



Illustration by Jonathon Rosen; "The First Thanksgiving" by Jennie Brownscombe from Burstein Collection/Corbis

Unnatural Abundance

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AMHERST, Mass.

Few Americans over the age of 30 escaped from high school without encountering Jennie Augusta Brownscombe's 1914 painting "The First Thanksgiving" in their American history textbooks. Reproduced in thousands of lithographs, it depicts the post-harvest gathering of Europeans and Indians in 1621 as a momentous transition, a kind of cultural passing of the baton. Suffused in celestial light, a vigorous New Order serenely takes over from the diminished indigenes.

But the changeover was even bigger in scale than Brownscombe knew. In "The First Thanksgiving," as in other depictions of the first Thanksgiving meal, natives and newcomers share their feast on a field of bluegrass, dandelion and clover — three species that did not exist in the Americas before colonization.

Until the arrival of the Mayflower, continental drift had kept apart North America and Europe for hundreds of millions of years. Plymouth Colony (and its less successful predecessor in Jamestown) reunited the continents. Ecosystems that had evolved separately for millennia collided. The ensuing biological tumult — plants exploding over the landscape, animal species spiking in population or going extinct — had consequences as profound as those from the cultural encounter at the center of Brownscombe's painting.

In a phenomenon known as "ecological release," imported species can run wild because their natural predators have not come along with them. Clover and bluegrass, tame as accountants at home, transformed themselves into biological Attilas in the Americas, sweeping through vast areas so fast that the first English colonists who pushed into Kentucky found both species waiting for them. The peach proliferated in the Southeast with such fervor that by the 18th century, the historian Alfred Crosby writes, farmers feared that the Carolinas would become a wilderness of peach trees.

South America was just as badly hit. Endive and spinach escaped from colonial gardens and grew into impassable, six-foot thickets on the Peruvian coast; thousands of feet higher, mint overwhelmed Andean valleys. In the pampas of Argentina and Uruguay, the voyaging Charles Darwin discovered hundreds of square miles strangled by feral artichoke. "Over the undulating plains, where these great beds occur, nothing else can live," he observed.

In "The First Thanksgiving," the colonists appear to be eating turkey. Historians, however, say the more likely main course was a pottage of European wheat and Indian corn. The mix was emblematic of what Dr. Crosby has called "the Columbian Exchange," the movement of species between the Old and New Worlds. Wheat, following bluegrass and clover, occupied huge swathes of the Midwestern savanna. Meanwhile, corn conquered Africa, Asia and central Europe. Corn so thrived in 16th- and 17th-century Africa, Dr. Crosby has argued, that it sustained a population explosion that let Europeans take millions of Africans for slaves without emptying the continent.

Brownscombe depicted 23 Europeans sharing the meal with five Indians. According to the Pilgrims' own accounts, natives outnumbered newcomers at the meal by almost two to one. But once again the artist unknowingly got something right. Soon after Europeans arrived, European diseases killed 90 percent or more of the hemisphere's original inhabitants — at least 30 million peo-

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ple, and possibly 100 million, according to most recent estimates.

Four years before the Pilgrims' arrival, shipwrecked French sailors accidentally unleashed an epidemic, possibly viral hepatitis, on Cape Cod, which then swept through New England. The Pilgrims moved into an Indian village, Patuxet, that had been emptied by disease; they survived the first winter only after digging up food caches in victims' houses and

Where the Pilgrims stepped, invaders bloomed.

graves. Some historians have speculated that holding the Thanksgiving meal was, in part, an act of apology.

The epidemics were momentous historically, for they opened up the continents to European assault. They were equally momentous ecologically, for they changed the continents themselves. American Indians were ambitious, sophisticated landscape managers. In South America, they drained vast areas of wetland; scattered networks of raised agricultural fields in Bolivia, Colombia and the Guianas; and converted much of Amazonia into an "anthropogenic" forest — a mix of gardens, orchards and agricultural forests. Visitors to the Andes still gawk at the Indian terraces that carpet the highlands — more than 2,000 square miles of them in Peru alone, according to the geographer William M. Denevan, most of them at more than 9,000 feet.

Above the Rio Grande, Indians' principal land-management tool was fire, used to create and maintain open, game-friendly forests and grazing lands. Native pyromania created a third or more of the Midwestern prairie; fire kept Eastern forests so open that the first European colonists reported being able to ride through the woods in carriages. In California, Oregon, Texas and a hundred other places, Indian burning governed the conditions under which other species thrived or failed.

When disease carried away native societies, the torches went out. Trees and underbrush erupted in ways that had not been seen for millennia, filling in areas kept open by Indian axes and Indian fire. "Almost wherever the European went, forests followed," wrote the ecological historian Stephen Pyne. Far from destroying wilderness, in other words, European settlers *created* it — only it was a peculiar, unprecedented kind of wilderness, shot through with European invaders and characterized by population outbreaks from species that had formerly been uncommon.

Eighteenth-century visitors to the Western hemisphere were awed by its bounty, of which the iconic symbol is the passenger pigeon. Approaching what is now St. Louis on a voyage up the Mississippi in 1770, Jean-Bernard Bossu was overwhelmed by "clouds of turtle-doves" that passed for hours overhead. The flocks of pigeons were so dense, he wrote, that "sometimes as many as 80 of them are killed with one shot."

Bossu was not far downstream from the ruins of Cahokia, once the biggest Indian settlement north of the Rio Grande. Yet in a 2003 review of archeological studies of the Cahokians' diet, Bernd Herrmann, an environmental historian, and William I. Woods, an archaeologist and soil scientist, found that traces of passenger pigeon were "only a very minor component."

Another archaeologist, Thomas Neumann, had previously reviewed the results of studies in the Southeast and came to the same conclusion.

Other researchers have made similar arguments for bison, elk and moose. All were kept down by Indians — the big mammals by hunting, the pigeon because Indians both ate it and competed with it for the nuts on which it depended. The huge herds and flocks seen by Europeans were evidence not of American bounty but of Indian absence.

These population booms ended as the Europeans consumed the excess (or overconsumed it, in the case of the passenger pigeon). But the ecological mixing inaugurated in this country by the Pilgrims continues apace — ask the farmers in the Southeast whose peach orchards are being invaded by kudzu from Japan. Ever since Plymouth, Americans have lived, for better or worse, in a new and distinctly contemporary kind of environment, one marked by continued, rapid ecological change. What was being created that first Thanksgiving was nothing less than the American landscape itself. □