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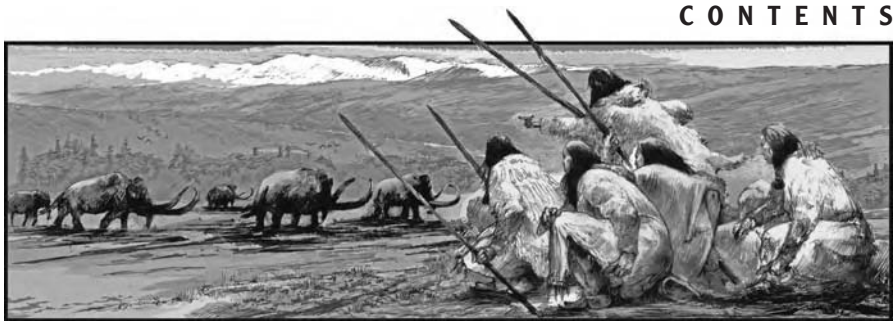

Robert H. Brunswig and Bonnie L. Pitblado

Introduction

The state of Colorado has, since the dawn of Paleoindian archaeology, occupied a central position in the field, both geographically and intellectually. Several Paleoindian "firsts," a suite of archaeological characters in the discipline's colorful cast, and many methodological and theoretical innovations can all be linked to three-quarters of a century of Colorado Paleoindian archaeology. Advances in Colorado Paleoindian archaeology often either presaged or unfolded in lockstep with developments in North American Paleoindian archaeology as a whole.

It is true that Blackwater Draw's Locality 1, near Clovis, New Mexico, won the right to name the continent's earliest sustained human culture by virtue of the clear association there of large, fluted spear points and megafauna remains. However, the Dent site, located near present-day Greeley, Colorado, had yielded similar evidence several years earlier. But because in 1932 archaeologists had not

yet distinguished chronologically later Folsom fluted points from what would soon be forever known as "Clovis," the Dent site—and Colorado—ceded the honor of labeling the first named Paleoindians to New Mexico. This accident of fate, however, does not change the fact that the earliest scientific excavation of a Clovis site is rightfully attributed to Father Conrad Bilgery of Denver's Regis College (now Regis University) and occurred in Colorado.

If we were to poll a roomful of archaeologists, asking them to name Paleoindian archaeology's most noteworthy forefathers and mothers, we would likely engender substantial debate with regard to the former but virtually none with regard to the latter. Marie Wormington was born in Denver in 1914, studied archaeology under the University of Denver's E. B. Renaud, and served as curator of archaeology at the Denver Museum of Natural History for over thirty years. She undertook excavations at such important Colorado Paleoindian sites as Frazier, mentored future Paleoindian scholars like Henry and Cynthia Irwin, and wrote the still-cited classic book *Ancient Man in North America* (1957). Marie Wormington was Colorado born and bred, and she embodies Paleoindian archaeology to this day.

As early as the 1930s, Wormington's own mentor, E. B. Renaud, recognized the importance of systematically cataloging diagnostic Paleoindian artifacts from private collections and very large survey projects—a methodology alive and well today in Colorado and beyond. Renaud had a profound effect on the future of Paleoindian archaeology by training such well-known scholars as John Cotter, who would later put Blackwater Draw on the map (and seal Dent's fate as a Clovis type-site also-ran) and, of course, Wormington herself, who passed along her knowledge to so many others.

In the 1950s–1970s, Joe Ben Wheat pioneered meticulous excavation techniques and taphonomic studies while advancing new assessments of Paleoindian projectile point typology and reinforcing the importance of collaborative efforts with paleoecologists, geologists, and others. We suspect that few scholars who today excavate Paleoindian sites in Colorado—or anywhere in the Western Hemisphere—would or could deny the influence Wheat's work at Olsen-Chubbuck and Jurgens had on their field methodologies and interpretations. Wheat, like Wormington and Renaud, also helped advance the careers of many other scientists, including, for example, Colorado's preeminent paleoecologist, Linda Scott Cummings, who collaborated with him at Jurgens in the 1970s as Linda Scott and coauthored two chapters for this book.

In 1962, Wilfred Husted completed a master's thesis that developed an archaeological chronology for Colorado's Rocky Mountain National Park. Just a few years later, he proposed the then-revolutionary idea that mountain Paleoindian people were different from those in other regions—and worth studying. Colorado-based James Benedict took Husted's idea to heart, as he eventually became one of the founders and—for the past several decades—best practitioners of high-altitude archaeology in North America. The recognition that the Rocky Mountains were far more to Paleoindian people than a physical impediment that kept them from

traveling between the Plains and the Great Basin (both with better-known records) changed Paleoindian archaeology in the western United States. Prominent archaeologists like George Frison soon initiated hunts for mountain Paleoindian sites, and, in Frison's case, his interest in the Rockies continues, as he explains in the afterword to this volume. In Colorado, the change in geographic focus was so profound that today, nearly *all* Paleoindian research is taking place in mountain settings. The research of the classic Dent, Lindenmeier, Jones-Miller, Olsen-Chubbuck, Jurgens, Frazier, Claypool, and other plains sites has largely given way to work in Colorado's major parks and high mountains. Archaeologists in other states—Frison is one; others include Marcel Kornfeld, Mary Lou Larson, and many of their students—are also following this Colorado-centered trend, placing new emphasis on the mountains in their neighborhoods as well.

In many ways, Colorado has long been a trend-setting center of Paleoindian archaeology in the western United States. What happens in Colorado is often cutting-edge, both methodologically and theoretically. At a bare minimum, Colorado Paleoindian archaeology can, at any given moment, be viewed as a snapshot of Paleoindian archaeology in general, certainly of Paleoindian archaeology in the West. This is as true today as it ever was, and it forms the fundamental rationale for this book. This volume showcases recent work on Colorado Paleoindian sites and paleoenvironments, ca. 11,800–7,500 radiocarbon years ago (RCYBP)—work that is important not only for its new and emerging methods, interpretations, and theoretical shifts but also as a representation of the "state of the art" of Paleoindian archaeology today in the western United States and perhaps beyond. In reviewing this book's chapters, readers will learn about the latest Clovis through late Paleoindian research in Colorado but will also detect the pulse of the larger discipline.

In a very real sense, *Frontiers of Colorado Paleoindian Archaeology* rests on a foundation built by another volume of collected Paleoindian studies published fifteen years ago and also focusing on the mountains of the American West: *Ice Age Hunters of the Rockies* (1992), edited by Jane Day and prominent Colorado Paleoindian archaeologist Dennis Stanford. *Ice Age Hunters of the Rockies* was based on a 1988 symposium held at the Denver Museum of Natural History and, like this volume, was produced by the University Press of Colorado.

The first of three major parts of this volume, "Environmental and Archaeological Context," weaves together these threads of historical contextual data, establishing in detail the scientific foundations of Paleoindian research that archaeological and paleoecological research has built over the past seventy-five or so years. The second part, "New Research at the Dent Clovis Site, Northeastern Colorado Plains," presents four recent, interrelated studies of the seminal Dent Clovis site, located on the short-grass prairie of northeastern Colorado. The Dent studies are important for several reasons, among them that earlier interpretations of this earliest-excavated Clovis site have always been highly controversial, and new lines of investigation have been sorely needed for decades; that the part's studies showcase

innovative methodologies for studying faunal remains; and that its studies represent the only substantial new body of work in Paleoindian archaeology on the Colorado plains in the past two decades. The final section of the book, "New Research in the Colorado Rocky Mountains," assembles four studies set in Colorado's southern Rocky Mountains—as we have noted, the new research area of choice for most Paleoindian scholars working in the state today.

The structure of this volume intentionally reflects and reinforces content shifts, even paradigm shifts, through seven-plus decades of research in Colorado Paleoindian archaeology: from building foundations for the discipline, to a mid-twentieth-century focus on the classic plains megafauna kill and camp sites that put Colorado on the archaeological map (represented by Dent), to the current preoccupation of most Colorado Paleoindian archaeologists with the Rocky Mountains. In the remaining paragraphs, we briefly overview what readers will find in each chapter, and, in the interest of our historical perspective, we take the opportunity, as appropriate, to comment on obvious earlier Colorado influences on the researchers.

Part 1 of the volume consists of two chapters, one summarizing what we have learned to date about Colorado paleoenvironments, the other what we have learned about the Paleoindians who experienced them. James Doerner's Chapter 1 contribution, "Late Quaternary Prehistoric Environments of the Colorado Front Range Rocky Mountains," casts the widest net of any chapter in the volume. Doerner provides a review of over thirty years of glacial chronology and paleoecological research that have revealed how environmental conditions shifted in Colorado during the latest Pleistocene and Holocene. His geographic scope and time frame encompass those of all other contributors to the volume, so readers may cross-reference archaeological data with Doerner's paleoenvironmental reconstructions. Doerner's chapter also provides a point of departure for Linda Scott Cummings and colleagues' Chapter 7 evaluation of methodological problems with some paleoenvironmental studies—including some mentioned by Doerner—and suggestions for resolving them.

The second chapter in Part 1 serves as an archaeological counterpoint to Doerner's paleoenvironmental overview and expands thoughts offered earlier in this introduction. In Chapter 2, "That Was Then, This Is Now: Seventy-Five Years of Paleoindian Research in Colorado," we provide a comprehensive discussion of the "who, what, where, why, and how" of Colorado Paleoindian archaeology from its inception in the 1930s through today. We present this information chronologically, from earliest to most recent investigations. We touch on major survey projects, excavations, and studies of assemblages; address work in the state's eastern plains and the Rocky Mountains in the west and note the profound shift in research emphases through time from the former to the latter; and point out similar shifts in research interests and methodologies through time. In so doing, we provide intellectual context that spotlights the influences upon, and inspirations for, research presented in the book's next eight chapters.

Part 2's chapters cumulatively represent results of new work at the Dent Mammoth Site. Robert Brunswig begins his Chapter 3 by expanding upon the history of work at the site, briefly described in Chapter 2. He follows with a discussion of the scope of recent fieldwork and laboratory studies and concludes with a litany of geoarchaeological and archaeological conclusions drawn by him and his collaborators. The three chapters that follow—written by those collaborators, and very much in the methodologically innovative and interdisciplinary-focused spirit of Joe Ben Wheat decades earlier—provide much of the evidence for Brunswig's and his colleagues' interpretations regarding season(s) of mammoth death, degree of human involvement in the deaths, number of kill events, and even mammoth land-use strategies.

Daniel Fisher and David Fox's "Season of Death of the Dent Mammoths: Distinguishing Single from Multiple Mortality Events" (Chapter 4) addresses the enduring question of whether the fourteen mammoths at Dent represent one or multiple kills. Their methodology combines analysis of tooth-dentin accretion and oxygen isotopes. Jeffrey Saunders's Chapter 5 reports his evaluation of mammoth bone modification as the means for inferring the number of kill events at Dent and the manner of processing the bones. Finally, Linda Scott Cummings—long ago a Joe Ben Wheat collaborator—and Rosa María Albert offer in Chapter 6 their study of phytoliths extracted from Dent mammoth teeth, which inform the other chapters' interpretations of season of death and mammoth foraging strategies.

Like the Dent mammoths, which both Brunswig and Cummings and Albert suggest may have spent part of the year grazing in the Front Range foothills and mountains, Part 3 chapters report on new investigations relating to Paleoindian use of the Colorado Rocky Mountains. Cummings, in collaboration with R. A. Varney and Reid Bryson, contributes Chapter 7, which points out that many studies attempting to reconstruct paleoenvironments are methodologically flawed because they fail to sample sediments (and pollen therein) at sufficiently frequent intervals. Cummings, a pioneer not only in paleoecological reconstructions but in Colorado archaeology generally, has teamed with Varney and Bryson to offer practical solutions to this problem and illustrates their suggested methodology and comparison with Bryson's innovative archaeoclimatic modeling through her recent work at the KibRidge-Yampa Paleoindian site in the rugged uplands of northwestern Colorado. Cummings, Varney, and Bryson build neatly on the synthetic overview of earlier paleoecological studies presented by Doerner in Chapter 1, ultimately providing cutting-edge ideas for how to improve paleoenvironmental investigations in general—that is, worldwide—henceforth.

Todd Surovell and Nicole Waguespack's Chapter 8 presents detailed spatial analyses of cultural deposits at the Barger Gulch Folsom site in Middle Park. Their work, which convincingly argues for the presence of a hearth in the absence of obvious remnants thereof in the field, is clearly inspired in part by groundbreaking work at Cattleguard and other San Luis Valley, Colorado, Folsom sites by Margaret (Pegi) Jodry, herself influenced by Colorado Paleoindian icons like Wormington,

Wheat, and Stanford. Surovell and Waguespack's exploration of whether there may have been a structure at Barger Gulch during Folsom time is both timely—given recent claims for a wintertime residential structure at the Mountaineer site, further south in the Gunnison Basin—and exemplary in the attempt they make to scientifically demonstrate the presence of a structure. Surovell and Waguespack provide methodological blueprints adapted from recent European Paleolithic archaeology that will be immediately useful to any archaeologist looking to substantiate the presence of features at ephemeral hunter-gatherer sites where evidence is subtle at best. That describes most, if not all, Paleoindian sites in the Rockies and everywhere else, but also many other sites of various ages and in various environments around the world.

Our respective Chapters 9 and 10, finally, focus on what finds of Paleoindian spear points in the Colorado Rocky Mountains "mean" and can tell us about the people who used them. Our work harkens back to the early surveys of E. B. Renaud and his students in the 1930s, with other inspirations ranging from Wheat's suggested Paleoindian projectile point typologies of the 1960s–1970s to James Benedict's work in the high country of the Indian Peaks Wilderness Area over the past three decades. Brunswig's Chapter 9 examines distributions of Paleoindian points and sites in the north-central Colorado Rocky Mountains, utilizing a synthesis of published and unpublished archaeological reports and Geographic Information System (GIS) technology to model settlement pattern evolution from earliest to latest Paleoindian times. Pitblado's Chapter 10 attempts to clarify what she sees as rampant confusion over how researchers should label mostly parallel-obliquely flaked late Paleoindian spear points found in the Colorado Rockies. Pitblado evaluates Brunswig's Chapter 9 findings as a case study to demonstrate why archaeologists working in the Rockies would benefit from a clearer understanding of variability in the late Paleoindian point types most commonly found there.

While in virtually every case Paleoindian researchers working in Colorado today can point to concrete inspirations in the past for their work in the present, they also bring a plethora of new techniques, technologies, and ideas to the table. Where early archaeologists worked alone, we now almost universally work in teams of sometimes dozens of interdisciplinary collaborators. Where once researchers organized their archaeological pursuits around the latest find of a Colorado rancher, current research programs operate deductively, locating and excavating sites on the basis of larger research questions. Where E. B. Renaud recorded points and private collections and plotted them on maps, we import those data into GIS programs and perform detailed spatial analyses of their locations on the landscape and their relationship to topographic variables and natural resources. Early excavators relied on tape measures and transits; we map our finds with total stations and high-resolution Global Positioning System (GPS) instruments, download the data into our computers, and manipulate them with powerful mapping and statistical software. Even our writings benefit from the advent of computer programs

like *Adobe Illustrator,* which permit us to readily produce crisp, publication-ready images of our finds.

We invite readers to enjoy Chapters 1 and 2, which are a tribute to the researchers who have brought us to where we are today, and then to read the rest of the book, where we—researchers of today—blend the lessons of our archaeological forefathers and foremothers with the suite of new research tools at our disposal. Collectively, the authors of this volume are part of a much larger community of archaeologists and specialists in allied disciplines who are striving to advance the science of Paleoindian archaeology in Colorado and beyond. The book's contributions reflect the "state of the art" of Paleoindian archaeology generally and offer new methodologies that we hope will inform and stimulate both our colleagues and the knowledgeable public intrigued by the unfolding story of America's first colonists.