



Agave: A Plant with an Intoxicating History

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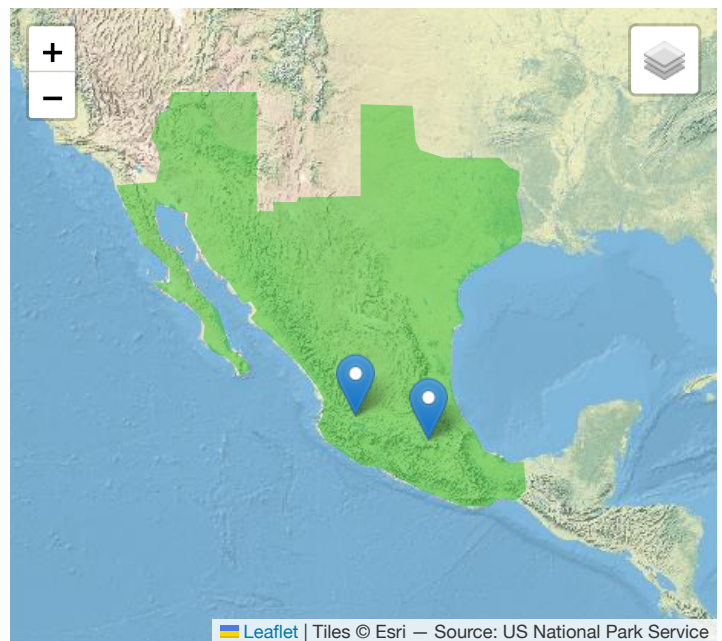
The Big Bloom

1698 was a special year for the Hortus botanicus Leiden, the oldest botanical garden in the Netherlands. After 96 years, its exotic “Aloe Americana” (or *Agave americana*, as it is classified today), bloomed for the first time. To commemorate the marvelous event, the Hortus commissioned an illustrated print of the plant.¹ A surviving poster-sized print, recently added to the Dumbarton Oaks Rare Book Collection, reveals sixteenth and seventeenth century European botanists’ fascination with the so-called “century plant” and provides a lens to explore the history of agave—a plant that has shaped human societies across three continents.



⋮ Aloë Americana: heeft gebloed in des universiteits Kruyd-Hof t...

The Hortus's *Agave americana* certainly earned its nickname, taking almost a century to bloom. In its natural climate, however, an *Agave americana* typically blooms every 10 to 25 years and can grow upwards of 20 feet.² *Agave* is a genus of monocots, with some 200 species indigenous to Central America, the southwestern United States, and in some tropical areas of South America. Distinguished by their strong, fleshy leaves, agaves grow slowly and require little water to survive, making them a vital resource in semiarid climates. Although best known today as the plant from which tequila is made, agave plants played a central role in ancient Amerindian religion and culture for centuries, encouraged a botanical revolution in Europe, helped form Mexican identity in the nineteenth and twentieth centuries, and offer solutions to present-day environmental challenges.



⋮ *Agave americana* distribution

A Miracle Plant

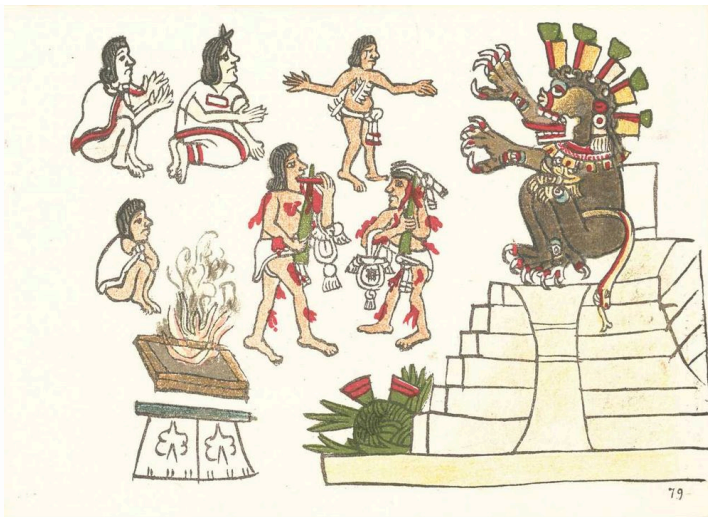
For centuries, agave species provided spiritual and physical sustenance to the inhabitants of the semiarid lands of North and Central America. Given its numerous cultural uses, it is not surprising that the Nahuatl term for agaves, “metl,” implied that they were a miracle plant.³ In his chronicle of the indigenous peoples of New Spain, the Franciscan missionary, Toribio de Benavente Motolinía, described the many uses of agave, or “maguey” as it was locally known. He observed that the fibers from the leaves were used for sewing as well as for making cords, robes, cables, clothing, and footwear. The plant’s sharp spines were used as punches, nails, and tacks. When dried, the leaves were used for general building materials, fires, and paper. Agaves are also edible. Motolinía remarked that both the fibrous leaves and sap of the plant were palatable and nutritious. He also noted that honey, vinegar, sugar, and medicinal balsams were made from the abundant sap. Finally, and perhaps most significantly, the fermented sap of the agave, called pulque, was a beverage that, according to Motolinía, was “wholesome and very nutritious” when consumed in moderation.⁴



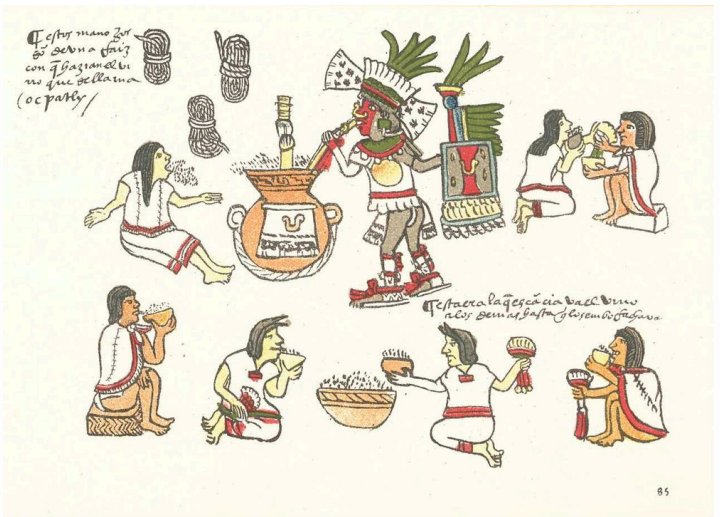
✦ Treating a head wound. Bernardino De Sahagún, Book XI, Histor...

The Sacred Drink of the Maya and Nahua Peoples

Long before the arrival of Europeans like Motolinía, pulque of various agave species played a central role in central Mexican cultures and religions. In pre-conquest Mesoamerican sources, pulque was regarded as a sacred drink closely associated with the cosmos and the gods. In both Maya and Mexica (or Aztec) rituals, pulque symbolized water and blood. Like water, pulque could purify the body. Drinking it to induce vomiting purged the body and provided a cleansed state, which was necessary for communication with the gods.⁵ Pulque also played a role in ritual Aztec gladiatorial sacrifice. Before battle, and the inevitable sacrifice that followed, the captive drank pulque through a straw. Following the battle, the sacrificial captive's heart was excised and the straw was placed in the captive's blood-filled chest cavity, equating blood with pulque.⁶

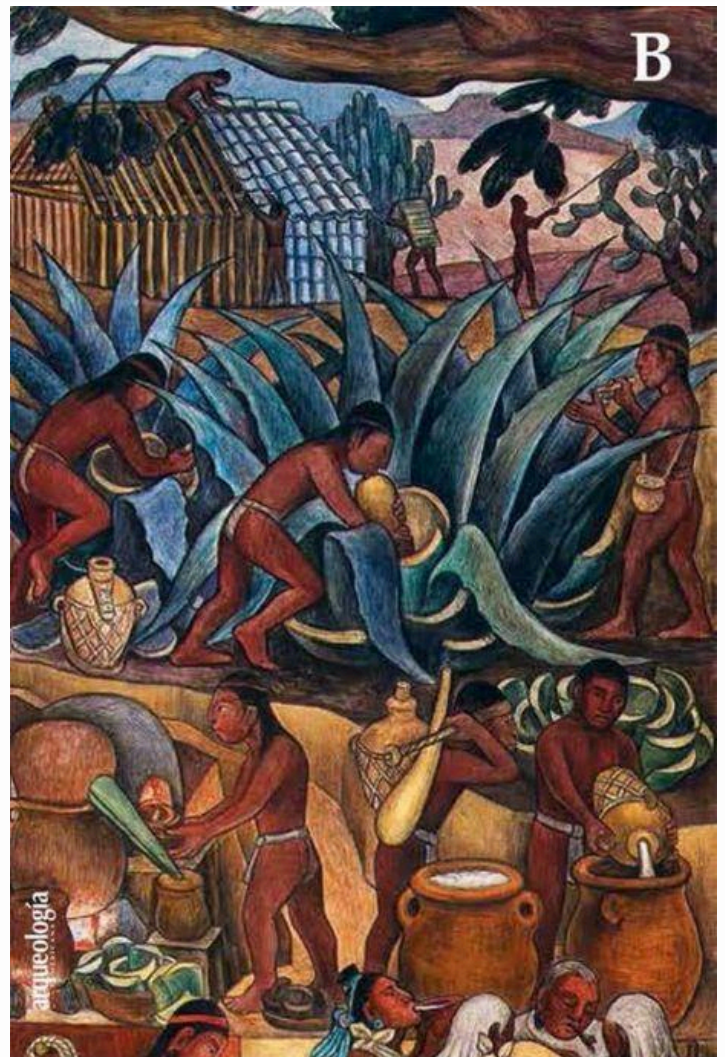


⋮ Codex Magliabechiano (folio 79r)



⋮ Codex Magliabechiano (folio 85r)

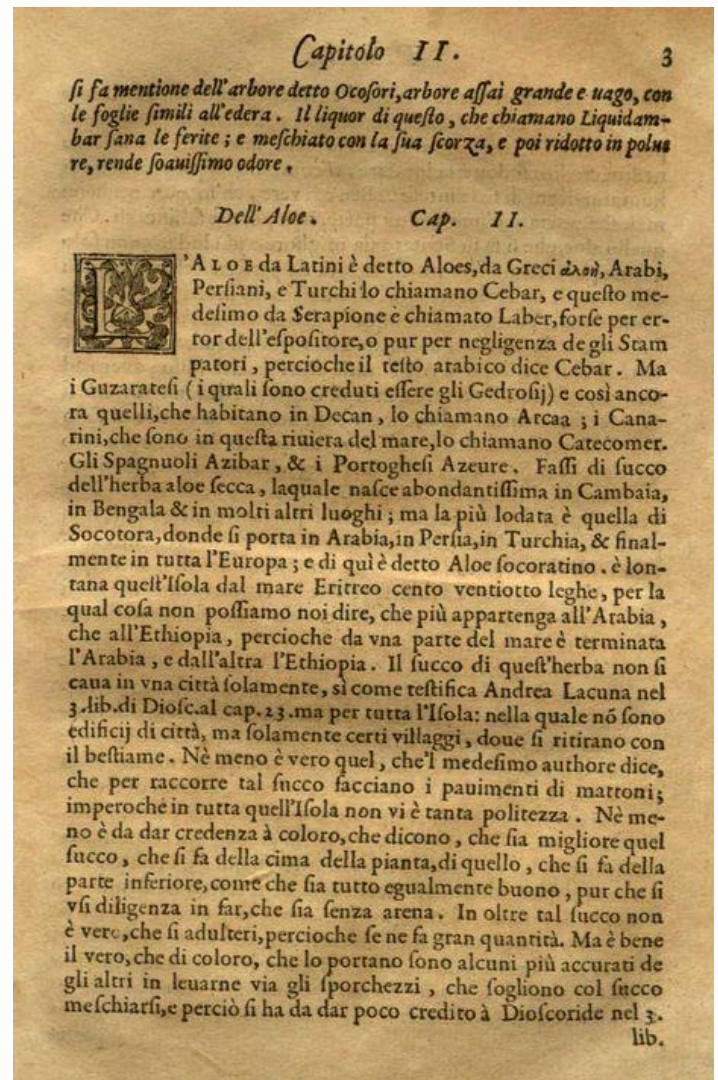
The association of heart sacrifice with pulque extended beyond metaphor. Just as the heart of man had to be sacrificed to sustain the gods, the heart of the agave had to be sacrificed to produce pulque and sustain man, resulting in the plant's death. As the plant neared maturity, its "cajete," center—or heart, swelled and elongated as the plant gathered stored sap. To access the sap, makers would excise the stalk, creating a cavity within the plant's center where the sap, known as "aguamiel" (honey water), accumulated. For three to six months, the makers harvested the sap daily, scraping the sides of the cavity to facilitate the flow of the sap, until the plant died. Once collected, naturally occurring microorganisms continued the fermentation process resulting in the pulque.⁷



⋮ Diego Rivera, Tlachiqueros

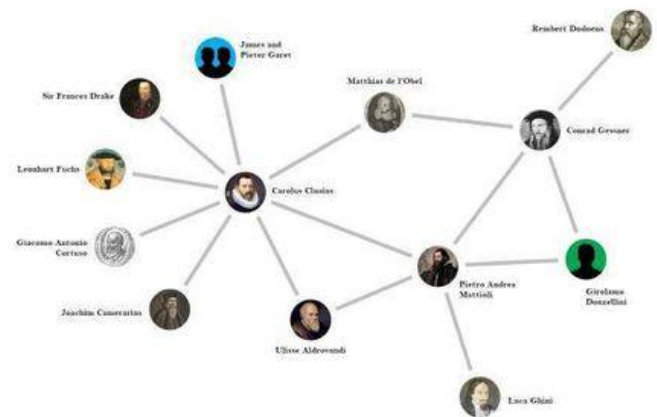
The American Aloe

It is unclear exactly when or how the first agave specimen arrived in Europe. It was likely brought to Spain with numerous other New World plants for cultivation. In 1576, Carolus Clusius published the first description of the “*Aloe Americana*,” effectively distinguishing agave from other known aloe plants in Asia, Africa, and the Middle East.⁸ Clusius, a French naturalist and collector at the forefront of an emerging botanical revolution in Europe, claimed that he learned of the plant from Gomara’s *Storia del Messico* (first published in 1552) and encountered a living specimen in a garden in Valencia while traveling through Spain in 1564–1565.



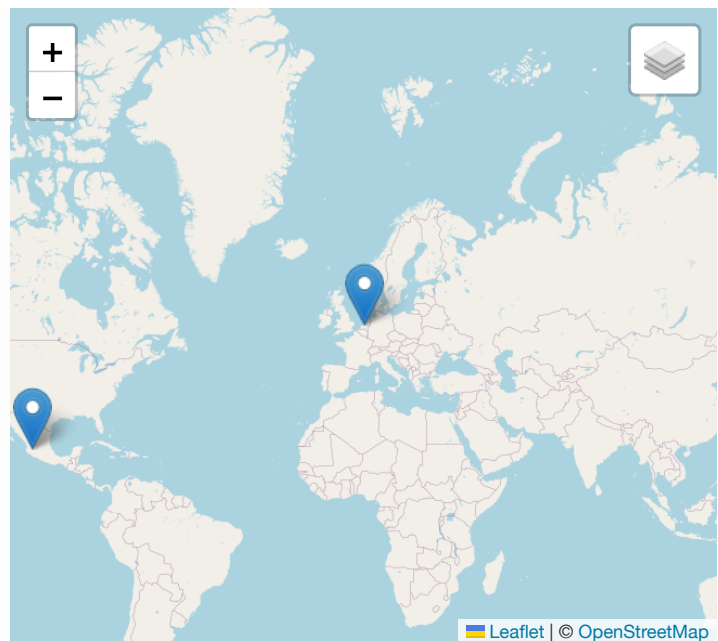
⋮ Due libri dell'istoria de i semplici, aromati, et altre cose: che...

Clusius was at the center of a vibrant international network of naturalists and collectors who, throughout the second half of the sixteenth century, exchanged knowledge and specimens of exotic plants. This epistolary network of exchange, and the botanic gardens it germinated, played a key role in the development of European botany. After Clusius's encounter with *Aloe americana* in Spain, knowledge of agave quickly disseminated through his circle of naturalists, which included Pietro Andrea Mattioli (renowned Italian botanist and physician), Giacomo Antonio Cortuso (director of the botanical garden in Padua), and Joachim Camerarius (German physician), among many others. In 1588, Camerarius published *Hortus medicus*, in which he claimed that he had seen an *Aloe americana* in Cortuso's garden in Padua as early as 1561.⁹ While we may never know who saw the plant first, this friendly competition among a community of naturalists reveals the connection between collecting and growing exotic plants and intellectual self-fashioning.¹⁰



Clusius and his network

Exchanging plant specimens and botanical knowledge was about more than solidifying friendship with like-minded individuals. Clusius and his network, by virtue of their letters, plant cultivation, and publications, positioned themselves as experts and established the means through which botanic practices were formalized and later institutionalized. In 1593, Clusius moved to Leiden to develop and oversee the city's new botanical garden—the very same botanical garden where the *Aloe americana* would finally bloom in 1698. First cultivated in the botanical gardens of Padua and Pisa, agave reached the court gardens of Rome, Venice, and Florence by the late sixteenth century, thriving in the Italy's hotter and drier climate. *Aloe americana* remained an object of fascination in Italy throughout the seventeenth century and witnessing its rare flowering was an occasion worthy of commemoration.¹¹ Eventually, agave plants would escape the boundaries of their cultivated gardens in Italy. Today, in addition to remaining popular ornamental plants, agaves grow widely throughout Italy and southern Europe.



⋮ Hortus botanicus Leiden

All Tequilas Are Mescals, but not all Mescals Are Tequilas

While the agave in Europe was an ornamental plant that symbolized botanical knowledge, agaves remained a productive plant in Mexico. In addition to collecting its sap, the hearts and leaf bases were also roasted in underground pits. This pit-roasted agave was turned into a fermented beverage called “mexcalli” in Nahuatl and later “mezcal” and “mescal” in Spanish. With the arrival of the Europeans came the technology of distillation. Fermented sugarcane distilled into rum became the model for turning pit-roasted fermented agave into vinos de mescal, which was eventually processed into modern-day mescals and tequila. While mescals can be made from any agave plant, under Mexican law, tequila can only be made from the blue agave (*Agave tequilana* or *Agave azul*) grown in specific regions (most notably Jalisco). While pulque was a sacred and ancient Mesoamerican beverage, mescal and tequila were a product of blending indigenous Mesoamerican with European knowledge and taste. Like their creators, tequila and mescals were hybrids, or mestizos.¹²



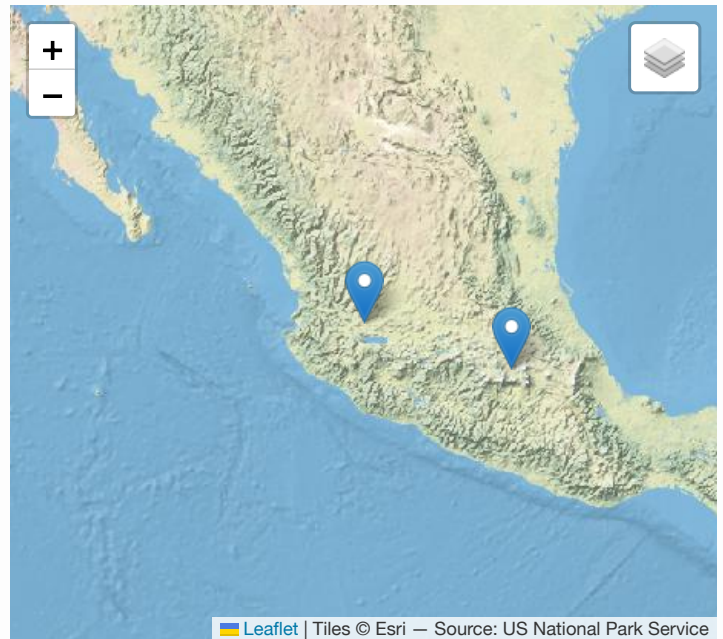
⋮ Agave roasting pit 1



⋮ Agave hearts in a roasting pit. Long Island Lou Tequila.

Tequila and National Identity

Today, [tequila](#) is the national drink of Mexico. Since its creation, and perhaps because of its cultural hybridity, tequila has become a driving force of Mexican identity. Following the Mexican Revolution, national ideology embraced cantina (drinking) culture and the hyper-masculine “machismo” ethos tequila came to represent. Once industrial distillation was introduced to Jalisco, agave roasters (*mescaleros*) were suddenly promoted from menial laborers to alchemists. Jalisco’s tequila cottage industry elevated entire segments of mestizo populations. By 1970, tequila was an international commodity and its export has more than doubled since, with almost two-thirds of tequila exported from Mexico being consumed by Canada and the United States.¹³



⋮ Jalisco, Mexico

The Future of Agave

Beyond producing one of North America's favorite spirits, agave plants, as they have for centuries, might help human societies survive in the face of global warming. Recent scientific studies have shown that many agave species can actually benefit from the increases in temperature and atmospheric carbon dioxide levels accompanying global climate change. More importantly, agave plants have the ability to capture harmful carbon dioxide and store it and other forms of carbon long-term, which can mitigate or defer global warming.¹⁴ Finally, emerging research suggests that agave plants' ability to survive in arid and semiarid climates makes them a viable biofuel feedstock, in the same way corn, sugarcane, and soybeans are used to produce ethanol. This is particularly important since approximately one-fifth of the earth's climate is semiarid. Growing biomass feedstocks on land previously unsuitable for food crops, like corn and soybeans, could be a sustainable answer to increasing demands for renewable fuels that do not conflict with food and feed production.¹⁵



⋮ Agave as biofuel

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