The largest amount of bone belongs to two species; (1) deer (probably mule deer), and (2) a small mammal which appears to be rabbit, probably Nuttall's cottontail, the most common rabbit species in the area. At least one large deer bone fragment has deep cut marks from butchering. A single, very large and thick bone fragment from component Bb (12 cm below the datum surface) has been provisionally identified as belonging to Bison bison. All of the identified animals could have been hunted locally throughout the year, although the deer and bison, which seasonally winter (or wintered in the case of bison) would have been more numerous in the fall through spring seasons.

**Cultural Artifacts**



A number of artifacts were recovered from the Echo Cave excavation. Those with the greatest culturally diagnostic value were four small projectile points (Figure 7).

FIGURE 7  
ECHO CAVE PROJECTILE POINTS

PHOTO

The uppermost Echo Cave projectile point, # 032, was discovered just below the surface at a depth of 2 cm within component Ba. This point is side-notched, but lacks the basal-notching of the lower levels. Instead, its base is concave in the form of a shallow, inverted "V" with straight edges extending from the basal tangs to the interior center of the base. Point 0032 was crudely manufactured of a dark grey (7.5 YR N 4/0) fine-grained quartzite and appears to have been reworked. Extensive point-tip polish shows that it had also been used as a cutting tool.

Two of the points were recovered in trash fill immediately behind and on a level with the feature 1 hearth in component Bb. They included a largely intact triangular tri-notched point (# 012) and a fully intact triangular

unnotched point (# 019). Both were extremely well-made with fine pressure-flaking and manufactured of a high quality pinkish grey (7.5 YR 6/2) quartzite.

A fourth, partial tri-notched point (# 0026) was recovered just above cave floor bedrock in the lowest component Bc deposits, at a depth of 37 cm below surface datum. This point was finely pressure-flaked from a dark brown (7.5 YR 4/2) to yellow brown (10 YR 5/4) chert. Primary data for the points are given in table 3 below.

TABLE 3

ECHO CAVE PROJECTILE POINT DATA

Artifact No.	012	019	026	032
Excavation Grid #	C6	C5	C6	C7
Component	Bb	Bb	Bc	Ba
Weight(gm)	0.50	1.15	0.45	0.49
Total Length(cm)	1.70	2.60	1.10	1.50
Maximum Thickness(cm)	.28	0.30	0.30	0.25
Blade Length(cm)	1.00	2.70	1.20	1.50
Maximum Blade Width(cm)	0.90	1.57	1.05	1.21

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Other artifacts from the Echo Cave assemblage includes drills, awls, scrapers, flake knives, bi-face tips, and hundreds of debitage flakes. Figure 6 illustrates several examples of Echo Cave's general tool inventory.

FIGURE 6

Assorted Lithic Tools

PHOTO

Details on provenance, material and inferred function are given for the illustrated tools in the following table 4. The first illustrated tool, #013, is a "flesher" almost certainly used in defleshing fatty tissue from fresh hides. It was made of the local granite and has a heavily worn, angled bevel at the distal end. The working surface of the bevel is polished and has a dark red gloss from the combined action of friction and exposure to fatty organic matter. The second pair of tools, #'s 033 and 035, are small "ovoid" bifacially-flaked and retouched scrapers. Artifacts 028 and 030 are broken tips from small bifaces, probably once used as knives. Both were manufactured of quartzite and one, # 030, has smooth abrasion polishes on both tip faces. The final illustrated artifact, # 005, was among the most interesting recovered from Echo Cave. It is a broken tip-end of what appears to have been an obsidian blade awl. This is the only obsidian tool recovered from the excavations, although a number of small obsidian debitage flakes were found through screening.

TABLE 4

ILLUSTRATED TOOLS DATA

Artifact #	Function	Material	Component Provenance
013	Flesher	Granite	Bb
033	Scraper	Chert	Bb
035	Scraper	Jasper	Ba
028	Biface Tip	Quartzite	Ba
030	Biface Tip	Quartzite	Ba
005	Awl Tip	Obsidian	Ba

In addition to stone tools, more than 200 debitage flakes, both secondary and tertiary in origin, were recovered throughout all cultural levels and components. Initial analysis of the debitage shows that the cave was extensively used for final tool preparation and retouch activities. Primary tool stone materials were a honey-colored chert, quartzite, clear to smoky quartz, and occasional black obsidian. Each of the stone materials have been identified within a sixty mile radius of the site, from just beyond the continental divide in the west to abandoned Pleistocene remnant terraces in the Pawnee Grasslands on the plains. A local source of obsidian is present at Specimen and Lulu Mountains north of Rocky Mountain National Park (Richmond 1974: 23-24). However, lacking obsidian source analysis of the actual Echo Cave examples, their source provenance(s) remains in doubt.

Yelm, in her 1932 testing (1935: 22, 90, Table 1), reported the recovery of twenty dark gray potsherds from her test pit, but none were found in the modern excavation. She describes the sherds as being found on the surface of the cave and (some?) being recovered from her test pit in a "fireplace" deposit between 17 and 24 cm below that surface. On conclusion of her research in 1934, Yelm deposited the Echo Cave in the headquarters museum of Rocky Mountain National Park. However, a recent search at the museum by a CSU graduate student, Mary Painter, failed to turn up the pottery and the sherds are, in all probability, lost. However, despite the apparent loss of the Echo Cave sherds, a summary of Yelm's descriptive data is given below in table 5. Comments on the cultural diagnostic value of the sherds are contained in a following section.

TABLE 5

ECHO CAVE CERAMICS: DIAGNOSTIC DATA

:	Number of Sherds:	20	:
:	Size:	Medium	:
:	Exterior Surface Color:	Dark Red	:
:	Interior Surface Color:	Gray	:
:	Paste Cross-Section Color:	Black	:
:	Surface Treatment:	Plain, roughly scraped	:

:		on interior and exterior.	:
:	Temper Material:	Mica and angular gravel.	:
:	Sherd Thickness:	9-12 mm.	:
:	Lip Thickness:	5 mm.	:
:	Lip Form:	Irregular, thin, and rounded.	:

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Data Source: Yelm 1935: Table 1

### **Cultural Provenance and Provisional Dating**

Cultural provenance and dating of the cave occupations, pending future radiocarbon determinations, are largely dependent on the association and cultural traits of the four projectile points. Future radiocarbon dating will require further funding and face some uncertainties involved in combining several small charcoal samples. Yelm's earlier potsherds would have been highly valuable for dating purposes, but they now appear to have been lost and no further ceramics have been recovered.

The Echo Cave projectile points belong to three type groups: (1) triangular tri-notched points, (2) triangular side-notched points, and (3) excurvate-bladed, triangular, unnotched points. All types occur in northeastern Colorado and neighboring regions during the Middle and Late Ceramic Periods of the Western Great Plains. Both periods are still poorly known and documented in Colorado.

Local cultural phases of the earlier Middle Ceramics Period include the Buick Focus/Phase of the Upper Republican culture and the poorly defined Intermountain Tradition. Both the regional Upper Republican and Intermountain cultural traditions are thought to date between A.D. 1000 and 1500 A.D. (cf. Eighmy 1984: 144-153; Gunnerson 1987: 65-74). The subsequent Late Ceramic Period is mostly defined by the Dismal River Aspect culture, although later Intermountain populations, in the form of early historic Shoshone bands, may have been present. The Dismal River culture is usually identified with historic Plains Apache populations and dated between A.D. 1675 and 1725 (Gunnerson 1987). However, there is *limited evidence* to indicate that very early Plains Apache elements may have been present in Colorado's Eastern Plains and foothills by around A.D. 1350 (Kingsburg and Gabel 1983).

Definite cultural provenance of the Echo Cave projectile points is

nearly impossible to ascertain without scientific dating or additional diagnostic artifacts. On the other hand, comparison of the Echo Cave point traits with other Middle and Late Ceramic sites do show a chronological, if not a cultural, preference. Small, finely-made, tri-notched points are part of Upper Republican components at several northeastern Colorado sites including Happy Hollow (Steege 1967: Fig. 4af), Peavy Rock Shelter (J. Wood 1967: Fig. 34n-o), Cliff Swallow Cave (Morton 1954: Fig. 2c), Hall-Woodland Cave (Nelson 1967: 11, Type A), Cherokee Mountain (Nelson and Stewart 1973: Fig. 4), and two sites at Cedar Point near Limon, Buick Campsite and Smiley Rockshelter (W. Wood 1971: Fig. 5e-f, 8f,h,i).

At the Happy Hollow site, an Upper Republican component with both tri-notched points and Upper Republican ceramics was radiocarbon-dated to A.D. 1170<sup>+</sup>-90 (Steege 1967: 14). A tri-notched point from component 2 at Cherokee Mountain was dated to a similar timeframe, between A.D. 1150 and 1350 (Butler 1986: 104).

Unnotched triangular points similar to the Echo Cave # 0019 example appear in association with tri-notched types at the Colorado Upper Republican sites of Buick Campsite (W. Wood 1971: Fig 8a and b), Cliff Swallow Cave (Morton 1954: Fig. 2-group a), and Happy Hollow (Steege 1967: Fig. 4h-j).

We should also seriously consider the possibility that Echo Cave tri-notched projectile points may be derived from Colorado's poorly known Middle Ceramic Intermountain Tradition. Archaeological evidence suggests that the Intermountain Tradition was a proto-Shoshonean culture focused in the Northwest Plains (Frison 1978: 64-65). Archaeological research in the Northwest Plains suggests that the tradition was long-lived in that region, first appearing soon after A.D. 1000 and evolving into historic Shoshoni culture by at least A.D. 1760 (cf. Frison 1971: 258, 1978: 64-65; Madsen 1975: 82-86; Mulloy 1958: 196).

The primary diagnostic Intermountain artifact is a roughly-manufactured ceramic vessel in the general form of an open "flowerpot" with a distinctive flanged base (cf. Frison 1971, 1978: Fig. 2.13; Wedel 1954). Its appearance in

Northeastern Colorado is sporadic at best and probably indicates that this area was peripheral to the main Intermountain cultural territory to the north.

At present, we have only a half dozen suspected or confirmed Intermountain Tradition sites in Colorado. Two of the best known are Graeber Cave southwest of Denver and T-W Diamond north of Fort Collins (Nelson and Graeber 1966; 1984; Flayherty and Morris 1974). A third Intermountain component has been tentatively identified on the basis of ceramics along the Continental Divide at Vail Pass Camp (cf. Miller 1981: Appendix 2). At T-W Diamond, Intermountain sherds were recovered in general association with both notched and unnotched triangular points. Some T-W Diamond points were also tri-notched and closely similar to those from Echo Cave (cf. Flayherty and Morris 1974: fig. 8). Radiocarbon dates were run for both sites and yielded dates of A.D. 1320  $\pm$ 75 for Graeber Cave and two "acceptable" determinations of A.D. 1020 $\pm$ 230 and 1170 $\pm$ 220 for T-W Diamond. All three dates fit within the currently defined time span for Northeastern Colorado's Middle Ceramic Period.

The succeeding Dismal River Phase also includes side-notched and unnotched points which closely resemble the side-notched point from level 1/component Ba and the unnotched point of level 2/component Bb. Close analogues are found at southeastern Colorado's Carrizo Ranches site (Kingsbury and Gabel 1983) and at Cedar Point Village northwest of Limon (W. Wood 1969: Plate 6; W. Wood 1971: Fig. 4). Dating of Cedar Point Village is only loosely provided by the presence of Dismal River ceramics, known to date elsewhere between A.D. 1675 and 1725 (Brugge 1982). However, the Carrizo Ranches site did yield a radiocarbon determination of A.D. 1350 $\pm$ 55 and associated Pueblo IV pottery produced dates between A.D. 1490 and 1515.

Comparison of the Colorado and other regional Dismal River projectile points with the *tri-notched* points at Echo Cave, on the other hand, raise doubts as to their contemporaneity. Dismal River point bases appear to be universally concave and lacking basal notching. As Gunnerson (1987: 72) rightly points out, tri-notched points have occasionally been attributed to

the Dismal River culture but "their occurrence has yet to be confirmed." However, a counterview expressed by Butler (1980, 1986: 299-300) argues that tri-notched points are ubiquitous through both the High Plains Middle and Late Ceramic Periods. This author admits that tri-notch points probably occur in Late Ceramic contexts, but only very rarely and then mostly in what may be curatorial conditions. In fact, current archaeological evidence hints that tri-notched points in the Northeast Colorado region are at least reasonably useful Middle Ceramic chronological markers.

Aside from the projectile points, pottery from Echo Cave could have been useful in helping determine cultural provenance. Unfortunately, as noted above, a search for both the sherds and definitive field notes concerning their exact context has thus far proved fruitless. While Yelm's published ceramic data are important, they are only very broadly useful in the absence of the actual sherds and detailed notations on their original context. The sherd traits as described in the earlier table 5 could be considered "diagnostic" for either Intermountain or Dismal River wares, but actually fit Intermountain parameters best. Field collections of local Sylvan Dale clays show that they naturally contain good amounts of mica and gravel inclusions ("temper"?), a descriptive trait of the Yelm sherds. Those same traits might also be applicable to some sub-types of plain exterior Upper Republican plainware this author has observed from the Northeastern Colorado plains. In short, the 1933 Echo Cave sherd data are suggestive, but certainly not conclusive, for purposes of cultural identification.

It is proposed that Echo Cave prehistoric cultural levels can be generally dated to the Middle Ceramic Period of the Western High Plains. Comparative and stratigraphic data *suggest* that all sub-surface cultural deposits are Middle Ceramic in date, and their originators were either Upper Republican or Intermountain Tradition groups, most likely the latter.

#### **CONCLUSION**

Since 1986, the University of Northern Colorado has conducted



archaeological surveys and excavations in the hog-back foothills west of Loveland, Colorado. This short report describes an initial excavation of the UNC Sylvan Dale Research Project, that of a small granite cave known as Echo Cave. Current archaeological data show that Echo Cave was occupied numerous times during the past thousand years by small micro-band groups of hunters and gatherers. There is good evidence to indicate that these prehistoric peoples occupied the cave during the fall and winter months, often for extended periods of time. They lived off of local wild plant and animal resources which included prickly pear, hackberry, pigweed, wild plum, wax currant, chokecherry, rabbit, deer, local birds, and buffalo.

Stratigraphic and artifact data from the site show the presence of two primary cultural components: (1) a modern, surface occupation by late 20th Century "hippies", component A; and (2) component B, a sub-surface archaeological component with three possible sub-components thought to belong to Middle Ceramic peoples of the Upper Republican Culture or, more likely, Intermountain Tradition. This latter component was deposited over two to three centuries of fairly consistent, seasonal visits by small hunter-gatherer groups.

#### Fort Weird (5LR352)

This site was reported by Yelm in her 1935 thesis and entered into the state's site files from the University of Denver survey catalogue. She described the site as being situated on a cliff top overlooking the Big Thompson River at the southeast corner of Green Ridge. The site was relocated by a UNC survey team in July of 1986 and found to be largely intact. It was discovered to consist of a rough masonry wall enclosing a natural notch in a massive granite outcrop directly above the Big Thompson River.

Yelm(1935: 39) originally speculated that 5LR352 have served as an open camp and look-out. She described it as being a small pit with a semi-circular rock wall. The pit dimensions were given as three feet deep, seven feet long and four feet wide. These latter dimensions accord well with the structure recorded by the UNC survey team. Yelm also reported that an early settler in

the area, M. Chasteen, stated that he had found old logs laid over the stone walls when he first entered the region in the 1960's. Yelm's hypothesis of the site as a look-out is attenuated by the fact that entry behind the concealing wall is highly visible from below. One possible alternative theory is that it was built as an eagle-trapping blind by historic Indians.

The Jessup Site (5LR1049)

The Jessup site is the first locality documented by the Sylvan Dale Ranch Project. It consists of one surface stone ring and at least two other buried rings on the second terrace above the Big Thompson River and the main Lodge area of Sylvan Dale Ranch.

Investigation of the site began with the establishment of a metric grid system in the spring of 1985. At that time, several test squares were excavated along with the partial clearing of one visible stone ring. A handful of abrading tools were found in a boulder concentration at the northeast corner of the site, but no other artifacts have been recovered despite careful soil screening. The only visible stone, or "tipi", ring (structure 1) was excavated and mapped during the 1986 UNC field season and a shallow, earth basin hearth in its southeast area was sectioned, cleaned and mapped (Figure 10).

FIGURE 10  
Jessup Site Stone Ring 1

The basin hearth (feature 1) was mostly swept clean by water and wind erosion, but a handful of charcoal and burnt rock fragments were recovered (Figure 11).

FIGURE 11  
Jessup Site Feature 1 Hearth

The single defined stone ring at the Jessup site has a diameter of five meters, roughly 16 feet, and incorporates at least two grinding stone pieces in its construction. Further excavation and a deep sounding pit were done during the 1986 season, but no more artifacts or evidence of cultural activity were uncovered. The owner of Sylvan Dale, Maurice Jessup, remembers the presence of three surface rings as recently as the early 1950's. However, two of the rings appear to have been buried by colluvial erosion and sod-growth and were not found in a short exploratory shovel-probe survey.

Due to the absence of diagnostic artifacts, dating of the site is difficult at best. This author believes that the site was a short-term early Historic(Late Late Ceramic) occupation, possibly belonging to a small band of Utes, Shoshoni or Cheyenne/Arapahoe in the early to mid-1800's.

#### Green Ridge Camp (5LR1050)

Green Ridge Camp is a single hearth campsite located above and northeast of Echo Cave along the south rim of Green Ridge. It consists of a bare, disintegrated granite gravel circle and central cobble hearth. A few larger cobbles on the ring's southern periphery may be related to an earlier campsite hearth which is now largely gone. Lichen patches on the hearth stones were measured between 7 and 9 cms. in diameter, an approximate age indicator that the stones have been essentially undisturbed by fire for at least two thousand years. There was no obvious cultural debris on the site surface prior to excavation. The camp was subject to careful micro-excavation during the 1986 field school. The hearth ring was found to lie over an outcrop of disintegrated granite and only a single chert scraper was recovered along the outer margins of the camp circle.

#### Sulzer Village (5LR1084)

Sulzer Village is a very badly eroded stone ring site on the first terrace above Sulzer Gulch just below Echo Canyon at the northwest corner of the Lodge units pediment fan. Yelm described "an extensive campsite" at this

location when she visited the area in 1933(Yelm 1935: 22). The site area was said to cover several acres and its surface was covered with grinding handstones and lithic debitage. Much of the original site was bisected and destroyed when the Hansen feeder canal was built through it in the late 1950's. Today, only a handful of grinding stone fragments and heavily eroded stone circles are preserved.

#### Red Ridge Camp (5LR35)

Red Ridge is a reddish sandstone hogback divided by state highway 34 and marks the eastern limits of the Lodge study unit. The ridge itself is not owned by Sylvan Dale Ranch, but because it was integral to the Lodge area terrain, it was preliminarily surveyed in the summer of 1986.

According to state site file records, both the north and south sections of Red Ridge are part of a large archaeological scatter, or "site". Yelm reported a portion of the north section as containing remains of a lithic workshop and at least one stone ring(1933: 39). She described the majority of artifacts from the generalized ridge area as consisting of non-diagnostic tools, flakes and lithic waste or debitage. However, one parallel-flaked point fragment with dorsal ridges was recovered. Although not illustrated in Yelm's thesis, the point, described as Yuma, an early and now unused designation for mostly Mid-Plano Period Paleo-Indian point types, was probably one of the Cody Complex point types, c.10,000-9000 B.P.

Preliminary 1986 UNC surveys discovered several camp hearths in a saddle valley in the center of the ridge. Also, a rectangular rock foundation was found at the highest point at the north end of the ridge. Unfortunately, no artifacts or other cultural debris was noted. The ridge has long been a favorite collecting ground for local arrowhead hunters and appears to have been largely cleared of significant artifacts.

#### SYLVAN DALE BIG VALLEY STUDY UNIT

The Big Valley unit is currently undergoing systematic survey and selective excavation. Surveys during 1986 identified four sites; one at the top of West Ridge and three on East Ridge. The West Ridge site was recorded

into the University of Colorado Museum site system by Joe Ben Wheat in the 1950's. A fifth site, near the base of the northeast corner of East Ridge, was also recorded by Wheat, but was found by UNC surveyors to have been destroyed by house construction. To date, all Big Valley sites have been located on ridge and bluff tops or on narrow shelves on upper ridge slopes. Ridge and bluff top location indicate a preference for exposure to summer breezes and a commanding view of the nearby terrain for game spotting and advance warning of human raiding parties. Another favored location is on east slope shelves where there is a commanding view of the Big Thompson Valley and protection from winter westerly winds. It is believed that east slope shelf sites largely reflect longer-term wintering camps. The Big Valley swale, dividing the East and West hogbacks, is and has been ideally suited for grazing deer and bison, primary game animals for prehistoric human populations.

#### Bluff Camp (5LR32)

The Bluff Camp site is situated along the lower slope (northeast) periphery of Big Valley's East Ridge. It extends downslope along a sandy Dakota sandstone bluff overlooking a bend in the Big Thompson River. The site was originally described by Yelm as a campsite/lookout or "typical water-gap site" (1935: 39).

In 1986 surveys, some half dozen small, badly eroded stone rings were found midway down the northern ridge slope along the bluff edge. The stone rings averaged 2 meters in diameter and at least two of the rings appeared to have had central cobble hearths. In her 1934 survey, Yelm recovered broken and whole stone tools and noted a large amount of lithic debitage. The majority of her materials, however, were found downslope of the current rings on a rocky covered flat at the downward sloping, eastern bluff base. That area, as noted above, is now the site of a modern home.

#### Hilltop Site (5LR34)

The Hilltop site is located in a thin ponderosa pine woods in a small sandy flats area on top of Big Valley's West Ridge. Yelm briefly noted the site in her 1935 thesis and it was later recorded into University of Colorado

Museum site records from E.P. Lohr's field notes in the mid-1950's.

The site was relocated by a UNC field reconnaissance in the spring of 1986 and is now identifiable by a very thin scatter of lithic debitage and a possible stone-lined hearth. It appears to have served as a short-term hunting camp. A small herd of deer was found to be bedding down in the ponderosa pine not far from the site when it was relocated in 1986.

Valley View Site(5LR1085)

The Valley View site was discovered during the spring of 1986 during a brief pre-field school reconnaissance by this author. It was cleared and mapped by a UNC survey team during the 1986 field season. Valley View is situated on a lightly sloping shelf or bench about a third of the distance downslope on the east side of Big Valley's East Ridge. Initially, three stone circles and a centralized exterior rock hearth were mapped in 1986. A culturally diagnostic projectile point was retrieved just under one of the stone circle rocks in the same year. This allowed a provisional dating of the surface structures to the Plains Woodland Period, or roughly between A.D 200 and A.D. 1000.

Further research at Valley View took place in the summer of 1987 when several test grids were opened up and the surface hearth was fully excavated. Excavation and closer inspection of the site environs showed the presence of at least four stone circles, a fourth structure having been located at the northern periphery of the site, overgrown with mountain mahogany(Figure 12).

FIGURE 12

Field Map of the Valley View Site

Several important discoveries were made during the 1987 excavations. These can be briefly described, although it needs to be kept in mind that laboratory analysis of the artifacts, ecofacts and other field data is still in a very preliminary stage.

#### Cultural Provenance and Chronology

Excavation and soil probe coring has shown Valley View to contain at least two primary cultural components. The earliest component is that of the Late Archaic Period which, to date, has only been uncovered in the eastern downslope area where a test pit was sunk to bedrock in 1987. This test pit was excavated below the earlier mentioned surface hearth (Feature 1) and penetrated a lower rock and charcoal filled basin hearth a few centimeters over bedrock. A diagnostic Late Archaic point, illustrated and discussed later, was recovered from the basin hearth along with substantial charcoal which will be radiocarbon tested in the near future. This lower Valley View cultural level is designated component B. The second, and more recent, cultural component consists of surface and subsurface materials extending to at least 15-20 centimeters below the present hogback shelf topography. Cultural diagnostic



artifacts for this level, designated component A, are present in several Early Ceramic Plains Woodland ceramic sherds and two partial projectile points. Diagnostics of the projectile points, discussed later, indicate that both probably date early in the NE Colorado Plains Woodland Period, possibly between A.D. 100 and 500.

#### Structures and Features

Several prominent structures and features have been documented at Valley View; including four stone circles, a short but massive stone wall, and a hearth and a linear roasting pit, the hearth superimposed over the lower pit. The stone circles are designated structures 1, 3, 4, and 5. Structure 2 is a massive stone wall which trends northwest to southeast. It was originally thought to have been a simple stone circle, but has proved to be much more complex.

Until the 1990 season, only one of the stone rings, number 1, was partially excavated. Structure 1 is located at the northeast periphery of the site(See Figure 10 above). It is a roughly ovoid form, made of small to large sandstone rocks(Figure 13). The structure was deeply tested in the 1990 season, but the results have yet to be analyzed.

FIGURE 13

Valley View Structure 1

Initial excavation of the structure revealed a packed floor with a concentration of fire-burnt rock in a shallow pit at the northern inside edge and an in situ projectile point, 5LR1085/006, near the structure's center. Also, as noted earlier, a Plains Woodland corner-notched point, No. 001, was recovered from inside and below a structure rock at the northwest edge in 1986. Preliminary interpretation of Structure 1 is that it represents the remains of a wickiup stone ring where branches, tree boughs, and probably animal skins, were used to construct a domed hut or tent anchored by an external ring of rocks. The inside living floor has been cleared of rocks, in general, packed by use and utilized for sleeping and various indoor activities. However, it did not contain a true hearth, although the shallow basin of fire-burnt rocks may have provided warmth by containing earth-covered heated rocks which were periodically replaced or reheated in the outdoor hearth. An alternative explanation for the structure was that it may have been a steam-bath hut. Both hypotheses need to be tested more completely.

The second partially excavated structure, Structure 2, is located on the upslope west side of the site. Initially, this structure was believed to be a fairly simple stone circle similar to the other surface structures. And, although it appeared somewhat jumbled during the 1987 excavation, the structure was still considered to be a stone "wickiup"-style ring at the end of that season. It was only later, when individual grid maps were assembled into an overall structure plan that it became evident that Structure 2 was somewhat more than a simple ring of stones. This is evident in the following Figure 14, the overall structure drawing.

FIGURE 14  
Structure 2 Map

The overall function of Structure 2 is still somewhat hypothetical. However, preliminary data indicate that it was a 3-4 foot high wall which served as a wind-break for the site and may have supported a lean-to building roofed over with branches and hides to make a substantial shelter. As

positioned within the site, it certainly would have provided shelter from winter winds blowing from the west and northwest. Numerous artifacts and economic materials were recovered from the floor area of the structure. Plains Woodland ceramics, for instance, were found in the southeast and western quadrants. Also, numerous scrapers, flakes, charcoal and animal bone were found within its floor area. The structure has some broad similarity to linear masonry wall construction documented at the Lindsey Ranch site; another Early Ceramic/Plains Woodland locality in the Northeast Colorado foothills(cf.Nelson 1971).

Aside from the stone structures excavated at Valley View, two smaller, discrete features were investigated in 1987. These include the surface stone-lined hearth, feature 1, noted earlier, and the underlying Late Archaic linear roasting pit. Figure 15 illustrate the form of the Early Ceramic/Woodland hearth (Feature 1).

FIGURE 15  
Valley View Hearth/Feature 1

Feature 1 is a sandstone slab-lined rectangular hearth with a shallow burnt-earth basin extending just below its base. Its center contained considerable charcoal and some fragmentary burnt bone. A broken corner of a well-made grinding stone (metate) was recovered from the northeast wall edge. Unfortunately, dating charcoal from the hearth basin turned out to be a questionable proposition due to the fact that local campers had reused the hearth over the past half century.

The lower roasting pit (Feature 2) was fully excavated in the 1989 field season and was found to have been dug down into natural clay fill of the hogback bench. Feature 2 was found to be a fairly shallow (20-30 cms.) and narrow (40-60 cms.) trench extending north to south for a linear distance of 1.5 meters. It was filled with substantial amounts of ash, charcoal, fire-cracked rock, burnt bone, seed fragments, lithic tools, and stone debitage. This pit was is located partially under and extending just southeast of the surface Early Ceramic feature. And, as noted below, an excellent Late Archaic point was recovered from deep within the lower, feature 2 pit.

#### Cultural Materials

Some sixteen primary artifacts have been recovered to date from the Valley View site. In addition, more than two hundred flakes and other fragments of stone debitage have been recovered and remain to be analyzed. Among the most important artifacts are three partial projectile points and five small pieces of cord-marked Plains Woodland pottery. The first projectile point was recovered in the 1986 survey site clearing activity. This point, designated 5LR1085/001, is illustrated below in figure 16.

## FIGURE 16

### Valley View Point 001

(Actual Size)

Point 001 is a basal and lower body section of a excurvate base corner-notched point type. This type is found in terminal Late Archaic and Early Plains Woodland contexts. A very close analogue is found in a point from the Van Bibber Creek site radiocarbon-dated to 190 B.C.(2140 B.P.)(Nelson 1969: Fig.4D). However, this type of point has other analogues, although less striking, from other site contexts dating to the earliest centuries of the Plains Woodland or Early Ceramic Period(s) in the Front Range foothills. Butler(1986: 292-293), for instance, classifies this point type as his Archaic Corner Notch Type 4, a Late Archaic point dating roughly between 500 B.C. and A.D. 500.

A second Valley View projectile point, 5LR1085/006, was recovered in the 1987 excavations from the floor area of the stone ring structure 2 at the northeast periphery of the site. This point was found in situ and may have been ground into the floor after being lost or discarded. An illustration is given below in figure 17.

## FIGURE 17

Valley View Point 006

(Actual Size)

This point is somewhat unusual in form and type and certainly not a typical Plains Woodland projectile point type. In form, it resembles some Late Archaic corner-notched types(cf. Butler 1986: Types 3 and 4, 291-292), but is somewhat smaller. However, it's closest analogue can be found in Besant points from Northwest Plains areas in Wyoming and Montana. Although a bit low for most published ranges for point lengths of known Besant points, Valley View point 006 fits the primary traits for that type extremely well, and is within current size values for that point type(cf. Davis and Stallcop 1966: 32; Johnson 1970: 56).

Until recently, Besant points were thought to have been part of a distinct Northwest Plains "Besant Culture", or part of the Saskatchewan's Napikwan Tradition(Reeves 1970, Wettlaufer 1955). However, in 1973, Wood and Johnson proposed that Besant be renamed Woodland-Besant due to its close association with Woodland materials and sites. Johnson (1977), in a recent article, makes a convincing case for Besant points belonging to a far Northwest Plains variant of the Plains Woodland Tradition of the High and Great Plains. In light of this thesis, the presence of a Besant point in a Northeast Colorado Plains Woodland site might be taken to document interaction between Colorado Front Range Woodland populations and culturally-related Besant peoples further north.

Besant chronology also matches well with our tentative dating of the Valley View Early Ceramic component as Early Plains Woodland. Current Besant

radiocarbon dates indicate a broad range of roughly A.D. 150 and A.D. 500(cf. Frison 1978: Table 2.12, Johnson 1977: 35, Wood and Johnson 1973: Table 4). In particular, the Valley View point is quite similar to the Butler-Rissler site in Central Wyoming, identified as a Woodland-Besant site, and radiocarbon-dated to A.D. 290(Miller, Waitkus and Eckles 1987: Fig.2a).

The third and, thus-far, final projectile point recovered from Valley View is point No. 003. The point is illustrated in figure 18.

FIGURE 18

#### Valley View Projectile Point 003

As noted earlier, this point came from the culture-laden matrix of the component B roasting trench. It's provenance is well established within that context and charcoal found with it should eventually provide a good radiocarbon date. Technically, the point fits in extremely well with a type series of projectile points common to well-established Late Archaic contexts. For instance, close analogues have been recovered from level 2 at Willowbrook, Zone C at Van Bibber Creek and late Zone C (late Apex Complex) at Magic Mountain(cf. Irwin-Williams and Irwin 1966: Fig.26-Type mm20; Leach 1966: Fig.3p-r/Type IID; Nelson 1967: Fig.4A and 4E). This type class of Late Archaic corner notched points has been radiocarbon-dated at Van Bibber and Willow brook to a date range of 190 B.C. to A.D. 100(Leach 1966: 42-43; Nelson 1969).

The only other diagnostic artifacts found at Valley View are five dark



brown ceramic sherds. All five appear to have come from the same vessel, probably a small, pointed base, cylindrical pot with a straight open mouth. The exterior surface of the sherds was worked into form using a cord-wrapped paddle. The paste cross-section is lightly burnt and shows a coarse sand and fine gravel temper. The cord-mark patterning is highly typical for Plains Woodland ceramics, but no work has yet been done to determine if the patterning is more likely to be early or late Woodland in style.

#### Economic Data

Economic data from Valley View has not yet been fully analyzed. However, there are abundant fragmentary animal bone remains and some charred seeds and macro-plant fossils. Probable chokecherry has been recovered along with prickly pear (*Opuntia* sp.) seeds. Animal bone appears to be confined, thus far, to deer, cottontail rabbit and one or more unidentified bird species.

#### Interpretation of the Valley View Site

Any final conclusions on the function of the Valley View site, pending further excavation, are highly premature. However, it does appear likely that the site was a seasonal, relatively long-term occupation by successive bands of hunter-gatherers in Late Archaic and Early Ceramic cultural periods. The season of occupation, based on its protected location on an eastern shelf of the Big Valley hogback ridge, was mostly likely late fall through early spring, in other words, Valley View was a wintering camp. On the east side of the ridge, its inhabitants were not only protected from the westerly and northwesterly winter winds, but warmed by the more southerly winter sun. The nearby inter-hogback valleys and the Big Thompson River corridor were certainly prime food resource areas for wintering bison, elk, deer and migratory birds which live in the area today. Once the winter was over, the Valley View bands probably harvested the springtime plant foods and eventually followed game animals in a seasonal migration to the higher mountains or into the eastern plains. Then, in the following fall, how many years in succession is unknown, they returned to the site to winter in relative comfort.

There is one aspect of Valley View which should be mentioned, even in

this preliminary report. Archaeologists today are very unclear about the cultural processes which took place in the Northeast Colorado region from the end of the Late Archaic Period through the first centuries of the Early Ceramic/Plains Woodland Period, roughly from 500 B.C. to A.D. 500. Cultural changes which took place during that time are extremely interesting to archaeologists. Spear-darts were at least partly replaced by bows and arrows, with a hypothesized downsizing in projectile point size. Ceramics, inspired by either eastern Woodland models and contacts or some from the Southwest, appeared. And, although nomadic hunting-gathering remained the primary lifestyle, corn and possibly bean-squash horticulture was introduced to supplement wild animal and plant foods. With successive, or evolving, Late Archaic and Early Ceramic/Woodland components present at Valley View, its careful excavation may yield important clues as to the processes involved in this important cultural development in Colorado prehistory.

Site 5LR1086

The so-called Spring site is situated in an eroded Dakota sandstone outcrop just east of the Big Valley East Ridge crest some 150 meters southwest of where the ridge has been cut by the Big Thompson River. The site was surveyed in 1986 and found to consist of a 75 square meter catchment hollow with one to two meter high rock masses on the north and east. The lower portion of this hollow, which drains south past the rock mass and then downslope, is a remnant of an artesian spring which was active as recently as the early 1960's. A single course rock wall had been built at some time in the past to hold water in the lower southern and southwest portion of the spring hollow. Testing pitting showed that the central spring vent part of the small spring basin contains a minimum of a meter of fine clay, silt and gravel with decomposed organic matter. Immediately northwest of the spring basin, in decomposing sandstone and earth, were found the remains of a recent historic campfire. That same area contained several lithic debitage flakes and was briefly test-excavated. A large number of small to micro-sized chert and fine quartzite chippings were recovered from the gridded test area along with a

gray, mottled chert core, a small thumbnail scraper, an end scraper, and several unutilized flakes. Unfortunately, modern camping had severely disturbed any reasonable evidence of prehistoric activity. Further testing of the Spring site is planned at an undetermined time in the future.

#### CONCLUSION

The past few years of Sylvan Dale Project research have shown that the project's study areas present important natural and cultural resources for reconstructing and understanding prehistoric lifestyles and culture history in the Northeast Colorado foothills. In particular, the environmental diversity of the region, with its ecotonal traits, present valuable transects of resource zones critical to past prehistoric populations. And it is through a careful, well-defined scientifically holistic research program, as adopted by the Sylvan Dale Archaeological Project, that significant advancement in our knowledge of NE Colorado prehistory can take place.

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