certain population size and level of political complexity. Instead, they collapsed and disappeared.

6. The nature of political power in Mississippian chiefdoms (inability to effectively delegate power, lack of an administrative bureaucracy, importance of ideology as a basis of power) was such that individual polities were limited in the population size and level of political complexity that they could achieve and maintain.

7. Competition between polities, including alliance formation, had a leveling effect on the size and complexity that individual chiefdoms could achieve and maintain.

The regional system perspective—or, if one prefers, the hierarchical patch dynamic perspective—is also valuable because it forces us to look for different cultural and ecological patterns and processes existing at different scales. For example, human agency, in the form of elite individuals competing for political and economic power, was very likely an important factor in the rise and fall of individual chiefdoms. Given that the Mississippian regional system persisted for more than 600 years, however, it is clear that individual actors had little effect on bringing about significant change in the regional system itself—at least not until other conditions were suitable for change to occur.

The Mississippian regional system in northern Georgia underwent major change following European contact. Prior to that, we have to go back to the Woodland/Mississippian transition around A.D. 1000 to find the last time significant system change occurred. Etowah in the fourteenth century (King 1990) and, farther afield, Moundville (Knight and Steponaitis 1998) and Cahokia (Milner 1998) may represent instances in which individual polities were able to push the limits of the Mississippian regional systems to which they belonged and perhaps threaten their stability. Ultimately each failed and was succeeded by small-sized, limited-duration polities of the type discussed in this chapter.

The regional system described in this chapter almost certainly extended beyond northern Georgia to include eastern Tennessee, the western Carolinas, and eastern Alabama. One could argue that it or similar regional systems encompassed all of the Mississippian Southeast.
Soto's army came through the valley in 1540 there were a number of small chieftains, successfully coalesced into a single larger politico-ethnic or paramountcy (Hudson 1997b). There were no indications of internal fighting, and what hostilities existed seemed to have been of a political nature only. The supposition that they were at regular war with another paramount chieftain (Coatlaquequi, 200 miles to the east) is belied by the fact that when guides from the Ocone Valley attempted to take Soto and his army there, they go: hopelessly lost (Hudson 1997b). The Soto accounts indicate that the people of the Ocone knew of another paramountcy (Coosa) 150 miles to the northwest, but there is no indication that they were actively at war with this chieftain either. The traditional explanation for the dispersed settlement system within the Ocone has been that there was internal peace, and thus it was safe for families to live at a reasonable distance from other families, as well as from the small chiefly centers in the valley. Certainly the degree of nucleation and dispersal varied somewhat throughout the Lamar period, but the valley appears to have been peaceful from around 1450 to the time of the Soto entrada.

Phenomenon 2

During the Lamar period, beginning around A.D. 1350, the people of the Ocone Valley ceased making and using flaked stone tools, including stone arrow points (i.e., Mississippian triangles) (M. Williams 1983). To our knowledge, this cessation of flintknapping is unprecedented in the rest of Georgia and in the Mississippian Southeast in general. Many of our colleagues doubted the veracity of this observation for a number of years. We know, however, from the Soto accounts that the Indians of central South Carolina had arrows tipped with a great many things other than stone (Clayton et al. 1993:239). Thus, this quirk in the prehistoric technology of the Ocone Valley has generally come to be accepted with a shrug by most researchers working within the valley. Of more concern and curiosity than the lack of stone arrow points, however, is the additional complete lack of stone tools for cutting leather or sinew or for scraping hides or wood. It seems very unlikely to us that the people of the Ocone would forgo all cutting tools. Cane (Andropogon) has been suggested as a source for cutting tools, but this begs the question of how the cane itself could be cut in the absence of stone tools. The local stone in the Piedmont portion of the Ocone Valley is quartz. While not as easily worked as the many cherts from southern or northwestern Georgia, quartz certainly could have been used for arrow points and flake tools, but it was not.

UNUSUAL PHENOMENA

Phenomenon 1

The very large population in the Piedmont portion of the Ocone Valley is a dispersed one during much of the Late Mississippian period. This is even more a reality for the latter part of the occupation after ca. A.D. 1450. When
Most of the thousands of small farmsteads in the Oconee Valley are located on low bluffs adjacent to tiny creeks with very little available floodplain for farming. An example of recent interest is a small valley being studied by one of us (Williams) in northwestern Putnam County. This unnamed stream valley has little or no continuous water flow for most of the year yet is surrounded by over 20 contemporary Lamar period farmsteads of various sizes (Figure 2.2). Farmsteads are regularly dispersed some 200–300 m apart. This settlement pattern and site density are typical of those in many such valleys now being identified in the Piedmont portion of the larger Oconee Valley.

Typically, the “floodplains” of the creeks in these valleys are only a few meters wide and hardly worthy of the name. There is no doubt that the main crops for these farmers—as elsewhere in the Mississippian Southeast—consisted of corn and beans. Further, we do not believe that these simple chiefdoms had an economic system whereby food might be grown in the huge floodplains adjacent to the Oconee River itself and then distributed to people in the outlying farmsteads. Instead, every family must have provided its own food (with the possible exception of sharing between households). It seems reasonable that these clusters of farms might have shared common fields and food, particularly if these farms were occupied by members of the same extended family.

One unsettled question has been whether any upland swidden agriculture was practiced near the thousands of small farmstead sites in the Oconee Valley. The presence of so many home sites near small floodplains has certainly given rise to such hypotheses in the past. The lack of adequate soil moisture in the uplands would make such agriculture risky at best, however.

Phenomenon 4

The use of local freshwater shellfish increased markedly during the Lamar period in the Oconee Valley. This phenomenon has been noted from the time of the original survey of the Lake Oconee area in 1974 (DePratter 1976). Indeed, the original excavation of the early historic Joe Bell site (9Mg28) in 1969 produced a large quantity of freshwater bivalves and univalves (M. Williams 1983). Rudolph (1978, 1979) has also described this increase in shellfish use through the Mississippian period in the Oconee Valley.

The most commonly held hypotheses for this pattern are twofold. The first hypothesis holds that the differential evidence of shellfish remains is simply a matter of preservation, with the shell from older Mississippian sites having dissolved completely compared with that from Late Mississippian sites. The second hypothesis holds that the difference in shellfish remains is instead a cultural phenomenon, reflecting an increased use of what is usually considered a marginal food resource as the population in the valley increased late in the Mississippian period, thus necessitating a broader food base (M. Williams 1983).
There is no doubt that by the early historic Bell phase (ca. A.D. 1570–1650) shellfish of many sorts were a normal part of the diet of Indians in the Oconee Valley. The tiny univalve rock snail *Gastropus* also began to be used, presumably in stews (M. Williams 1983). Huge shell middens of the Archaic sort are absent from the Oconee Valley Mississippian, however, and mollusks ultimately made only a minor contribution to the total diet of the people.

**BEAVER THINKING**

We have observed over the past 20 years a rapid increase in the beaver populations that inhabit the thousands of small creeks in the Georgia Piedmont. In our opinion, this increase is almost as dramatic as the massive swell in the white-tailed deer population in the 1960s–1970s in the same region. One of us (Jones) has had occasion to make close observations of the behavior of beavers living in the area, and we have had many occasions to discuss these rodents and their possible relationships to people (Jones 2001, 2002). In particular, we have been intrigued by the possible relationships between the Late Mississippian Lamar people of the Oconee Valley and beavers.

Beaver populations, even with the comeback we have noted, are, of course, at but a tiny fraction of aboriginal levels. Estimates of the number of beavers present in North America at the time of first European contact range from 60 million to as many as 400 million (Gerhart et al. 1998). Although only a few hundred thousand were present at the low point during the late nineteenth century, beavers have rebounded to around 10 million nationwide. It is not unreasonable to assume that the beaver population in the Georgia Piedmont during the Lamar period—before the advent of the Carolina skin trade—was perhaps as much as 10–20 times its current level.

A perusal of the famous South Carolina "Indian books" edited by William McDowell shows that beaver skins were second only to those of white-tailed deer during the eighteenth-century Carolina skin trade (McDowell 1958–1970, 1992). Beaver pelts were used in Europe primarily for producing beaver hats. By 1765 beaver pelts were worth twice those of deer by weight (McDowell 1970:335) and beaver traps were among the most expensive items offered for sale to the Indians (McDowell 1970:376). Apparently, the eighteenth-century French in Louisiana and Alabama were actually more interested in the beaver than the deer (possibly because of their experiences in the North-east) (McDowell 1958:34). With the advent of southern plantation farming in the Georgia Piedmont soon after the end of the eighteenth-century skin trade, beaver (like deer) apparently became virtually extinct. Even today the majority of people in this area still view beaver as cute but obnoxious pests that must be killed on a regular basis. Modern ecologists, however, recognize the beaver as one of the most important keystone species in North America. An appropriately useful definition of a keystone species is one "whose very presence contributes to a diversity of life and whose extinction would consequently lead to the extinction of other forms of life" (Rocky Mountain Animal Defense 2001). Keystone species help to support the ecosystem of which they are a part.

The presence of sequential beaver dams would have collectively slowed the passage of water down the stream valleys of the Piedmont. The eighteenth-century loss of the beaver from the Georgia Piedmont must have prompted landscape changes that presaged the better-known alterations that accompanied the introduction of cotton agriculture. Streams likely began a rapid down-cutting and deepening or "gullying" action (most small to medium-sized Piedmont streams retain this character to this day). The narrow floodplains that had developed over millennia beside the small streams would have been left as isolated, perchless remnants as the streams rapidly entrenched themselves.

**THE ADVANTAGES OF BEAVERS TO INDIANS**

We can imagine a Late Mississippian landscape in which active beaver ponds and the meadows formed from abandoned beaver dams lined most of the small to medium-sized streams of the Georgia Piedmont. Remembering for a moment the phenomenon of farmstead multiplication and their dispersed distribution in the Piedmont during the Lamar period, it seems it would be almost impossible for any such Lamar farmer to have been far from such a beaver dam or meadow. Indeed, we believe this association may not have been accidental but intentional. We further suggest a series of positive advantages for these farmers that would amount to a communal relationship with beavers.

One of the earliest and often cited accounts of beaver behavior in the wild is that of American anthropologist Lewis Henry Morgan in his classic 1868 publication *The American Beaver and His Works* (we find it interesting and noteworthy that one of the primary founders of anthropology was also fascinated by these animals). Beavers move their dams from time to time but leave behind moist open meadows that would have been ideal locations for Lamar
farmers to use as agricultural fields. These meadows would become less productive after a few seasons, at which time the Lamar farmers would likely move on to cultivate another freshly abandoned beaver meadow.

An active beaver pond near a Lamar farmstead would be a source of fish and turtles. Some close-at-hand aquatic resources would attract a variety of wild mammals and waterfowl that could also be readily taken for food by Lamar farmers. In addition, Mississippians could have taken beaver-cut poles from dams for use in house construction. Such poles would have been useful in roof construction and perhaps even for wall construction, as wattle or even wall posts. Additionally, beaver sticks could be used as tools, handles, or firewood. Further, these beaver-cut tools would have been an easily replenished resource, since the industrious beavers would have simply fixed their dams without comment by cutting more trees (incidentally, one of us [Jones] has noticed that beavers will occasionally steal their sticks back from your yard if they are left unattended overnight). If the labor of beavers was used for some of the tree-cutting activities of Lamar farmers, it would at least partially explain the paucity of heavy stone cutting axes on Lamar farmsteads in the Oconee Valley.

Beavers often become accustomed to the presence of people, and there are accounts of early historic trappers and Indians in the Midwest adopting beavers as pets (Morgan 1868:232). Some beavers are said to have even adapted to riding in the saddle on a horse's back as they accompanied their human companions along the trail (Morgan 1868:232). If beavers grew used to the sounds and smells of specific humans living near their ponds, they would likely eventually reserve their noisy tail-slap warnings for real intruders. Lamar farmers would probably not have failed to notice the value of such an alarm system. In commenting on the eighteenth-century Carolina skin trade, one Creek Indian decried trappers who were killing beavers, since the beavers were the "property" of the Indians (McDowell 1970:335). This implies that their value was real, even though they were not being used for food. Indeed, the Indians could uphold their end of the suggested commensal bargain with the beavers by protecting them, when possible, from many of their own natural predators.

The close association of southeastern Indians with the physical and spiritual benefits of "going to water" (a practice so well discussed by Charles Hudson [1976:324-325]) would also be made easier by the close proximity of beaver ponds to farmsteads. Bathing in the shallow, still waters of Piedmont beaver ponds would have been a natural part of life in the Oconee Valley during the Lamar period. Conversely, it would have been difficult at best to bathe in the tiny creeks of the Piedmont.

**BEAVER BELIEFS**

There is little doubt that beavers were an important food source for Lamar people or for almost any other Mississippian group we know of in the Southeast. Bones of beaver are almost completely absent from faunal lists, except perhaps for the occasional presence of beaver teeth, which might have been effectively used as tools. Certainly, the minimum number of individuals for beavers is typically low. This is curious, since beaver is not a particularly difficult animal to hunt and kill. Our standard historic references all agree that beaver was taboo as a food source for most southeastern Indians. James Adair, for example, noted in his 1775 *History* that "our old traders remember when they first began the custom of eating beavers: and to this day none eat of them, except those who kill [trap] them; though the flesh is very wholesome, on account of the bark trees they live upon" (Williams 1973 [1775]:139). John Swanton (1928:644) points out that both eighteenth- and nineteenth-century Creeks strongly avoided the eating of beaver, because this reportedly would cause major intestinal cramping as a result of the beaver damming up one's digestive system.

These sources are in accord with the zooarchaeological record for the Southeast. In concert with all our other observations we suggest that the beaver-as-food taboo was developed for very good and practical reasons over the centuries. We believe, to coin a phrase, that the only good beaver was a live beaver, at least in the view of an Oconee Valley Indian.

The beaver food taboo may also be associated with a special status accorded to beavers in the beliefs and social rules of southeastern Indians. The beaver plays a quiet, but strongly positive, role in the Cherokee mythological world recorded by James Mooney. Indeed, the beaver is the first animal mentioned in Mooney's very first myth, "How the World Was Made," in which the beaver is honored as the Grandfather of Water Beetle, who holds all the earth on his back (Mooney 1982:239). Any careful observer of nature would, we think, fairly easily associate the immense creative abilities of beavers with higher orders of creation, perhaps extending to the earth itself.

James Mooney also recorded the following belief reflective of the positive relationship between the Cherokee and the beaver:
The beaver, by reason of its well known gnawing ability, against which even the hardest wood is not proof, is invoked on behalf of young children just getting their permanent teeth. According to the little formula, which is familiar to nearly every mother in the tribe, when the loosened milk tooth is pulled out or drops out of itself, the child runs with it a round the house, repeating four times, "Beaver, put a new tooth in my jaw!" after which he throws the tooth upon the roof of the house. [Mooney 1982:266]

Archaeologists who excavate Mississippian domestic structures would do well to take note of this account.

The beaver also figures prominently in John Swanton's analysis of Creek social structure. The Beaver Clan is virtually always one of the four major clans that form the white moiety, along with the Bird, Bear, and Wind Clans, who collectively "are recognized as leaders in the establishment and maintenance of peace in the nation" (Swanton 1928:111–113). A simplenided structural analysis of this belief might point out that the beaver represents the under world, the bear represents this world, and the bird represents the upper world, while the wind might be seen to transcend or mediate all three of these realms.

According to Swanton, the Beaver Clan always took a prominent role in Creek square ground ceremonies such as the Busk. Typical is his plan drawing of the Lucapoga Square Ground (Figure 2.3), where the miko is from the Beaver Clan and thus occupies the central spot in the chief's hut or bed on the western side of the square (Swanton 1928:217).

**SHELLFISH AND LITHICS**

Finally, there is the phenomenon of the lack of stone cutting tools in the archaeological record of the Lamar period in the Oconee Valley. We believe this might be explained with reference to freshwater mussel shells. Parmalee and Bogan (1998) have demonstrated the high diversity of such shellfish in the southern United States. Indeed, it has been said that the Southeast once possessed perhaps the highest natural species diversity of mussels in the entire world. In Georgia, the diversity and population sizes of mussels have been drastically reduced by habitat alteration as a result of nineteenth-century plantation agriculture and its attendant clogging of streams, by the creation of huge numbers of ecosystem-destroying hydroelectric facilities, and by the ladsu-like invasion of nonnative species such as the Asian Corbiculaf mussels and, recently, the dreaded zebra mussel.

We have observed that the large shells of native mussel species are most common along the edges of beaver ponds and the many manmade ponds and lakes in the Georgia Piedmont. Water level fluctuations and predation of mussels by muskrats and raccoons often leave many perfectly preserved shells available for easy gathering. We are confident this would have been no less
true for the tens of thousands of beaver ponds that would have covered the area in the prehistoric era. In short, shells would have been a readily available, raw material for use as tools by Lamar farmers living near beaver ponds, whether or not the shellfish were even used as a source of food.

Our own tests of the efficacy of these shells as cutting tools have led to a number of observations. First, the grinding of the edge against a grinding stone is unnecessary, because the naturally sharp edges of such shells are perfectly capable of cutting thick cowhide or canvas and are perhaps even better than stone tools in many cases. Edge modification by grinding and serrating can produce a wider variety of additional shell tool types, however. We have also noted that dry shells form better cutting tools than wet shells and that light heat treatment may improve the cutting ability of the shell even further. Our observations support the supposition that the Lamar people of the Oconee Valley could have successfully used shells found on the edges of beaver ponds as cutting tools, instead of manufacturing tools from stone. Indeed, the size of most mussel shells precludes the need for hafting them, as would have been necessary for most lithic tools.

With respect to the supposed ubiquity of quartz for cutting tools in the Piedmont, Jones (1997) has demonstrated that there are actually many recognizable varieties of non-cryprocrystalline quartz in the region and that not all make equally good cutting tools. Further, many of the best ones are actually quite limited in their availability. On the other hand, the availability of good, predictable-quality mussel shells in the same region, when it was filled with beavers, would presumably not have been limited.

The sort of shell-based cutting tool technology suggested here is strongly reminiscent of that of many island societies. A. R. Radcliffe-Brown (1948:447), in his famous study of the Andaman Islanders, noted the prominent role that shell played in technology:

The most important material to the Andamanese seems to have been shell. Mollusk shells were used in the natural form or after having been manufactured. The chief shell used in its natural form is the *Cypraea* which serves at the present time as a knife, a scraper, and a spoon. Even when they have knives of iron and steel they still use the *Cypraea* shell in preference for some purposes. It is used as a scraper in preparing fibers for rope and thread, in making arrows, as a knife for cutting thatching leaves and cane and even thread and rope, and for making incised patterns on bows and arrows. The shells are always to be found lying about their encampments, and a few are always carried with them when they migrate to a fresh camp.

With respect to quartz, which the Andaman Islanders also had at their disposal, Radcliffe-Brown notes that "quartz flakes were used by the Andamanese for the two purposes of shaving and scarifying the skin, and for hardly any other purpose" (Radcliffe-Brown 1948:444).

Earlier we referred to the general lack of heavy stone tools or axes in the Oconee Lamar sites. We recognize that jobs needed to be accomplished by these tools could probably not be satisfied by shells, no matter how large or sharp. Nor can we believe that all heavy woodworking activities could have been accomplished by beaver surrogates. We are therefore at something of a loss to explain the lack of such tools in the Oconee Valley, but we offer three suggestions. First, stone axes, as large, obvious artifacts, would have been gathered in huge numbers by early nineteenth-century farmers from their fields and are therefore less likely to be found at the present than are the many categories of smaller artifacts. The collections of nineteenth-century antiquarians invariably illustrate these axes (Jones 1873), but we know of no stone axes found in recent years by Georgia archaeologists. The shallow midden buildup on such brief occupied farmsteads would likely mean that any heavy stone tools would not be buried deeply and, thus, would be easily found in the initial plowing of these sites. Second, it is likely that the Indian families that lived near one another shared many specialized tools such as stone axes. Thus axes may well have been fewer in number than the total number of farmsteads in the Oconee Valley. Third, while the use of heavy stone tools would certainly be needed for the manufacture of dugout canoes, the shallow, rocky streams of the Piedmont do not lend themselves well to the use of such boats. The dugouts that have been found in Georgia have almost invariably been identified in the streams of the Coastal Plain.

CONCLUSIONS?

Obviously, this chapter is largely speculative in nature. However, we are confident that archaeologists, by not focusing more on the beaver as a keystone species in southeastern environments, have committed the sin of omission in their models of Mississippian ecological adaptations. Beavers were more widely spread throughout the Southeast than oxbow lakes and levees, and we argue that models of Mississippian adaptation should reflect this differ-
ence. The fact that beaver bones are not present in appreciable quantities in the garbage dumps of Mississippian sites is not a reason to ignore beavers; it should instead provoke us to study the pre-contact southern Indian-beaver relationship more intently.

Certainly, the widely dispersed settlement system of the Lamar period chiefdoms of the Oconee Valley is distinct from that of many other Mississippian societies. However, some areas, such as the Choctaw culture area in southern Mississippi or the Power’s Fort area in Missouri, might be broadly similar. We strongly suggest that archaeologists reconstructing Mississippian environmental adaptations reconsider the role of *Castor canadensis* and its special relationship with human populations.