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MAN ON THE RIO GRANDE: INTRODUCTION AND OVERVIEW

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INTRODUCTION

A record of over 10,000 years of human occupation is preserved in the Rio Grande rift. The duration and character of that occupation was and remains intimately related to geological processes. The Rio Grande rift preceded the river of the same name. Rifting concentrated runoff, imposed a drainage corridor, and helped to create one of the most important resources in an arid environment: a perennial water source. The rift almost certainly influenced the seasonal movements of early hunters and gatherers in northern New Mexico. The region's first Paleoindian inhabitants were undoubtedly drawn to the water source, as were the herds of Pleistocene animals they hunted. As water became increasingly scarce during the millennia-long droughts that followed the close of the Pleistocene, the river exerted an important influence on settlement patterns and seasonal population movements.

The rift concentrated important resources other than water. Volcanism associated with rifting produced obsidian for stone tools, altered land forms, and created elevations, ecological diversity, and a greater variety of wild plant and animal resources. The floodplain of the Rio Grande eventually attracted farming settlements. When large areas of the Colorado Plateau were abandoned by prehistoric farmers during the first centuries of the present millennium, many of those who were displaced migrated to the rich bottomlands of the Rio Grande and its tributaries, where the certainty of a perennial stream flow and the advantages of a longer growing season encouraged population growth and agricultural intensification.

When Europeans colonized New Mexico in the sixteenth century, they encountered over a hundred farming communities along the Rio Grande and its tributaries (Fig. I). In the next century the valley of the Rio Grande became a migration corridor for Spanish settlers probing deep into New Mexico from the mining towns of Chihuahua, and in 1680 it became an escape route for the descendants of immigrants fleeing the onslaught of the Pueblo Revolt. Two hundred years later the Rio Grande corridor of trade, migration, and communication helped to usher in a new era of trade with, and eventually political domination by, the United States.

The four papers that follow focus on the late prehistoric and early historic periods on the northern Rio Grande, from the twelfth-century Pueblo Coalition (Wendorf and Reed, 1955) to the seventeenth-century Pueblo Revolt, a span of five centuries that witnessed profound changes in human adaptations and cultural lifeways on the Rio Grande in northern New Mexico. Some of the more important changes are outlined and discussed in the first two articles by Peckham and Schroeder, which present concise overviews of the late prehistoric and early historic periods. The final two articles, by Cordell and by Bower and Snow, address specific research issues of the period. Cordell raises questions regarding some old assumptions about cultural continuity in the Rio Grande valley, assumptions that have influenced historical and archaeological research strategies in the northern Southwest since the turn of the century. Bower and Snow use x-ray fluorescence analysis of early historic Tewa pottery to investigate historic cultural interactions among Spanish and Pueblo populations in the Rio Grande valley.

The following papers make no attempt to cover the entire ca 10,000 years of documented human occupation of the northern Rio Grande valley. In introducing the papers, I will focus on some of the more obvious gaps, to provide some historical background for the more detailed archaeological and historical discussions that follow, and to provide a critical overview of some of the more important research issues that are raised. The sketch that follows relies primarily on secondary sources, recent syntheses, and discussions with colleagues. It touches on some, but by no means all, of the important issues. For more detailed introductions to Rio Grande prehistory, the reader should refer to the recent syntheses by Biella and Chapman (1977), Cordell (1978a, 1979b), and Stuart and Gauthier (1981).

EARLY HUNTERS AND GATHERERS

Much circumstantial evidence suggests that the Rio Grande rift supported intermittent human occupation for at least 10,000 years. For all but the last 1,500 years, humans lived in small groups as mobile hunters and gatherers, exploiting a diverse mix of wild animals and plants. Physical evidence of early Paleoindian hunters and gatherers (ca 12,000-6,000 years ago) is fragmentary, since only isolated Paleoindian artifacts have been recovered from the northern Rio Grande valley (Peckham, this guidebook). Subsequent Archaic hunting and gathering populations (ca 6,000-2,000 years ago) have been more thoroughly documented in the region, thanks to intensive archaeological surveys at Abiquiu and Cochiti Reservoirs (Biella and Chapman, 1977; Schaafsma, 1976). Nevertheless, data on pre-farming populations in the Rio Grande valley are extremely sketchy.

Arid-land hunters and gatherers typically live in small, highly mobile bands. Camp sites are often occupied for no more than two or three weeks before the band moves on to a new foraging area. The ephemeral remains associated with such short-term site occupations are difficult to identify archaeologically, and they are extremely susceptible to post-occupation disturbance, especially in a geologically active zone such as the Rio Grande rift. Site-occupation spans are often so brief that few formal artifacts are discarded. Consequently, unambiguous assignment of hunter—gatherer living sites to specific time periods or cultural groups

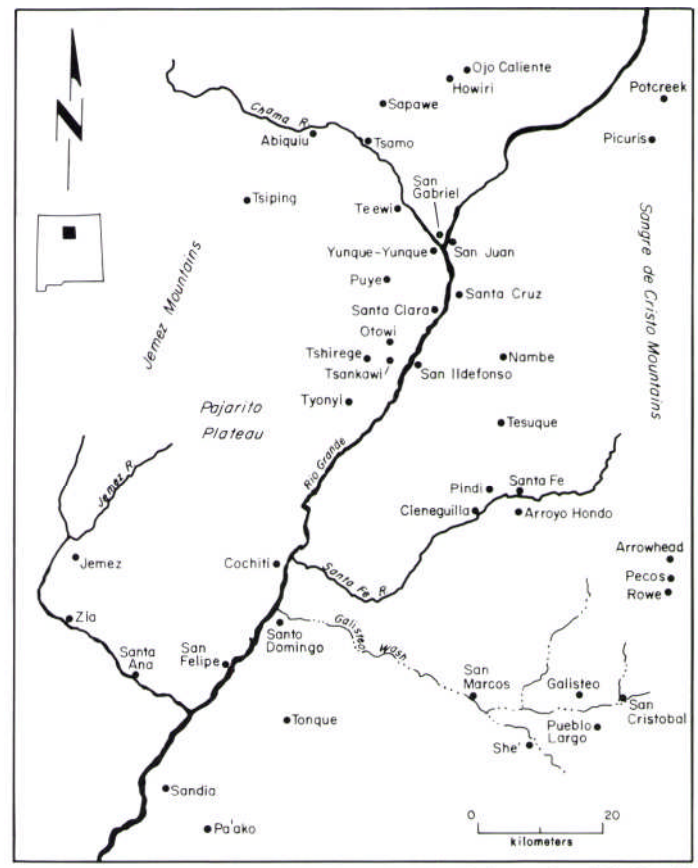

FIGURE 1. Late prehistoric and historic pueblo sites in the northern Rio Grande valley.

on the basis of temporally or culturally sensitive artifacts is difficult, and often impossible (Cordell, 1979a).

The paucity of physical remains and the long time spans that separate us from the earliest hunters and gatherers of the Rio Grande valley make it difficult to reconstruct dimensions of their environment, demography, settlement and subsistence patterns, and organization; archaeologists are just beginning to address these problems in a systematic way. Fundamental problems still exist in, for example, the areas of early hunter—gatherer chronology and culture history. The existence of a pre-Clovis (ca 12,000 years ago) occupation of the northern Rio Grande valley continues to be a major issue despite the widely discredited early occupation dates from Sandia Cave (Hibben, 1955; Stevens and Agogino, 1975). Other major points at issue include an apparent 1,400-year discontinuity between the Folsom (10,000 years ago) and the Cody Complex (8,600 years ago) (Irwin-Williams, 1979), an hypothesized discontinuity between Paleoindian and Archaic populations (Irwin-Williams, 1967, 1973), and an apparent truncation of the Oshara Archaic Tradition in the Galisteo Basin by the Chiricahua Cochise culture (Lang, 1977).

These discontinuities may be significant cultural—historical events, or they may be little more than failures of measurement, interpretation, and inference on the part of archaeologists who have recovered very little physical evidence and only a handful of unambiguous dates for early hunters and gatherers in the northern Rio Grande valley. Whatever the case, the experts appear far from a consensus, and there is a great deal of disagreement among archaeologists over some very basic issues.

Progress in understanding early hunter—gatherer adaptations will continue to be slow because of the paucity of material evidence. As dating techniques improve, paleoenvironmental reconstructions become more complete, and archaeologists refine their theories of early hunter—gatherer adaptations, research prospects will undoubtedly improve. What is most needed in the Rio Grande rift are more large-scale, intensive areal surveys, a more thorough understanding of contemporary hunter—gatherer adaptations and material correlates of those adaptations, and, perhaps most important, sufficient imagination to approach old problems in new ways.

FROM FORAGER TO FOOD PRODUCER

Corn and squash horticulture was probably introduced into the Rio Grande valley during the first millennium B.C. The centuries immediately following the introduction of agriculture witnessed important social, economic, and technological changes, including a shift from mobile hunting and gathering to food production, and the evolution of the first settled villages in the northern Rio Grande valley. These changes are not well documented in the upper Rio Grande valley, and we are not altogether sure why. As Cordell points out (this guidebook), the upper Rio Grande valley was a much less marginal environment for hunters, gatherers, and subsistence farmers than many other areas of the northern Southwest, and yet, examples of the most precocious Anasazi cultural development occur to the north and west of the Rio Grande valley, on the arid Colorado Plateau.

Cordell suggests several possible explanations. Alluviation and erosion on the floodplains of the Rio Grande and its tributaries may have destroyed much of the physical evidence of past human occupation. Recognition bias has almost certainly played a role as well. In focusing as they have on the large and spectacular remains of the late Classic pueblos, archaeologists may have systematically overlooked the more ephemeral remains of early hunters, gatherers, and farmers in the Rio Grande valley. Perhaps, as Cordell also suggests, the Rio Grande valley had such abundant wild resources that a mobile hunting and gathering adaptation persisted longer than in more marginal areas outside the valley.

This last point raises some important theoretical issues regarding the causes and consequences of food production. On the basis of recent studies of contemporary hunters and gatherers (e.g., Lee and DeVore, 1968; Lee, 1979), it appears that many of the "benefits" of agriculture are illusory. When wild foods are abundant and available year-round, hunting and gathering is the subsistence strategy of choice because it involves substantially less effort and risk than farming. It follows, then, that the benefits of agriculture might be more apparent in a marginal environment where hunting and gathering options are less attractive because of environmental uncertainty, resource scarcity, and competition in the food quest, or where wild foods are only available seasonally, creating long periods of food scarcity.

There are other advantages that agriculture affords in a "patchy" arid or semiarid environment where seasonal variability is often extreme and important wild-plant and animal resources tend to be localized and unpredictable (Yellen, 1976). In such an environment, farming not only provides a stable source of domestic calories, but the clearing of fields for agricultural crops provides new disturbed habitats for the concentration of economically important wild plants and animals which can be exploited along with the domestic crops (Emslie, 1981; Ford, 1982; Linares, 1976). In an important respect, field agriculture transformed the ecology of the semiarid northern Southwest by increasing the local density of edible wild plants and animals. These fundamental ecological changes perhaps contributed to the growth of population and the evolution of complex societies on the otherwise marginal Colorado Plateau.

In contrast to the western Colorado Plateau, the valley created by the Rio Grande rift was probably one of the more optimal foraging areas in the northern Southwest (Cordell, 1979b). This may explain why settled, village-farming economies developed so late in much of the northern Rio Grande valley, and why population exploded in the valley during the thirteenth and fourteenth centuries A.D. following the structural collapse of Anasazi systems in the San Juan Basin and Colorado Plateau to the west.

PUEBLOS AND SPANIARDS

From the twelfth through the seventeenth century A.D., the rate of culture change in the northern Rio Grande valley accelerated as Pueblo population increased and as European contact created new social and economic challenges for the indigenous Pueblo population. As population grew and became concentrated in larger communities, a wealth of physical archaeological evidence began to accumulate. It is in this period of growth and rapid change that Rio Grande archaeologists have concentrated their efforts for the past 100 years, and where Southwestern historians and archaeologists begin to work hand in hand. It is at this point also that the archaeology and history papers in this guidebook take up the story of culture change in the Rio Grande valley.

During the 500 years that elapsed between the Pueblo Coalition and the Pueblo Revolt, the population of the Rio Grande valley appears to have been very unstable. Significant population growth and settlement instability occurred in the valley during the thirteenth and early part of the fourteenth century A.D. (Peckham, this guidebook). Cordell (this guidebook) mentions significant population instability during the fourteenth through sixteenth centuries, as many large Rio Grande pueblos were abandoned and new pueblos established. A hundred years later, during the first century of Spanish occupation of the Rio Grande. there was a 90-95% decline in Pueblo population, from 60,000 to 10,000 individuals in A.D. 1600, to under 6,500 individuals in A.D. 1706 (Schroeder, this guidebook).

The causes and consequences of population growth and decline on the Rio Grande have been an issue of active discussion and debate for years (Cordell, 1979a). Of all the demographic episodes in question, the seventeenth century collapse of Pueblo population is undoubtedly the best documented because there are historical census data that verify the collapse. Schroeder (this guidebook) attributes seventeenth-century population decline to a combination of European diseases, famine, and warfare.

Much debate surrounds studies of population fluctuations during the thirteenth and fourteenth centuries, prior to European contact. Most investigators hypothesize an episode of explosive growth during the Pueblo Coalition and early Classic period, and most of the discussion has focused on the causes of such a rapid growth.

Immigration from the north and west is one of the most appealing theories, primarily because population growth on the Rio Grande follows large-scale depopulation of the northern Colorado Plateau. Others have cited the lack of physical evidence of large-scale migrations to argue for internal growth of an indigenous Rio Grande population during

the thirteenth and fourteenth centuries A.D. Although the current consensus seems to be that large-scale migrations occurred (Peckham, this guidebook), the issue is, in fact, far from resolved. For one thing, the debate over immigration versus internal growth masks an important epistemological issue: archaeologists do not know how to measure accurately the size of prehistoric populations.

If adequate funerary data are available, archaeologists can say a great deal about such things as the age structure, morbidity patterns, and mortality rates of prehistoric populations. But with contemporary tools and techniques archaeologists can say practically nothing with certainty about the size of prehistoric populations, and, therefore, about flunctuations in the size of populations. Regional estimates of prehistoric populations are typically based on such measures as site frequency, site and artifact density, room counts, living-room-floor areas, and hearth frequencies. All of these measures, however, can change in response to variables other than population fluctuation. For example, the number of sites in a region can increase through time if there is an increase in population mobility.

Cordell (this guidebook) raises another important epistemological issue regarding culture change and continuity, and the use of the present to interpret the past. Traditionally, archaeologists have looked to ethnographic accounts of historic Pueblo Indians for help in interpreting Anasazi prehistory, on the assumption that Pueblo culture is basically conservative and, therefore, resistant to change. In emphasizing the effects of nearly 300 years of Spanish occupation of the northern Rio Grande, Cordell (this guidebook) argues persuasively for more skepticism in our use of ethnographic analogy in southwestern archaeology.

There is no question that ethnographic analogy has an important role to play in archaeological theory-building. But in the Southwest, where cultural continuity is too often assumed rather than tested, ethnographic resources are too often exploited as a source of answers about the past rather than as a source of questions. Ethnographic analogy is a valid tool for assessing the likelihood of alternative hypotheses and as a source of ideas and hypotheses about the past. But hypotheses generated by ethnographic analogy must ultimately be evaluated with independent archaeological data.

Perhaps nowhere is analogy employed more uncritically than in the study of prehistoric organization, which brings us to the final point in this discussion and, coincidentally, to the last paper in the set that follows. There is probably no greater challenge in prehistoric archaeology than to reconstruct aspects of prehistoric social organization. There are undoubtedly many important relationships between the structure and organization of a society and the material residue of a society. However, there are so many intervening variables between an extinct social system and the tangible archaeological remains of that social system that unambiguous correlations between the two classes of phenomena are difficult to construct.

Because of the difficulties inherent in identifying and measuring dimensions of prehistoric social organization, archaeologists have demonstrated a tendency to fall back on archaeological and historical analogy whenever confronted with an organizational problem. Without historical records, informant interviews, or eyewitness accounts, how does one go about measuring the kinds and degrees of social relationships and the extent of interaction among social groups in the distant past?

Methods of quantifying social interaction and organization on the basis of ceramic-design analysis developed in the late 1960's (Hill, 1970; Longacre, 1970) were based on many untested assumptions, and the validity of their conclusions has been questioned (Plog, 1977). In recent years, other approaches to studying social interaction have been developed, and some show a great deal of promise. One such approach, exemplified in the article by Bower and Snow (this guidebook), involves constituent analysis of ceramic raw materials and focuses on the movement of goods within and between communities.

Bower and Snow use x-ray fluorescence techniques to analyze ceramic samples from over a dozen historic pueblos in the Rio Grande valley and early Spanish settlements along the Santa Fe River. Although the results of the analysis must be considered preliminary, the fact that they are able to demonstrate significant differences in ceramic raw materials between the various pueblo sites suggests that they may be able eventually to discriminate between historic ceramic production centers and measure ceramic exchange and social interaction among early historic population centers in the northern Rio Grande.

These kinds of studies should eventually provide important information on prehistoric social and economic interaction in the northern Rio Grande. Such studies, for example, might help us to test the hypothesis proposed by Cordell (this guidebook) regarding the extent of pre-contact social interaction among the late prehistoric pueblos of the Rio Grande and the effects of Spanish intrusion on those pre-contact interaction patterns.

The history of human occupation of the Rio Grande valley of northern New Mexico is rich and extremely complex. The papers that follow reduce some of the inherent complexity. In the process, they contribute to the evolution of prehistoric research on one of America's most historic rivers.

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Man with horse (at what is now Kit Carson State Park), 1920's(?). Photographer unknown.