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CHANGING HISTORIES, LANDSCAPES, AND PERSPECTIVES

The 20th Anniversary Southwest Symposium

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MARGARET C. NELSON AND COLLEEN STRAWHACKER

The U.S. Southwest arguably has the highest density of archaeologists in the Americas, with hundreds of surveys and excavations conducted annually. In 1927 the Pecos Conference was established by A. V. Kidder as the meeting place for Southwest archaeologists and has continued as a vital and successful annual gathering, focused on recent findings from the region. In 1988, two leading archaeologists, Paul Minnis and Charles Redman, introduced a second, regional conference—the Southwest Symposium—to provide a forum for discussing how insights gained from research in the Southwest United States and northern Mexico can contribute to methodological, theoretical, and substantive issues in archaeology. The symposium has resulted in a series of publications of collected papers on key issues to archaeologists (Cameron 1995; Fish and Reid 1996; Hegmon 2000; Mills 2004; Minnis and Redman 1990; Schlanger 2002; Spielmann 1995; Villalpando 2002; Wills and Leonard 1994). As a set, they map the changing priorities of the field and the role Southwest archaeology has played in its recent history.

The inaugural symposium in 1988 had sessions on the classic themes of hunter-gatherers, sedentary life, and elites, organized in that order (Minnis and Redman 1990). Subsequent sessions shifted focus from these “levels of social organization” or “modes of subsistence” to issues of community organization and dynamics (Wills and Leonard 1994), scale (Fish and Reid 1996; Hegmon 2000), production and exchange (Fish and

Reid 1996; Hegmon 2000), technology and technological strategies (Fish and Reid 1996; Schlanger 2002), gender (Spielmann 1995), migration (Cameron 1995), regional interaction and boundaries (Hegmon 2000; Villalpando 2002), agricultural transitions (Schlanger 2002), identity, affiliation, and feasting (Mills 2004). These topics represent a broad sweep of the issues of interest to all archaeologists, and the published volumes have made substantial contributions to the field.

In 2008, the twentieth anniversary of the symposium, scholars took a look back at the issues raised in the first symposium and tackled three contemporary domains in archaeology: landscape use and ecological change, movement and ethnogenesis, and connectivity among social groups through time and space. Although the Southwest United States and northern Mexico have a rich and fine-grained record of past environments and climate, the Southwest Symposium had never focused a session entirely on landscape change from an ecological perspective. This domain of research and explanation offers numerous, current examples of collaboration across disciplines and efforts to address the relevance of archaeology outside our profession, as illustrated in Part II of this volume. Movement and ethnogenesis (Part III) are themes that emerge from migration research in archaeology, which Gilman and Whalen (Part I, this volume) see, and we agree, is a strong emphasis, perhaps even a fixation, of Southwest archaeology in the past decade or so, with some of the most varied and innovative approaches to understanding human movements. Finally, connectivity is an emerging focus in Southwest research (Part IV), bringing new ideas about time and space relationships that stimulate us to broaden our views from the single period and place of most archaeological research to the connections across broad areas and over long time spans, including into the present.

These four sections are cross-cut by three themes, which have influenced the research and interpretations presented here as well as the authors' calls for changes in practice: (1) considerations of the relevance and value of archaeology, (2) emphasis on collaboration across disciplines and communities and within the various archaeological subgroups, and (3) valuation of multiple perspectives and diversity of explanations. We first offer an introduction to each of the four sessions in the 2008 Southwest Symposium that form the four parts in this book. We then examine the themes that cross-cut the sections and influence much of current research in the Southwest United States and northern Mexico. The chapters differ in the terminology used to describe the region encompassed by the four corner states of the southwestern United States and the northern states of Mexico. Some refer to the region as the Southwest, others as the Southwest/Northwest, and still others using the modifiers U.S. and American. We have not standardized this terminology because it reflects different perspectives and ongoing discussion about the region.

PART I: PAST AND PRESENT ISSUES

How have the priorities of Southwest archaeology changed? How has archaeological research in the Southwest United States and northern Mexico influenced the field in general? The Southwest Symposium has served as a forum for new ideas, and this

volume is no exception. Session organizers and participants from the inaugural 1988 symposium revisited the topics of that first symposium, examining not only changes in our intellectual contributions but innovative future directions as well. Their key topics—hunter-gatherers, transitions to sedentism, elites and regional systems, and the prehistoric to historic transition—have been central to archaeological research not only in the Southwest United States and northern Mexico but throughout the Americas. In the first section of this book, each topic is addressed in a single chapter. As a set, the chapters cover a wide temporal range, from the Archaic to the Protohistoric Southwest, while stressing the need to expand the areal scope of research to include northern Mexico and the need to take a broad view of historical trends and connections in time and space, foreshadowing the final section of this volume on connectivity.

In addition, the inaugural symposium had a session on the history of archaeology in the U.S. Southwest, examining and analyzing the sequence of contributions made up to the late 1980s. While all the chapters in the first part of this book address historical trends, the final chapter by Reid focuses explicitly on the contributions of Southwest research.

PART II: LANDSCAPE USE AND ECOLOGICAL CHANGE

The role of environment, especially climate, in the patterns of change across the Southwest United States and northern Mexico has been a central research theme in archaeology for many decades. The arid to semiarid character of the landscape invites explanations of change that identify drought, climate variability, and resource declines as causal. Environmental research has been led by Jeffrey Dean, who has played a leading role through his dendroclimatological analyses (Dean 1988, 1996; Dean, Doelle, and Orcutt 1994; Dean et al. 1985; Dean and Robinson 1978; Dean and Van West 2002; Force et al. 2003; Van West and Dean 2000). Some early work on landscapes took a non-site approach to documenting the organization of human activities (e.g., Rossignol and Wandsnider 1992). Recently, environment, climate, and landscape have reemerged as central foci of Southwest research (Cordell et al. 2007; Doyel and Dean 2006; Ingram 2008; Kohler 1992; Kohler and van der Leeuw 2007; Kohler et al. 2000; Nelson and Schollmeyer 2003; Nelson et al. 2006; Spielmann et al. n.d.; Van West 1996; Van West and Altschul 1997). But no Southwest Symposium, or session within the symposium, has specifically focused on the contributions of archaeological studies to understanding human-environment interactions and landscape use.

The chapters in this second part address current trends and insights on landscape use and ecological change, presented at the 20th Anniversary Southwest Symposium. Emphasizing the two-way interaction between humans and various aspects of environments, from soils to fauna to plant communities, this set of research papers touches on the major themes in ecological research of the prehistoric Southwest and in archaeology more generally. The chapters also represent current directions in collaborative research concerned with the dynamic and iterative impacts of human-environment interaction, the enhancement as well as the depression of resources by humans, and the long-term consequences of both. The authors call for archaeologists' fuller collaboration and dialogue on issues, theory, and methods with ecologists, soil scientists, and other specialists

who can add their theoretical expertise to that of archaeology, enhancing exploration of the interaction between prehistoric behavior and the environment.

PART III: MOVEMENT AND ETHNOGENESIS

The subject of prehistoric movements across the U.S. Southwest and northern Mexico has been part of the history of archaeology in the region for decades (Bernardini 2005; Cameron 1995; Cordell 1975, 1995; Fewkes 1900; Fish et al. 1994; Gilman 1997; Hard and Merrill 1992; Haury 1986 [1958]; Lyons 2003; B. Nelson and Anyon 1996; M. Nelson 1999; Powell 1983; Preucel 1988; Reid and Whittlesey 2007; Rocek 1996; Schlanger and Wilshusen 1993; Spielmann 1998; Stark, Clark, and Elson 1995; Varien 1999; Whalen and Gilman 1990; Wilshusen and Ortman 1999) and a common theme in Southwest symposia. The inaugural Southwest Symposium in 1988 included several papers (Minnis and Redman 1990) on movement that were concerned with adaptive strategies of hunter-gatherers and transitions to sedentism. In the early to mid-1990s, discussions of movement at the Southwest Symposium addressed the decoupling of subsistence and aggregation from mobility (Rocek 1996) and issues of recognizing and understanding processes of migration (Lekson and Cameron 1995). Scholars working in the Southwest United States and northern Mexico have been concerned with understanding different kinds of movement, from annual cycles to population shifting and reorganization to migration. We have vacillated about the value of studying migration, driven by our views about the appropriate methods and explanations of archaeological phenomena (Cameron 1995; Ortman and Cameron, this volume).

At the 20th Anniversary Southwest Symposium, archaeologists returned to a comparative approach to understanding movement, but with new ideas about the value of that approach. The goals of the four comparative studies, according to Ortman and Cameron, are to examine the archaeological visibility of migrants, understandings of how people moved, and social consequences of migrations, especially at destinations. They emphasize social consequences and the role of movement in identity formation. While the authors do explore the reasons for migration out of a region, they highlight the effects of migrating groups into a new region.

Further, Ortman and Cameron, as well as Mills in her discussion of the chapters at the end of this section, argue that archaeology can play a valuable role in the development and refinement of migration theory. The comparative case studies in this section offer insights that can inform migration theory, such as recognizing (1) that the role of first comers is not necessarily one of dominance over land or ideology (Bernardini and Fowles), (2) that there are different processes and consequences of standing out as opposed to blending in to destination communities (Stone and Lipe; Clark and Laumbach), and (3) that ethnogenesis and new identity formation resulting from movement deserve attention (Anschuetz and Wilshusen).

PART IV: CONNECTIVITY AND SCALE

Archaeologists working in the Southwest United States and northern Mexico have been concerned with how the scale of phenomena, both spatial and temporal, influ-

ences explanations of the past. In particular, Southwest scholars have recognized that social change is influenced to varying degrees by connections that are local, regional, and pan-regional and by events and processes that reverberate across social landscapes at various scales (e.g., Lekson 1996; Lekson, this volume; B. Nelson 1995, 2006). From the second Southwest Symposium, which focused on community dynamics, through subsequent symposium sessions on geographic and demographic scales (Fish and Reid 1996), regional interactions (Hegmon 2000), and feasting and politics (Mills 2004), interaction at various scales has been an important focus.

Currently, new ideas are emerging from research explicitly exploring spatial and temporal connectivity at varying scales. Spatial connectivity refers to the influence of people, processes, and events in one area on those in another. This connectivity can be intentionally constructed through movements of people, ideas, and goods, but it may also be an unintended consequence of events or processes at considerable distance. For example, the roughly synchronous, dramatic changes that occurred in the Mimbres, Hohokam, and Chaco regions in the eleventh and twelfth centuries surely were connected, perhaps in many unintentional ways. Temporal connectivity focuses on the ways referencing the past influences the present and potentially directs the future. Here both landscapes and ancestral people become important (Anschiuetz and Wilhusen, this volume). Many examples from modern Native people express the value of temporal connectivity. Archaeologists have acknowledged these spatial and temporal connections but have not systematically examined them as drivers of culture change and continuity.

The chapters in this section represent emerging ideas about constructed and unintentional connectivity. Some examine conscious linking of people to landscapes as well as to others in past homelands, contributing new ideas to understanding the processes of interaction and movement of various kinds, including migration, diaspora, and pilgrimages. Lyons, Hill, and Clark address diaspora from the northern Pueblo region to the Hohokam in southern Arizona. They explore the role of both connectivity and conflict in regional collapse and depopulation. The temporal connectivity that rests on ancestral spirits and significant places is explored as a way to understand identity and cultural landscapes. Van Dyke describes this dynamic for the Pueblo I period along the San Juan River in the northern Southwest, emphasizing the role of highly visible landforms in the formation of landscapes of memory. Koyiyumptewa and Colwell-Chanthaphonh examine contemporary Hopi connections to the past, describing how Hopi animate their landscape and, through these perspectives, connect to the past. Schachner's view of connectivity is both temporal and spatial; he discusses connectivity as mediated through the ceremonial use of unusual natural places on the landscape. Through the use of these places, people remain connected to their past and have the opportunity to continually reestablish connections to distant others who they encounter on scheduled pilgrimages.

The topic of connectivity itself is one of contemporary interest as we look to the globalization of economies, social practices, and ideologies. While the connectivities discussed in this set of chapters do not address the global scale, they are concerned with broad spatial and deep temporal scales of connection. The broadest is Lekson's call for attention to continental-scale connections.

RELEVANCE, COLLABORATION, AND DIVERSITY

Cross-cutting and integrating the various topics, regions, and perspectives brought to the 2008 Southwest Symposium, the themes of relevance, collaboration, and diversity are reiterated by many authors. These are not unique to Southwest archaeology, but the chapters in this volume make a strong contribution to each theme, bringing new insights to the practice of archaeology.

Relevance

The archaeologists represented in this volume challenge those studying in the Southwest United States and northern Mexico to explore ways to become more relevant to a dynamic, modern world. This shift is in part attributable to the voices of Native Americans, urging archaeologists to involve them in their thinking about the past (e.g., Swidler et al. 1997). The call for relevance may also be influenced by increasing collaborations with those in other fields, especially ecology, that have brought into sharper focus the value of long-term perspectives of archaeological research to issues of social and environmental change, human impacts on environment, and sustainability (Kirch 2005; Morrison 2006; Redman and Kinzig 2003; van der Leeuw and Redman 2002). Minnis and Redman, in their introduction to Part I, argue that establishing the relevance or value of Southwest archaeology beyond our profession is essential to our future. They primarily discuss their approaches through human ecology but urge other efforts toward relevance to non-archaeologists.

Van West, in her introduction to Part II, argues for the essential relevance of archaeological research to contemporary issues on two bases—first, that humans are an integral component of ecosystems, and second, that we cannot adequately understand or manage socio-natural systems without long-term perspectives on human-environment dynamics. Collaboration among various social and natural scientists is essential to this understanding. She and co-organizer Spielmann have brought together researchers from an array of disciplines and specialties to focus on the value of the past for understanding anthropogenic environmental change.

Ortman and Cameron, in the introduction to Part III, argue that archaeological research on migration offers the potential for informing modern policy: “Deeper understanding of the causes and long-term consequences of migration in the past has the potential to inform contemporary public policy debates” (Ortman and Cameron, this volume, p. 233). Their point is illustrated by the insights offered in many of the chapters regarding land tenure, claims by different waves of migrants, and varied processes of integration with host communities.

Finally, Kantner, introducing Part IV, bemoans the myopic nature of much archaeological work but asserts that “in recent years the discipline has made a concerted effort to be more relevant, not only in interpreting the past in human terms but also in making more direct contributions toward understanding the future” (Kantner, this volume, p. 363). Closing out this section of the book, Duff identifies a variety of ways the authors writing about connectivity address the call for “broader impacts” of their research. He identifies the educational value of large-scale databases compiled by dozens of projects

conducted over decades. In addition, he sees a broader impact in the role of archaeology toward enriching the public's perspective of underrepresented groups—Native Americans in the Southwest—and encouraging minority participation in science, as exemplified by the many collaborations with Native American people that support the work reported in the chapters in this book.

Collaboration

The authors in this volume call for broad collaboration, as well as engagement with diverse communities of scholars, Native people, and interested citizens. Strong emphasis on collaboration has changed the perspectives we take and the questions we address, as well as the way we do archaeology in the Southwest United States and northern Mexico. Minnis and Redman emphasize the strides that have been made through collaboration with Native Americans, echoed in chapters by McGuire and Doelle. These collaborations bring into view discussions of the value of archaeological research to various communities, which Minnis and Redman argue ranges from the intrinsic value of exploring the past to the assertion that the world cannot be understood without the perspective brought by archaeological research. McGuire argues that changes in approaches to social relations—from an emphasis on power and inequality to relations among identity, migration, and ritual—are influenced in part by the expanded collaborations between Native people and non-Native archaeologists. This shift, he argues, has fundamentally changed our debates and our perspectives on explanation. Categorical explanations are being replaced by a relational approach; we have replaced debate over how complex a social group is with debate over the relationships among politics, ritual, migration, and identity that influence social constructions.

The chapters that form Part III on movement and ethnogenesis and Part IV on connectivity illustrate well the advantages of collaborations and consultations with Native Americans. According to Ortman and Cameron, movement has become a central theme in research because of “effective and regular communication” between archaeologists and Native Americans. All of the four comparative studies on movement rely on the perspectives Native Americans bring to movement and identity, especially Bernardini and Fowles’s examination of movements and social change among the Hopi and Tiwa and Anschuetz and Wilshusen’s analysis of ethnogenesis for the Tewa and Navajo. Bernardini and Fowles point to the difference in the depth of understanding possible in two cases, one of which benefits from considerable input of Native perspectives and the other that suffers from less input. The contribution by Koyiyumptewa and Colwell-Chanthaphonh exemplifies the value of collaboration and speaks directly to the relevance of our work beyond archaeology. Their work with Hopi people provided understanding of the nature of their connections to past people, places, and landscapes. They acknowledge the difference between traditionalist Hopi approaches to this connectivity and those of archaeologists and note the importance of recognizing this distinction for better addressing heritage issues of preserving traditional cultural property. They also suggest that beginning with an indigenous perspective—what they call “reverse archaeology”—can enrich archaeological method and theory. In a similar

vein, Van Dyke argues that physical landscapes are imbued with meaning in the lives of people that reinforce past and present identities and can thus inform our understanding of changing identities in the past. Schachner also emphasizes the importance of understanding contemporary Native peoples' connections to features of landscapes, as expressed in songs and prayers: "Collaboration with Native peoples in the study of landscape use is likely to provide greater detail for understanding how pilgrimage connects people, places, and time periods" (Schachner, this volume, p. 428).

Others emphasize collaboration with those in other academic disciplines. The chapters by Johnson and Spielmann and her colleagues in Part II are from large, interdisciplinary research programs. The Village Ecodynamics Project, focused on the Mesa Verde area in the Four Corners, and the Legacies on the Landscape Project, focused on Perry Mesa in central Arizona, address the consequences of human action, both short and long term. They illustrate the call for collaboration and the benefits of research across varied disciplines.

In addition, some authors acknowledge great strides made through dissolution of the boundaries between contract and academic archaeology, and their chapters illustrate that progress. Contract-funded research has contributed larger databases and larger research teams than were the norm twenty years ago. The chapters in this book benefit from efforts to engage traditional as well as new collaborators and build common understanding across histories, philosophies, and disciplinary training. In Part I, McGuire's chapter and those of Vierra, Gilman and Whalen, and Doelle benefit from collaborations between contract-funded and academic research. Doelle notes that most of the information about the Protohistoric in the southern Southwest has come from contractually funded research.

Diversity

Diversity of perspectives has been a hallmark of Southwest archaeology and is a major contribution of this volume. The authors bring a diversity of perspectives for a deeper and fuller understanding of the past. Some also document shifts in the diversity of explanations and greater recognition of the variability in the phenomena to be explained. As our foundations of information expand with each generation of research, we recognize more variability and diversity, and as our debates deepen, they drive new ideas that expand our approaches to understanding the past. In reviewing changes of perspective since the late 1980s (Part I), Vierra argues that the issues of research on foraging societies in the Southwest have not changed but that the diversity of data and variability in the patterning change the explanations, making them more contextualized. Gilman and Whalen, as well as McGuire, note the shift from categorical explanations and debates to a more nuanced consideration of human actions and social contexts. Gilman and Whalen, in their review of research on mobility, see a change from a dichotomized study of sedentism and mobility to a fuller view of the ways humans move and settle on landscapes and the kinds of factors that influence movement. Emphasis on environment-based explanations and processual arguments is expanded to include a variety of social conditions and arguments that consider social action and human

agency. McGuire documents a shift from debates about levels of complexity to explanations of how social power and inequality are constructed and expressed. Discussion of power and inequality has shifted to understanding ritual, migration, identity, and religious practice, and McGuire argues that future research will benefit from examining the relationships among and around these aspects of human experience.

One set of chapters illustrates the ways diverse ideas brought to a common problem—understanding anthropogenic change—can enrich understanding. Adams, an archaeobotanist, Driver, a zooarchaeologist, and Sandor and Homburg, soil agronomists, all examine archaeological data to document both intended and unintended impacts of human action on the environment. They illustrate the dynamic relationship of human-environment interactions in which human-induced changes impact ecosystems and those changes then impact human choices.

In line with the tradition of the Southwest Symposium and its initial mission, this book documents insightful, leading-edge contributions to archaeological research. The authors revisit past themes, introduce new ideas, and continue valuable discussion about issues essential to our understanding of prehistoric behavior across the Southwest United States and northern Mexico. Their efforts come together to provide a synthetic volume on current research and possibilities for future explorations. As the authors stress, it is essential that archaeologists continue to include researchers from across political and disciplinary boundaries and enhance collaboration with Native American groups.

REFERENCES

- Bernardini, W.
 2005 Reconsidering Spatial and Temporal Aspects of Prehistoric Cultural Identity: A Case Study from the American Southwest. *American Antiquity* 70(1): 31–54.
- Cameron, C. M.
 1995 Migration and the Movement of Southwestern Peoples. *Journal of Anthropological Archaeology* 14: 104–124.
- Cordell, L. S.
 1975 Predicting Site Abandonment at Wetherill Mesa. *Kiva* 40(3): 189–202.
 1995 Migration Pathways from the Receiving End. *Journal of Anthropological Archaeology* 14: 203–211.
- Cordell, L. S., C. R. Van West, J. S. Dean, and D. A. Muenchrath
 2007 Mesa Verde Settlement History and Relocation: Climate Change, Social Networks, and Ancestral Pueblo Migration. *Kiva* 72(4): 391–417.
- Dean, J. S.
 1988 Dendrochronology and Paleoenvironmental Reconstructions on the Colorado Plateau. In *The Anasazi in a Changing Environment*, ed. G. J. Gumerman, 119–167. Cambridge University Press, Cambridge.
 1996 Demography, Environment, and Subsistence Stress. In *Evolving Complexity and Environmental Risk in the Prehistoric Southwest: Proceedings of the Workshop, "Resource Stress, Economic Uncertainty, and Human Response in the Prehistoric Southwest," Held February 25–29, 1992 in Santa Fe, NM*, ed. J. A. Tainter and B. B. Tainter, 25–56. Addison-Wesley, Reading, MA.

- Dean, J. S., W. H. Doelle, and J. D. Orcutt
1994 Adaptive Stress, Environment, and Demography. In *Themes in Southwest Prehistory*, ed. G. J. Gumerman, 53–86. School of American Research Press, Santa Fe.
- Dean, J. S., R. C. Euler, G. J. Gumerman, F. T. Plog, R. H. Hevly, and T.N.V. Karlstrom
1985 Human Behavior, Demography, and Paleoenvironment on the Colorado Plateau. *American Antiquity* 50(3): 537–554.
- Dean, J. S., and W. J. Robinson
1978 Expanded Tree-Ring Chronologies for the Southwestern United States. *Chronology Series* 3. Laboratory of Tree-Ring Research, University of Arizona, Tucson.
- Dean, J. S., and C. R. Van West
2002 Environment-Behavior Relationships in Southwestern Colorado. In *Seeking the Center Place: Archaeology and Ancient Communities in the Mesa Verde Region*, ed. Mark D. Varien and Richard H. Wilshusen, 81–100. University of Utah Press, Salt Lake City.
- Doyel, D. E., and J. S. Dean (editors)
2006 *Environmental Change and Human Adaptation in the Ancient American Southwest*. University of Utah Press, Salt Lake City.
- Fewkes, J. W.
1900 Tusayan Migration Traditions. In *Annual Report of the Bureau of American Ethnology for the Years 1897–1898*, part 2, 573–634. Government Printing Office, Washington, DC.
- Fish, P. R., and J. J. Reid (editors)
1996 *Interpreting Southwestern Diversity: Underlying Principles and Over-Arching Patterns*. Anthropological Research Papers 48. Arizona State University, Tempe.
- Fish, P. R., S. Fish, G. J. Gumerman, and J. J. Reid
1994 Toward an Explanation for Southwestern Abandonments. In *Themes in Southwest Prehistory*, ed. G. J. Gumerman, 135–165. School of American Research Press, Santa Fe.
- Force, E. R., R. G. Vivian, T. C. Windes, and J. S. Dean
2003 Relation of “Bonito” Paleo-Channels and Base-Level Variations to Anasazi Occupation, Chaco Canyon, New Mexico. *Journal of Anthropological Research* 59(3): 360–361.
- Gilman, P. A.
1997 *Wandering Villagers: Pitstructures, Mobility, and Agriculture in Southeastern Arizona*. Anthropological Papers 49. Arizona State University, Tempe.
- Hard, R. J., and W. L. Merrill
1992 Mobile Agriculturalists and the Emergence of Sedentism: Perspectives from Northern Mexico. *American Anthropologist* 94(3): 601–620.
- Haury, E. W.
1986 Evidence at Point of Pines for a Prehistoric Migration from Northern Arizona. In *Emil W. Haury's Prehistory of the American Southwest*, ed. J. J. Reid and D. E. Doyel, 414–421. University of Arizona Press, Tucson. Originally published 1958 in *Migrations in New World Culture History*, ed. R. H. Thompson. Social Science Bulletin 27. University of Arizona, Tucson.

- Hegmon, M.
2000 *The Archaeology of Regional Interaction: Religion, Warfare, and Exchange across the American Southwest and Beyond*. University Press of Colorado, Boulder.
- Ingram, S. E.
2008 Streamflow and Population Change in the Lower Salt River Valley of Central Arizona, ca. A.D. 775 to 1450. *American Antiquity* 73: 136–165.
- Kirch, P. V.
2005 Archaeology and Global Change: The Holocene Record. *Annual Review of Environmental Resources* 30: 409–440.
- Kohler, T. A.
1992 Prehistoric Human Impact on the Environment in Upland North American Southwest. *Population and Environment: A Journal of Interdisciplinary Studies* 13(4): 255–268.
- Kohler, T. A., J. Kresl, C. R. Van West, E. Carr, and R. Wilshusen
2000 There Then: A Modeling Approach to Settlement Determinant and Spatial Efficiency among Late Ancestral Pueblo Populations of the Mesa Verde Region, U.S. Southwest. In *Dynamics in Human and Primate Societies: Agent-Based Modeling of Social and Spatial Processes*, ed. G. J. Gumerman and T. A. Kohler, 145–178. Santa Fe Institute and Oxford University Press, Oxford.
- Kohler, T. A., and S. E. van der Leeuw (editors)
2007 *The Model-Based Archaeology of Socionatural Systems*. School for Advanced Research Press, Santa Fe.
- Lekson, S. H.
1996 Scale and Process in the Southwest. In *Interpreting Southwestern Diversity: Underlying Principles and Overarching Patterns*, ed. P. R. Fish and J. J. Reid, 81–86. Anthropological Research Papers 48. Arizona State University, Tempe.
- Lekson, S. H., and C. M. Cameron
1995 The Abandonment of Chaco Canyon, the Mesa Verde Migrations, and the Reorganization of the Pueblo World. *Journal of Anthropological Archaeology* 14(2): 184–202.
- Lyons, P. D.
2003 *Ancestral Hopi Migrations*. Anthropological Paper 68. University of Arizona Press, Tucson.
- Mills, B. J.
2004 *Identity, Feasting, and the Archaeology of the Greater Southwest*. University Press of Colorado, Boulder.
- Minnis, P. E., and C. L. Redman (editors)
1990 *Perspectives on Southwestern Prehistory*. Westview, Boulder.
- Morrison, K. D.
2006 Failure and How to Avoid It. *Nature* 440: 752–754.
- Nelson, B. A.
1995 Complexity, Hierarchy, and Scale: A Controlled Comparison between Chaco Canyon, New Mexico and la Quemada, Zacatecas. *American Antiquity* 60(4): 597–618.

- 2006 Mesoamerican Objects and Symbols in Chaco Canyon Contexts. In *The Archaeology of Chaco Canyon: An 11th Century Pueblo Regional Center*, ed. S. H. Lekson, 339–372. School of American Research Press, Santa Fe.
- Nelson, B. A., and R. Anyon
1996 Fallow Valleys: Asynchronous Occupations in Southwestern New Mexico. *Kiva* 61: 275–294.
- Nelson, M. C.
1999 *Mimbres during the Twelfth Century: Abandonment, Continuity, and Reorganization*. University of Arizona Press, Tucson.
- Nelson, M. C., M. Hegmon, S. Kulow, and K. G. Schollmeyer
2006 Archaeological and Ecological Perspectives on Reorganization: A Case Study from the Mimbres Region of the U.S. Southwest. *American Antiquity* 71: 403–432.
- Nelson, M. C., and K. G. Schollmeyer
2003 Game Resources, Social Interaction, and the Ecological Footprint in Southwest New Mexico. *Journal of Archaeological Method and Theory* 10(2): 69–110.
- Powell, S.
1983 *Mobility and Adaptation: The Anasazi of Black Mesa, Arizona*. Southern Illinois University Press, Carbondale.
- Preucel, R. W.
1988 Seasonal Agricultural Circulation and Residential Mobility: A Prehistoric Example from the Pajarito Plateau, New Mexico. Unpublished PhD dissertation, Department of Anthropology, University of California, Los Angeles.
- Redman, C. L., and A. P. Kinzig
2003 Resilience of Past Landscapes: Resilience Theory, Society, and the *Longue Durée*. *Conservation Ecology* 7(1): 14.
- Reid, J. J., and S. M. Whittlesey
2007 Migration, Population Movement, and Process at Grasshopper Pueblo, Arizona. In *Archaeology as Anthropology: Theoretical and Methodological Approaches*, ed. J. Skibo, M. Graves, and M. Stark, 218–235. University of Arizona Press, Tucson.
- Rocck, T. R.
1996 Sedentism and Mobility in the Southwest. In *Interpreting Southwestern Diversity: Underlying Principles and Overarching Patterns*, ed. P. Fish and J. G. Reid, 17–22. Anthropological Papers 48. Arizona State University, Tempe.
- Rossignol, J., and L. Wandsnider (editors)
1992 *Space, Time, and Archaeological Landscapes*. Plenum, New York.
- Schlanger, S. H. (editor)
2002 *Traditions, Transitions, and Technologies: Themes in Southwestern Archaeology*. University Press of Colorado, Boulder.
- Schlanger, S. H., and R. H. Wilshusen
1993 Local Abandonments and Regional Conditions in the North American Southwest. In *Abandonment of Settlements and Regions: Ethnoarchaeological and Archaeological Approaches*, ed. C. M. Cameron and S. A. Tomka, 85–98. Cambridge University Press, Cambridge.

- Spielmann, K. A.
 - 1995 Glimpses of Gender in the Prehistoric Southwest. *Journal of Anthropological Research* 51: 91–102.
 - 1998 *Migration and Reorganization: The Pueblo IV Period in the American Southwest*. Anthropological Research Paper 51. Arizona State University, Tempe.
- Spielmann, K. A., M. C. Nelson, S. Ingram, and M. A. Peebles
 - n.d. Sustainable Small-Scale Agriculture in Arid Environments. *Ecology and Society*, submitted for review.
- Stark, M. T., J. J. Clark, and M. D. Elson
 - 1995 Causes and Consequences of Migration in the 13th Century Tonto Basin. *Journal of Anthropological Archaeology* 14: 212–246.
- Swidler, N., K. E. Dongoske, R. Anyon, and A. S. Downer (editors)
 - 1997 *Native Americans and Archaeologists: Stepping Stones to Common Ground*. Rowman Altamira, Lanham, MD.
- van der Leeuw, S., and C. L. Redman
 - 2002 Placing Archaeology at the Center of Socio-Natural Studies. *American Antiquity* 67(4): 597–605.
- Van West, C. R.
 - 1996 Agricultural Potential and Carrying Capacity in Southwestern Colorado, AD 901 to 1300. In *The Prehistoric Pueblo World, AD 1150–1350*, ed. M. A. Adler, 214–227. University of Arizona Press, Tucson.
- Van West, C. R., and J. H. Altschul
 - 1997 Environmental Variability and Agricultural Economics along the Lower Verde River, A.D. 750–1450. In *Vanishing River: Landscapes and Lives of the Lower Verde Valley, the Lower Verde Archaeological Project, Overview, Synthesis, and Conclusion*, ed. S. M. Whittlesey, R. Ciolek-Torello, and J. H. Altschul, 337–392. Statistical Research, Inc., Tucson.
- Van West, C. R., and J. S. Dean
 - 2000 Environmental Characteristics of the A.D. 900–1300 Period in the Central Mesa Verde Region. *Kiva* 66(1): 45–66.
- Varien, M. D.
 - 1999 *Sedentism and Mobility in a Social Landscape: Mesa Verde and Beyond*. University of Arizona Press, Tucson.
- Villalpando, E. (editor)
 - 2002 *Boundaries and Territories: Prehistory of the U.S. Southwest and Northern Mexico*. Anthropological Research Papers 54. Arizona State University, Tempe.
- Whalen, M. E., and P. Gilman
 - 1990 Transitions to Sedentism. In *Perspectives on Southwestern Prehistory*, ed. P. E. Minnis and C. L. Redman, 71–75. Westview, Boulder.
- Wills, W. H., and R. D. Leonard (editors)
 - 1994 *The Ancient Southwestern Community: Models and Methods for the Study of Prehistoric Social Organization*. University of New Mexico Press, Albuquerque.
- Wilshusen, R. H., and S. G. Ortman
 - 1999 Rethinking the Pueblo I Period in the San Juan Drainage: Aggregation, Migration, and Cultural Diversity. *Kiva* 64: 369–399.