

Charles C. Mann. *1493; Uncovering the New World Columbus Created*.  
New York: Alfred A. Knopf, 2011, 201-202.

Excerpt from the “Potato Wars” section in Chapter 9: “The Agro-Industrial Complex”

The main part of the [Andean] range consists of three roughly parallel mountain chains separated by high tablelands known as the altiplano. The altiplano (average altitude: about twelve thousand feet) holds most the region’s arable land; it’s as if Europe had to support itself by farming the Alps. The sheer eastern face of the Andes catches the warm, humid winds from the Amazon, and consequently is beset by rain; the western, ocean-facing side, shrouded by the “rain shadow” of the peaks, contains some of the earth’s driest lands. The altiplano between has a dry season and a wet season, with most of the rain coming between November and March. Left to its own devices, it would be covered by grasses in the classic plains pattern.

From this unpromising terrain sprang, remarkably, one of the world’s great cultural traditions—one that by 1492 had reached, according to the University of Vermont geographer Daniel W. Gade, “a higher level of sophistication” than any of the world’s other maintain cultures. Even as Egyptian kingdoms built the pyramids, Andean societies were erecting their own monumental temples and ceremonial plazas. Contentious imperia jostled for power from Ecuador to northern Chile. Nasca, with its famous stone lines and depictions of animals; Chavín, with its grand temples at Chavín de Huántar; Wari, landscape engineers par excellence; Moche, renowned for ceramics depicting every aspect of life from war to work to sleeping and sex; Tiwanaku, the highest urban complex ever built (it was centered on Lake Titicaca, the highest navigable lake on the planet); Chimor, successor to Moche, with its sprawling capital of Chan Chan—the tally is enormous. Most famous today are the Inka, who seized much of the Andes in a violent flash, built great highways and cities splendid with gold, then fell to Spanish disease and Spanish soldiers.

The history of the civilizations of the Middle East and Egypt is entwined with the development of wheat and barley; similarly, indigenous societies in Mexico and Central America were founded on maize. In Asia, China’s story is written on paper made from rice. The Andes were different. Cultures there were nourished not by cereal crops like these but by the tuber and root crops, the potato most important. (201)

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Andean Indians ate potatoes boiled, baked, and mashed as people in Europe and North America do. But they also consumed them in forms still little known outside the highlands. Potatoes were boiled, peeled, chopped, and dried to make *papas secas*; fermented for months in stagnant water to create sticky, odoriferous *toqosh*; ground to pulp, soaked in a jug, and filtered to produce *almidón de papa* (potato starch). The most ubiquitous concoction was *chuño*, made by spreading potatoes outside to freeze on cold nights. As it expands, the ice inside potato cells ruptures cell walls. The potatoes are thawed by morning sun, then frozen again the next night. Repeated free-thaw cycles transform the spuds into soft, juicy blobs. Farmers squeeze out the water to produce *chuño*: stiff, Styrofoam-like nodules about two-thirds smaller and lighter than the original tubers. Long exposure to the sun turns them gray-black; cooked into a spicy Andean stew, they resemble gnocchi, the potato-flour dumplings favored in central Italy. *Chuño* can be kept for years without refrigeration, meaning that it can be stored as insurance against bad harvests. It was the food that sustained the conquering Inka armies. (202)