Directions: As you read, keep track of the discussion questions and take notes on the topic headings listed on this page. Keep track of page numbers so you can prepare for the discussion. *Source*: Diamond, Jared "The Ancient Ones: The Anasazi and Their Neighbors." in Collapse. Complete the reading even if you cannot finish all the questions.

Anasazi Reading Guide

1. Crops that Cahokia grew and had access to:

2. Animals that Cahokia raised or hunted:

3. What is the environment of the American Southwest? Why is this not an ideal environment?

4. How did the Anasazi deal with their environmental problems?

5. Why does Chaco Canyon get deforested so quickly?

6. Describe the houses, road system, city, and the technology behind them.

7. What was the role the environment in the collapse of the Anasazi?

8. What is the social structure like in Cahokia? How did the elite respond to the problems of the floods?

9. What finally causes the fall of Cahokia?

Discussion Questions:

1. Explain how the regions are highly specialized region? (e.g. has jobs, specialties, complex structures.)

2. To what extent does geography determine the development and downfall of a civilization? (think social, political, and economic)

3. What is the function of politics and religion in maintaining legitimacy, unity and hegemony?

4. How does your region compare and contrast with the rest of the world at this time? (1000-1250)
   a. Japan
   b. Mongols
   c. Europe
   d. Song Dynasty
   e. Ghana
   f. Islamic World

CHAPTER 4

The Ancient Ones: The Anasazi and Their Neighbors

Desert farmers ▪ Tree rings ▪ Agricultural strategies ▪ Chaco's problems and packrats ▪ Regional integration ▪ Chaco's decline and end ▪ Chaco's message ▪

In the U.S. Southwest we are dealing with not just a single culture and collapse, but with a whole series of them (map, p. 142). Southwestern cultures that underwent regional collapses, drastic reorganizations, or abandonments at different locations and different times include Mimbres around A.D. 1130; Chaco Canyon, North Black Mesa, and the Virgin Anasazi in the middle or late 12th century; around 1300, Mesa Verde and the Kayenta Anasazi; Mogollon around 1400; and possibly as late as the 15th century, Hohokam, well known for its elaborate system of irrigation agriculture. While all of those sharp transitions occurred before Columbus's arrival in the New World in 1492, the Anasazi did not vanish as people: other southwestern Native American societies incorporating some of their descendants persist to this day, such as the Hopi and Zuni pueblos. What accounts for all those declines or abrupt changes in so many neighboring societies?

The most intensively studied abandonment was of the most spectacular and largest set of sites, the Anasazi sites in Chaco Canyon of northwestern New Mexico. Chaco Anasazi society flourished from about A.D. 600 for more than five centuries, until it disappeared some time between 1150 and 1200. It was a complexly organized, geographically extensive, regionally integrated society that erected the largest buildings in pre-Columbian North America. Even more than the barren treeless landscape of Easter Island, the barren treeless landscape of Chaco Canyon today, with its deep-cut arroyos and sparse low vegetation of salt-tolerant bushes, astonishes us, because the canyon is now completely uninhabited except for a few National Park Service rangers' houses. Why would anyone have built an advanced city in that wasteland, and why, having gone to all that work of building it, did they then abandon it?

Why, out of all the Anasazi sites, was it at Chaco Canyon that construction techniques and political and societal complexity reached their apogee? Likely reasons are some environmental advantages of Chaco Canyon, which initially represented a favorable environmental oasis within northwestern New Mexico. The narrow canyon caught rain runoff from many side-channels and a large upland area, which resulted in high alluvial groundwater levels permitting farming independent of local rainfall in some areas; and also high rates of soil renewal from the runoff. The large habitable area in the canyon and within 50 miles of it could support a relatively high population for such a dry environment. The Chaco region has a high diversity of useful wild plant and animal species, and a relatively low elevation that provides a long growing season for crops. At first, nearby pinyon and juniper woodlands provided the construction logs and firewood. The earliest roof beams identified by their tree rings, and still well preserved in the Southwest's dry climate, are of locally available pinyon pines, and firewood remains in early hearths are of locally available pinyon and juniper. Anasazi diets depended heavily on growing corn, plus some squash and beans, but early archaeological levels also show much consumption of wild plants such as pinyon nuts (75% protein), and much hunting of deer.

All those natural advantages of Chaco Canyon were balanced by two major disadvantages resulting from the Southwest's environmental fragility. One involved problems of water management. Initially, rain runoff would have been as a broad sheet over the flat canyon bottom, permitting floodplain agriculture watered both by the runoff and by the high alluvial groundwater table. When the Anasazi began diverting water into channels for irrigation, the concentration of water runoff in the channels and the clearing of vegetation for agriculture, combined with natural processes, resulted around A.D. 900 in the cutting of deep arroyos in which the water level was below field levels, thereby making irrigation agriculture and also agriculture based on groundwater impossible until the arroyos filled up again. Such arroyo-cutting can develop surprisingly suddenly. For example, at the Arizona city of Tucson in the late 1880s, American settlers excavated a so-called intercept ditch to intercept the shallow groundwater table and divert its water downstream onto the floodplain. Unfortunately, floods from heavy rains in the summer of 1890 cut into the head of that ditch, starting an arroyo that within a mere three days extended itself for a distance of six miles upstream, leaving an incised and agriculturally useless floodplain near Tucson. Early Southwest Native American societies probably attempted similar intercept ditches, with similar results. The Chaco Anasazi dealt with that problem of arroyos in the canyon in several ways: by building dams inside side-canyons above the elevation of the main canyon to store rainwater; by laying out field systems that that rainwater could irrigate; by storing rainwater coming down over the tops of the cliffs rimming the canyon's north wall between each pair of side-canyons; and by building a rock dam across the main canyon.

The reason why Chaco Canyon became deforested so quickly is the same as the reason that I discussed in Chapter 2 to explain why Easter Island and other dry Pacific islands settled by people were more likely to end up deforested than were wet islands: in a dry climate, the rate of tree regrowth on logged land may be too slow to keep up with the rate of logging.

The loss of the woodland not only eliminated pinyon nuts as a local food supply but also forced Chaco residents to find a different timber source for their construction needs, as shown by the complete disappearance of pinyon beams from Chaco architecture. Chacoans coped by going far afield to forests of ponderosa pine, spruce, and fir trees, growing in mountains up to 50 miles away at elevations several thousand feet higher than Chaco Canyon. With no draft animals available, about 200,000 logs weighing each up to 700 pounds were carried down the mountains and over that distance to Chaco Canyon by human muscle power alone.

From six Chaco ruins, Nathan sampled 52 conifer logs selected on the basis of their tree rings to have been felled at dates ranging from A.D. 974 to 1104. The result he obtained was that two-thirds of the logs could be traced by their strontium ratios to the Chuska Mountains, one-third to the San Mateo Mountains, and none at all to the San Pedro Mountains. In some cases a given Chaco building incorporated logs from both mountain ranges in the same year, or used logs from one mountain in one year and from the other mountain in another year, while the same mountain furnished logs to several different buildings in the same year. Thus, we have here unequivocal evidence of a well-organized long-distance supply network for the Anasazi capital of Chaco Canyon.

Chaco Canyon became a black hole into which goods were imported but from which nothing tangible was exported. Into Chaco Canyon came: those tens of thousands of big trees for construction; pottery (all late-period pottery in Chaco Canyon was imported, probably because exhaustion of local firewood supplies precluded firing pots within the canyon itself); stone of good quality for making stone tools; turquoise for making ornaments, from other areas of New Mexico; and macaws, shell jewelry, and copper bells from the Hohokam and from Mexico, as luxury goods. Even food had to be imported, as shown by a recent study tracing the origins of corncobs excavated from Pueblo Bonito by means of the same strontium isotope method used by Nathan English to trace the origins of Pueblo Bonito's wooden beams. It turns out that, already in the 9th century, corn was being imported from the Chuska Mountains 50 miles to the west (also one of the two sources of roof beams), while a corncob from the last years of Pueblo Bonito in the 12th century came from the San Juan River system 60 miles to the north.

Chaco society turned into a mini-empire, divided between a well-fed elite living in luxury and a less well-fed peasantry doing the work and raising the food. The road system and the regional extent of standardized architecture testify to the large size of the area over which the economy and culture of Chaco and its outliers were regionally integrated. Styles of buildings indicate a three-step pecking order: the largest buildings, so-called Great Houses, in Chaco Canyon itself (residences of the governing chiefs?); outlier Great Houses beyond the canyon ("provincial capitals" of junior chiefs?); and small homesteads of just a few rooms (peasants' houses?).

Compared to smaller buildings, the Great Houses were distinguished by finer construction with veneer masonry, large structures called Great Kivas used for religious rituals (similar to ones still used today in modern Pueblos), and a higher ratio of storage space to total space. Great Houses far exceeded homesteads in their contents of imported luxury goods, such as the turquoise, macaws, shell jewelry, and copper bells mentioned above, plus imported Mimbres and Hohokam pottery. The highest concentration of luxury items located to date comes from Pueblo Bonito's room number 33, which held burials of 14 individuals accompanied by 56,000 pieces of turquoise and thousands of shell decorations, including one necklace of 2,000 turquoise beads and a basket covered with a turquoise mosaic and filled with turquoise and shell beads. As for evidence that the chiefs ate better than did the peasants, garbage excavated near Great Houses contained a higher proportion of deer and antelope bones than did garbage from homesteads, with the result that human burials indicate taller, better-nourished, less anemic people and lower infant mortality at Great Houses.

Why would outlying settlements have supported the Chaco center, dutifully delivering timber, pottery, stone, turquoise, and food without receiving anything material in return? The answer is probably the same as the reason why outlying areas of Italy and Britain today support our cities such as Rome and London, which also produce no timber or food but serve as political and religious centers. Like the modern Italians and British, Chacoans were now irreversibly committed to living in a complex, interdependent society. They could no longer revert to their original condition of self-supporting mobile little groups, because the trees in the canyon were gone, the arroyos were cut below field levels, and the growing population had filled up the region and left no unoccupied suitable areas to which to move.

When the pinyon and juniper trees were cut down, the nutrients in the litter underneath the trees were flushed out. Today, more than 800 years later, there is still no pinyon/juniper woodland growing anywhere near the packrat middens containing twigs of the woodland that had grown there before A.D. 1000. Food remains in rubbish at archaeological sites attest to the growing problems of the canyon's inhabitants in nourishing themselves: deer declined in their diets, to be replaced by smaller game, especially rabbits and mice. Remains of complete headless mice in human coprolites (preserved dry feces) suggest that people were catching mice in the fields, beheading them, and popping them in whole.

The last identified construction at Pueblo Bonito, dating from the decade after 1110, was from a wall of rooms enclosing the south side of the plaza, which had formerly been open to the outside. That suggests strife: people were evidently now visiting Pueblo Bonito not just to participate in its religious ceremonies and to receive orders, but also to make trouble. The last tree-ring-dated roof beam at Pueblo Bonito and at the nearby Great House of Chetro Ketl was cut in A.D. 1117, and the last beam anywhere in Chaco Canyon in A.D. 1170. Other Anasazi sites show more abundant evidence of strife, including signs of cannibalism, plus Kayenta Anasazi settlements at the tops of steep cliffs far from fields and water and understandable only as easily defended locations. At those southwestern sites that outlasted Chaco and survived until after A.D. 1250, warfare evidently became intense, as reflected in a proliferation of defensive walls and moats and towers, clustering of scattered small hamlets into larger hilltop fortresses, apparently deliberately burned villages containing unburied bodies, skulls with cut marks caused by scalping, and skeletons with arrowheads inside the body cavity. That explosion of environmental and population problems in the form of civil unrest and warfare is a frequent theme in this book, both for past societies (the Easter Islanders, Mangarevans, Maya, and Tikopians) and for modern societies (Rwanda, Haiti, and others).

A recent study by Julio's student Nathan English, working in collaboration with Julio, Jeff Dean, and Jay Quade, identified more exactly where the big spruce and fir logs came from. There are three potential sources of them in the Chaco area, growing at high elevations on three mountain ranges nearly equidistant from the canyon: the Chuska, San Mateo, and San Pedro Mountains. From which of those mountains did the Chaco Anasazi actually get their conifers? Trees from the three mountain ranges belong to the same species and look identical to each other. As a diagnostic signature, Nathan

and with no land left unoccupied. A drought would have caused the groundwater table to drop below the level where it could be tapped by plant roots and could support agriculture; a drought would also make rainfall-supported dryland agriculture and irrigation agriculture impossible. A drought that lasted more than three years would have been fatal, because modern Puebloans can store corn for only two or three years, after which it is too rotten or infested to eat. Probably the outlying settlements that had formerly supplied the Chaco political and religious centers with food lost faith in the Chacoan priests whose prayers for rain remained unanswered, and they refused to make more food deliveries. A model for the end of Anasazi settlement at Chaco Canyon, which Europeans did not observe, is what happened in the Pueblo Indian revolt of 1680 against the Spaniards, a revolt that Europeans did observe. As in Chaco Anasazi centers, the Spaniards had extracted food from local farmers by taxing them, and those food taxes were tolerated until a drought left the farmers themselves short of food, provoking them to revolt.

Some time between A.D. 1150 and 1200, Chaco Canyon was virtually abandoned and remained largely empty until Navajo sheepherders reoccupied it 600 years later.

Despite these varying proximate causes of abandonments, all were ultimately due to the same fundamental challenge: people living in fragile and difficult environments, adopting solutions that were brilliantly successful and understandable "in the short run," but that failed or else created fatal problems in the long run, when people became confronted with external environmental changes or human-caused environmental changes that societies without written histories and without archaeologists could not have anticipated. I put "in the short run" in quotation marks, because the Anasazi did survive in Chaco Canyon for about 600 years, considerably longer than the duration of European occupation anywhere in the New World since Columbus's arrival in A.D. 1492. During their existence, those various southwestern Native Americans experimented with half-a-dozen alternative types of economies (pp. 140–143). It took many centuries to discover that, among those economies, only the Pueblo economy was sustainable "in the long run," i.e. for at least a thousand years. That should make us modern Americans hesitate to be too confident yet about the sustainability of our First World economy, especially when we reflect how quickly Chaco society collapsed after its peak in the decade A.D. 1110–1120, and how implausible the risk of collapse would have seemed to Chacoans of that decade.