Maize above and below: How maize could have introduced Mesoamerican beliefs and narratives in the North American Eastern Woodlands

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MAIZE ABOVE AND BELOW

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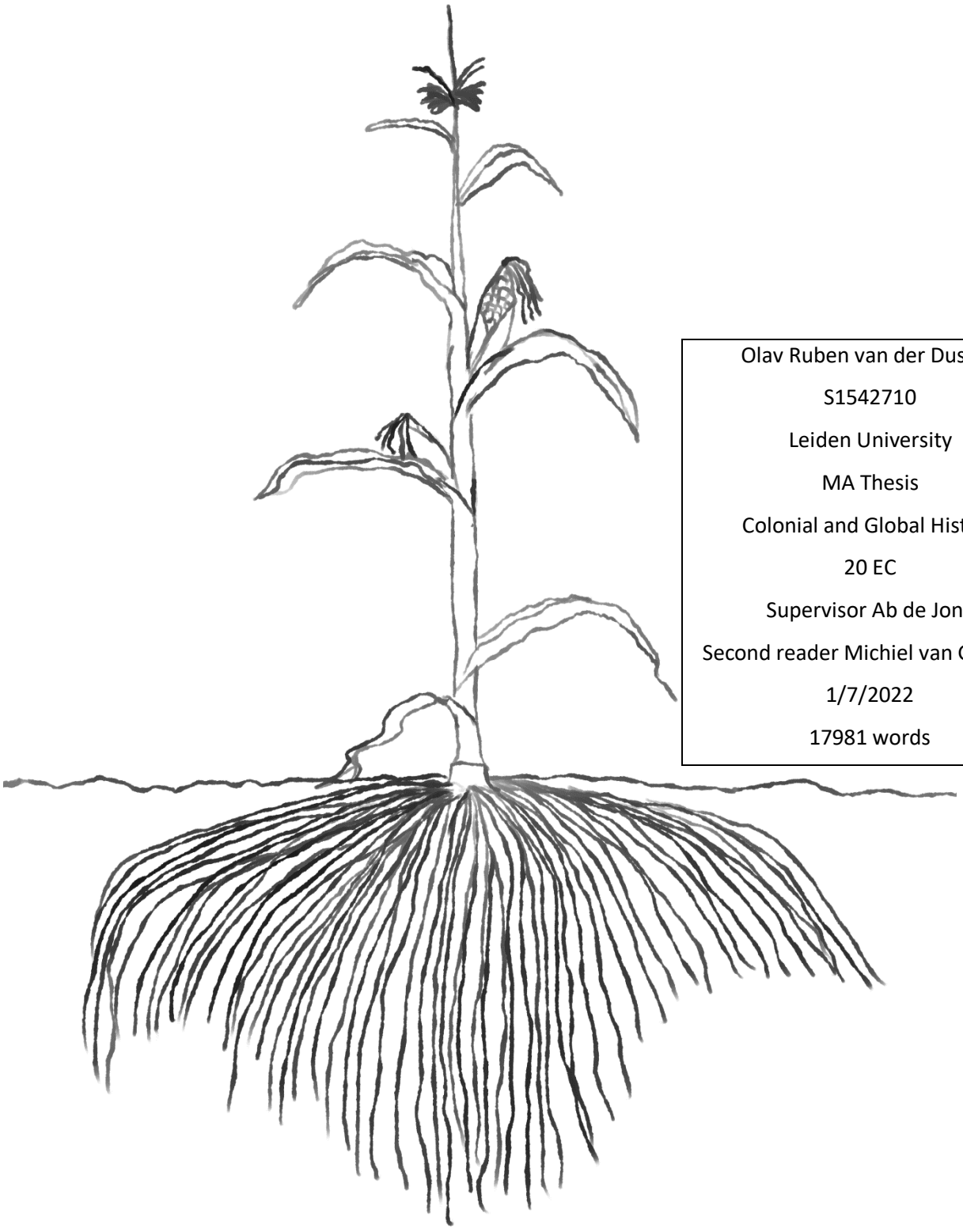

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Introduction

Maize, or corn in North America, has become one of the most successful modern cultigens thanks to millennia of selection and breeding by humans. While cultivation is now part of a giant global industry supporting livestock, machines and billions of people, at one point in time it was barely known outside of a small region in what is now Mexico.[1] Back then it was already so thoroughly bred, that maize was not able to propagate itself. Unlike other crops which had spread outside of Central America, maize needed people for both survival and spread to other localities. This it did, all the way to the North American continent.[2] However, as this thesis will show, maize was more than a product to consume, it had real religious value. From the Maya to the Iroquois, maize played a role in the understanding of the cosmos of Amerindians and there seems to have been multiple agreements on how this cosmos was shaped.[3]

Because of this a question might arise: was there, next to an exchange of maize, an exchange of thought? To tackle this subject, the question to be answered here will be: How did Mesoamerican maize beliefs shape the beliefs of North Amerindians in the Eastern Woodlands in the Precolumbian era?

This thesis uses archaeological and genetic research to track down the history of maize and uses archaeological research and ethnographic and historical records to analyse the relevant religious beliefs of the populations in the mentioned regions. It engages fully with the abundant and rapidly developing academic literature on the subject. While technically all secondary sources, they are engaged with to create new interpretations unique to this thesis, interpretations not present in the current scholarly discussion of today. Additionally, many of the narrative sources are the oldest, first published copies on the subject and sometimes even the only sources of certain beliefs. These too are engaged with to support entirely new interpretations not originally attached to these sources.

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[1] B. Shiferaw, a.o., "Crops that feed the world 6: Past successes and future challenges to the role played by maize in global food security", *Food security* (2011) 307-327, here 307.

[2] A. Christenson, "Who shall be a sustainer?": Maize and human mediation in the Maya Popol Vuh", J. Parham, L. Westling (eds) *A global history of literature and the environment* (Cambridge, 2016) 93-106, here 94.
N. Conard, a.o., "Accelerator radiocarbon dating of evidence for prehistoric horticulture in Illinois", *Nature* 308 (1984) 443-446, here 444.

[3] D. Leeming, *The Oxford companion to world mythology* (New York, 2005) 10, 67, 81, 82, 405.
I. Silverblatt, *Moon, sun, and witches: Gender ideologies and class in Inca and colonial Peru* (Princeton, 1987) 25, 31.
N. Hammond, K. Taube, "The Aberdeen celt: An early twentieth-century Olmec find", *Antiquity* 93 (2019) 488-501, here 491, 492.
P. Schaafsma, K. Taube, "Bringing the rain: An ideology of rain making in the Pueblo Southwest and Mesoamerica", J. Quilter, M. Miller (eds) *A Pre-Columbian world: Searching for a unitary vision of ancient America* (Washington D.C., 2006) 231-285, here 239-241, 251, 252.
G. Lankford, "Some cosmological motifs in the Southeastern Ceremonial Complex", F. Reilly, J. Garber (eds) *Ancient objects and sacred realms: Interpretations of Mississippian iconography* (Austin, 2007) 8-38, here 16, 17, 19, 20-29, 31.

Why is the research question so specific? This ties in to the relevance of the question. There is an ongoing discussion on the Precolumbian permeability of the now North American-Mexican border. Precolumbian exchanges between the North American Southwest region and Mesoamerica are accepted phenomena[4], but possibilities of exchange beyond this area are often questioned. Despite this, parallels between Mesoamerica and the North American Eastern Woodlands[5] have often been pointed out. These include similar rituals, ideals and ideas, ritual building characteristics, religious iconography and specific patterns in the consumption and use of maize.[6]

These parallels led to the assumption of a migration of Mesoamericans to North America, an important research subject during the early stages of the North American archaeological science. Such research was based on the assumption of a perceived smaller potential for social complexity among North Amerindians compared to the Mesoamericans.[7] This assumption did not withstand modern scientific scrutiny. As a result, the subject itself became almost taboo. Today, the independent development of complex Eastern Woodlands societies is mainly stressed, while perceived similarities with Mesoamerica are pointed out at best and attacked at worst.[8]

Yet a modern model to explain outsider influence does exist and can be used. Eastern Woodlands import and incorporations of foreign ideas of materials are known and explained as a

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[4] L. O'Donnell, J. Meyer, C. Ragsdale, "Trade relationships and gene flow at Pottery Mound Pueblo, New Mexico", *American antiquity* 85 (2020) 492-515, here 493, 494, 509.

[5] The Eastern Woodlands spans from the entire eastern half of the United States and southeast of Canada to the Great Plains.

[6] R. Hall, "Some commonalities linking North America and Mesoamerica", T. Pauketat (ed) *The Oxford handbook of North American archaeology* (Oxford, 2012) 52-63, here 53-55, 57, 58, 61.
B. Smith, "Agricultural chiefdoms of the Eastern Woodlands", B. Trigger, W. Washburn (eds) *The Cambridge history of the native peoples of the Americas: volume 1: North America: Part 1* (Cambridge, 1996) 267-324, here 267, 268.
S. Lekson, P. Peregrine, "A continental perspective for North American archaeology", *The SAA Archaeological Record* (Washington D.C., 2004) 15-19, here 19.
M. Hatch, "Meaning and the bioarchaeology of captivity, sacrifice, and cannibalism: A case study from the Mississippian period at Larson, Illinois", D. Martin, a.o. (eds) *The bioarchaeology of violence* (Gainesville, 2012) 201-225, here 203, 205, 210.
J. Blitz, "New perspectives in Mississippian archaeology", *Journal of archaeological research* 18 (2010) 1-39, here 13, 14.

[7] C. Hinsley, "Personalities and institutions in Americanist archaeology, 1850–1950", *Reviews in anthropology* 37 (2008) 122-135, here 124-126.
M. Rolingson, "The Toltec (Knapp) Mounds group in the nineteenth century", R. Mainfort a.o. (eds) *Arkansas archaeology: Essays in honor of Dan and Phyllis Morse* (Fayetteville, 1999) 119-142, here 128, 133, 138.
R. Clay, "The essential features of Adena ritual and their implications", *Southeastern archaeology* 17 (1998) 1-21, here 4.

[8] N. White, R. Weinstein, "The Mexican connection and the Far West of the U.S. Southeast", *American antiquity* 73 (2008) 227-277, here 228, 230.
G. Milner, *The Moundbuilders: Ancient peoples of Eastern North America* (London, 2004) 162.
Lekson, *A continental perspective*, 16.
P. Peregrine, S. Lekson, "The North American oikoumene", T. Pauketat (ed) *The Oxford handbook of North American archaeology* (Oxford, 2012) 64-72, here 68.
Smith, *Agricultural chiefdoms of the Eastern Woodlands*, 267, 268.

desire for foreign knowledge due to beliefs and social hierarchy.[9] These social factors are similarly used to explain similar exchanges, for example the import of cacao from tropical Mesoamerica to the dry New Mexico region in 1000-1125 A.D. This product was consumed with rituals originating from Mesoamerica by emulating Mesoamerican ritual vessels for cacao consumption. The local elite here had a comparable religious appreciation for cacao as Mesoamerican elites and the knowledge on how to treat cacao, both practically and ritually, had to have travelled.[10] In this thesis a similar model is proposed for maize, being handled as exotic material first before becoming a popular cultivate. Its establishment as a crop in North America points at knowledge exchange on cultivation and active motivation to cultivate it, as maize's survival here was not a given. Multiple researchers have advanced that this motivation was partly religious, but without going into detail what these maize beliefs might have looked like.[11]

This subject is relevant to the discussion of globalization in the past and points at globalizing movements in the Americas before Europeans were involved. It problematizes the assumption that far-travelling exchanges of ideas were barely possible on this continent before the arrival of the horse. The thesis will also highlight a form of exchange that focusses less on pure materialistic motives, as is often done, by involving belief systems. It also touches on debates on how maize spread and on the role of maize in the Eastern Woodlands, giving new contexts that can better explain maize's role in society than arguments based on maize's early scarcity, which are often used.[12] Finally, the subject is also important for the research on Precolumbian religion in the Eastern

[9] Peregrine, *The North American oikoumene*, 67, 68.
G. Sabo, J. Hilliard, L. Walker, "Cosmological landscapes and exotic gods: American Indian rock art in Arkansas", *Cambridge archaeological journal* 25 (2015) 261-273, here 266-270.
Hall, *Some commonalities linking North America and Mesoamerica*, 53, 57.
A. Kehoe, "Osage text and Cahokia data", F. Reilly, J. Garber (eds) *Ancient objects and sacred realms: Interpretations of Mississippian iconography* (Austin, 2007) 246-262, here 246.
R. Linton, "The origin of the Skidi Pawnee sacrifice to the Morning star", *American anthropologist* 28 (1926) 457-466 here 462, 464.
[10] M. Mathiowetz, "A history of cacao in West Mexico: Implications for Mesoamerica and U.S. Southwest connections", *Journal of archaeological research* 27 (2019) 287-333, here 287-289.
[11] J. Hart, "Maize agriculture evolution in the Eastern Woodlands of North America: A Darwinian perspective", *Journal of archaeological method and theory* 6 (1999) 137-180, here 151.
Peregrine, *The North American oikoumene*, 67, 68.
C. Scarry, "Variability in Mississippian crop production strategies", C. Scarry (ed) *Foraging and farming in the Eastern Woodlands* (Gainesville, 1993) 78-90, here 90.
A. VanDerwarker, G. Wilson, D. Bardolph, "Maize adoption and intensification in the central Illinois river valley: An analysis of archaeobotanical data from the Late Woodland to early Mississippian periods (A.D. 600-1200)", *Southeastern archaeology* 32 (2013) 147-168, here 163, 164.
[12] T. Emerson, T., a.o., "Isotopic confirmation of the timing and intensity of maize consumption in Greater Cahokia", *American antiquity* 85 (2020) 241-264, here 255.
M. Simon, "Reevaluating the evidence for Middle Woodland maize from the Holding site", *American antiquity* 82 (2017) 140-150, here 142, 143, 147.

Woodlands, an increasingly popular subject in archaeology.

The way this thesis will tackle the subject is: first looking at the evidence of maize's chronological travel to the Eastern Woodlands and how it could have travelled within this region. Then looking at maize's earliest usage within society and how it was connected to beliefs. Finally, beliefs related to maize will be looked at thematically and comparatively between Mesoamerica and the populations related to the Eastern Woodlands traditions. This way the possibility of idea travel and role of maize can be proven first before looking at the possibly accompanying beliefs. Throughout the thesis Mesoamerican parallel behaviour will be pointed at to give some extra context to maize's role in its original homeland. Beliefs will be analysed through a qualitative approach, focusing on shared characteristics and meaning through time and space.

For this thesis regions with strong interactivity are called "interaction spheres" and "interaction complexes". This is part of the conceptual apparatus of ethnographical and archaeological experts on these regions. When speaking about archaeologically defined, systematized specific behaviour shared within a region it will be called a "tradition" instead of a culture, due to how widespread and sometimes regionally divergent these can be. A cohesive social group will be variably called a "people", "nation" and "tribe". The appendices give some extra context on periodization and the place of these traditions, spheres, complexes and people. Finally, the term "supernaturals" refers to important figures within religious narratives.

M. Simon, K. Hollenbach, B. Redmond, "New dates and carbon isotope assays of purported Middle Woodland maize from the Icehouse Bottom and Edwin Harness sites", *American antiquity* 86 (2021) 613-624, here 613-622.

J. Hart, W. Lovis, "Reevaluating what we know about the histories of maize in Northeastern North America: A review of current evidence", *Journal of archaeological research* 21 (2013) 175-216 here 194, 195.

Chapter 1. Appeal and spread

The current consensus is that maize spread from a highland region in Mexico, likely to be the Balsas river drainage in Tehuacan valley, and diversified and dispersed very quickly from there to the north and south. Compare this to squash which was domesticated in Mesoamerica thousands of years earlier, but which did not spread as fast, highlighting maize's popularity. Researchers suspect that maize's ancestor was the grass plant Teosinte and that its sugary stalk was the initial factor which made it popular. The selection of teosinte for cultivation resulted in the birth of maize at around 6000 B.C., thanks to Mesoamerican hunter-gatherers. The genetic variety of the crop increased dramatically while barely being part of the local diet. Not until 3400 BC would true maize domestication be achieved and around 1600 BC it was an actual viable source of food and adapted to all climates in Mesoamerica.[13]

Early Mesoamerican agricultural sites are almost always found along major streams, occupied during the wet season of May-October. Highland rock shelters sometimes acted as seasonal camps for the early farmers and ancient crops can often be found within them. The process of domestication was accompanied with the exchange of other plants, resulting in each region of Mesoamerica having large sets of imported plants. Around 2000 BC and 1000 BC sedentary life increased and coincided with the spread of more productive maize.[14]

Maize probably spread to the North American Southwest through what is now the state of Chihuahua, Mexico. In the Southwest the earliest maize locally cultivated dates to 2100 B.C. while imported maize has an even earlier date, yet there was still no agricultural economy at the time. This date does overlap with a period of manufacturing change of special goods in Arizona since 2500 B.C., a change which spread through the Southwest. Centuries old basket-making techniques from Mexico were suddenly used in this region, together with changes in cordage and sandal-making methods.[15]

Throughout the Archaic period the Southwest remained a region of hunter-gatherers first and foremost and in the period of maize's dispersion there did not seem to have been many cases of food shortages that would have prompted extra reliance on it. Around 1200 BC maize agriculture existed in some form both in the lowlands and uplands around the upper Rio Grande valley. A mixed farming hunting-gathering economy can be found throughout the region and social formations

[13] J. Staller, *Maize cobs and cultures: History of Zea mays L* (Berlin, 2010) 107, 146, 163-165, 172, 175, 177, 192.
[14] Staller, *Maize cobs and cultures*, 166, 175-178, 182.
[15] D. Phillips, "Adoption and intensification of agriculture in the North American Southwest: Notes toward a quantitative approach", *American antiquity* 74 (2009) 691-707, here 691.
J. Adovasio, "The Mexican connection: Another look at "perishable" relationships between Mexico and Points North", *North American archaeologist* 26 (2005) 209-219, here 212-214.

increased, creating irrigation projects in the Rio Grande basin from 1000 B.C. onwards. The roles of men and women were also changing as the use of agriculture grew, males remained mobile while their female counterparts were the ones who preparing crops into food. Over time people began to settle for longer periods of time near their fields during the growing season, prompting the genesis of early villages. Maize became a main part of the diet and by 400 B.C. there was already a heavy reliance on maize in the northern Southwest, although local wild plants remained important. Given the speed at which maize first spread through the U.S. Southwest, versus how long it took to become a staple, it is a recurring hypothesis that some groups started cultivating maize as a ritual food or special treat.[16] More on this in chapter 2.

North American maize and its spread

But how did maize spread to Eastern North America? The shortest route, starting in Texas and the Gulf Coast, contains no evidence of maize dispersal and neither does Mexican Gulf Coast maize show any close relationship to Eastern North American maize. North American Southwestern maize, on the other hand, shows connections to multiple indigenous Eastern North American maize and genetic similarity with varieties grown in West and Central Mexico.[17] Early Southwestern maize probably grew from the Mexican highland landrace "Palomero de Jalisco" and afterwards experienced geneflow from the lowland landrace "Chapalote" via the Pacific coast. Kernel row amounts are a heritable trait[18] and are usually used to define maize races. 100-200 A.D. maize from the Southwest was small with 10- to 12-rows of kernels and is sometimes categorized as Chapalote, while around 1000 A.D. and later 8- to 10-rows are found here.[19]

In the Eastern Woodlands region of North America two Precolumbian genetic landraces are identified, 8- to 10-row and 12- to 14-row. The former is more common in the North, connected to Historical Northern Flint, the latter was more common at Middle Mississippian sites[20] in the Central

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[16] K. Hanselka, "Pan-regional overview of agriculture", B. Vierra (ed) *The Archaic Southwest: Foragers in an arid land* (Salt Lake City, 2018) 269-295, here 272, 274, 278, 286-291.
B. Vierra, R. Ford, "Early maize agriculture in the Northern Rio Grande valley, Mexico", J. Staller, R. Tykot (eds) *Histories of maize: Multidisciplinary approaches to the prehistory, linguistics, biogeography, domestication, and evolution of maize* (Amsterdam, 2006) 497-510, here 505-507.
D. Pearsall, "People, plants, and culinary traditions", T. Pauketat (ed) *The Oxford handbook of North American archaeology* (Oxford, 2012) 73-85 here 81, 82.
Phillips, *Adoption and intensification*, 701.

[17] Hanselka, *Pan-regional overview of agriculture*, 293, 294.
Y. Vigouroux a.o., "Population structure and genetic diversity of New World maize races assessed by DNA microsatellites", *American journal of botany* 95 (2008) 1240-1253, here 1248, 1249.

[18] F. Toledo a.o., "Inheritance of kernel row number, a multicategorical threshold trait of maize ears", *Genetics and molecular research* 10 (2011) 2133-2139, here 2137, 2138.

[19] R. Fonseca, a.o., "The origin and evolution of maize in the Southwestern United States", *Nature plants* 1 (2015) 14003-14008, here 14003, 14004, 14006.

Mississippi valley. The overall smaller genetic variety of North American maize compared to Central and South American maize reveals that the founding population was small, especially for Northern Flint.[21]

Northern Flint's genetic diversity seems to have decreased because of a series of establishments of populations which originated from only a small amount of maize. The new climates and soils in the Northeast also meant extra adaption which often results in a bottleneck effect, only certain kinds of maize survived the region. The northern latitude with its shorter growing seasons and longer day lengths can explain why it took a while for maize to become a staple food, it needed to adapt a lot and flower earlier. Maize first had to adjust to the dry Southwest and then to the entirely different growing periods and comparatively heavy rainfall of the Northeastern U.S., few early introduced maize would have been likely to survive here.[22]

Historical era Northern Flint lineages, indigenous to the Northern United States and Great Plains, are well adapted to this climate and seem derived from maize from the Southwest. The closest Historical relative of Middle/Late Woodland and Mississippian era maize found in New York state is Midwestern Northern Flint and includes maize races of the Mandan people. One Mississippian era sample here even shows affiliation to Chapalote. The Prehistorical New York state maize from these different periods show mostly affiliation between each other, just like how modern Midwestern maize races are mostly related to each other. Other Precolumbian and Postcolumbian New York samples also bear a somewhat close relation to Historical Cherokee flour. Modern Northeastern maize and corn from the Southeast on the other hand appear less connected to the New York maize. But why focus on New York of all places? It is because so far the earliest maize remains from Eastern North America have been found in New York state. Dated around 300 B.C., the maize was found as residue on ceramic at the Vinette site in the Finger Lakes region.[23]

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[20] The Mississippian tradition was a very important development which saw an increase in specialization and hierarchy, far spreading interactions between many communities and the start of large influential polities. Of the latter, Cahokia, Moundville, Spiro and Etowah will be mentioned throughout the thesis. Within the Mississippian world many beliefs were shared. For more context on time and place, see appendix.

[21] J. Haas, J. Picard, "Plant macroremains", J. Haas (ed) *Archaeological data recovery at the Finch Site (47JE0902), Jefferson County, Wisconsin: Volume 1* (Milwaukee, 2019) 391-434, here 396.

[22] Vigouroux, *Population structure of New World maize*, 1250.
J. Doebley, M. Goodman, C. Stuber, "Exceptional genetic divergence of Northern Flint corn", *American journal of botany* 73 (1986) 64-69, here 68.
Hart, *Reevaluating what we know*, 180.
Vigouroux, *Population structure of New World maize*, 1240, 1248-1250.
L. Guo a.o., "Stepwise cis-regulatory changes in ZCN8 contribute to maize flowering time adaptation", *Current biology* 28 (2018) 3005-3015, here 3012.

[23] J. Hart, R. Thompson, H. Brumbach, "Phytolith evidence for early maize (Zea mays) in the northern Finger Lakes region of New York", *American antiquity* 68 (2003) 619-640, here 623, 625, 626, 628, 629, 634.
J. Hart, H. Brumbach, R. Lusteck, "Extending the phytolith evidence for early maize (Zea mays ssp. mays) and squash (Cucurbita sp.) in central New York", *American antiquity* 72 (2007) 563-583, here 565, 567, 571-575, 577.

A Northern route

So, the earliest maize is from New York, how did it get there? While in the past it was believed that maize spread from the Mississippi river valley, this is now up for debate. The earliest dates of multiple maize finds from the Mississippi valley and its tributaries have recently been disproven by archaeobotanist Mary Simon a.o., who corrected the earliest finds to a much younger contexts of the Late Woodland period. Throughout the Midwest, most early maize is now from the 700-900 A.D. date range instead. This indicates that if there was maize-use, it was in very small quantities.[24] While it has always been assumed early maize was a "minor crop" used as backup food, Simon states the small quantities of evidence might point at maize having an entirely different role than a purely nutritious one. On the other hand, seed stocks would have to have been repeatedly exchanged and introduced over centuries for Northern Flint to have evolved the way it did, which implies that maize seeds did travel a lot between certain groups.[25]

Northern Flint's divergence to a point of it being a separate species means it had to exist for a very long time. Sites in New York, southern Ontario and Michigan have much older maize dates than the Mississippi valley and Midwest. Because of the Mississippi valley date readjustments, the theory on dissemination of maize is now that it might not have crossed the Mississippi river from west to east. A northern route above the Great Lakes similar to how centuries later beans would spread might have some merit instead.[26] The date adjustment harmonizes with the conclusions of archaeologist Eric Beales' 2014 master thesis in which he analysed all known Northeastern Woodland period maize samples. Calculations showed there was a small correlation of maize finds increasing in age the further Northeast samples came from and visaversa becoming younger the further Northwest from Vinette they were found. This implies early on there existed a centuries old flow of maize not into northeastern direction through the New York/Ontario corridor, but maize flowing from the Northeast into New York and southern Ontario. From there maize spread in a western direction. These patterns became even stronger when the mentioned disproven dates of the Midwest were coincidentally excluded by Beales in order to diminish change and site selection bias. His conclusion was that a period of early experimentation with maize in the northeastern region must have occurred before maize horticulture began to spread westwards in the Middle Woodland period, 500 A.D.[27]

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[24] Simon, *New dates and carbon isotope assays*, 613-622.
[25] Simon, *Reevaluating the evidence*, 142, 143, 147.
[26] Simon, *Reevaluating the evidence*, 140, 143, 146-148.
Hart, *Reevaluating what we know*, 179.
[27] E. Beales, *A critical analysis of the adoption of maize in southern Ontario and its spatial, demographic and ecological signatures* (MA thesis Anthropology, Trent University, Ontario, 2014) 113, 129, 166, 168, 169-172, 182, 320-327.

While maize was probably introduced multiple times in the region following different paths at different times, the Northern Flint lineage began as a single introduction event where multiple small founding populations were established. The disastrous effect of inbreeding that would have naturally followed was overcome, which points at maize being split into multiple separate groups that experienced regular gene-flow between them. Many early growing attempts were probably unsuccessful. So far no older evidence of maize growing has been found further Northeast of the Finger Lakes, which means that the communities near the Finger Lakes seemingly were the ones regularly exchanging maize amongst each other. Only 300 years after the first find of Vinette does maize seem to have spread further away, within this period maize continued to be used at the site and surrounding region. It all points at population expansion and/or successful maize propagation at Finger Lakes by a community with strong inner connections.[28] It appears that before maize arrived there, no lasting cultivation attempts were made in North America.

Though not as old as Vinette, maize found above and around the Great Lakes is still much older than around the Mississippi valley. The earliest maize dated above the northern Great Lakes is at 203 B.C.- 1 A.D., in the Upper Peninsula of Michigan.[29] Meanwhile, maize was being cooked and consumed at circa 390 to 210 B.C. in southern Québec without indication whether it was locally cultivated at that time. It is very possible that maize was first obtained through exchanges with populations from lower latitudes, but it might also point at maize traveling this northern route through Quebec before arriving in New York. The people of the region were still primarily hunter gatherers, only after 500 A.D. becoming more sedentary in the warm seasons of April-October. After that point faunal dietary tactics seemingly increased in importance. Only around 600-700 A.D., does maize appear to have been cultivated in southern Québec.[30]

So how about the rest of the Eastern Woodlands? While the (lack of) finds in the Midwest seem to insinuate that maize was absent in the Early Middle Woodland period, the only thing that really can be said is that no convincing proof of continuous maize horticulture existed. Research is made more difficult as not all food was cooked, dried for storage, or burnt in trash, which is what usually renders food findable.[31] The history of maize in North America has been rewritten multiple times by now and as recently as last year. At this point any maize that has been found but not

[28] Beales, *A critical analysis of the adoption of maize*, 167-169, 172, 173.
Hart, *Reevaluating the histories of maize in North America*, 180, 181, 190.
[29] R. Albert, a.o., "Earliest microbotanical evidence for maize in the northern Lake Michigan basin", *American antiquity* 83 (2018) 345-355, here 349, 353.
[30] C. St-Pierre, R. Thompson, "Phytolith evidence for the early presence of maize in southern Quebec", *American antiquity* 80 (2015) 408-415, here 408, 409, 413.
C. St-Pierre, C. Chapdelaine, "After Hopewell in southern Québec", *Archaeology of Eastern North America* 41 (2013) 69-89, here 78.
[31] Pearsall, *People, plants, and culinary traditions*, 74.

identified with techniques to determine its $\delta^{13}C$ ratio is suspect of being wrongly identified and this is unfortunately the case for many past findings in the Midwest.

However, even dating techniques using $\delta^{13}C$ ratios do not accurately represent maize residue when it is processed as hominy, a cooking technique which can decrease $\delta^{13}C$ ratios. This technique, which seems to have become widespread around 1000 A.D. but could have existed much earlier, can make it look like maize is not present in residue.[32] For this identification problem maize phytoliths should be looked at instead, as these are not affected by cooking. This dating was exactly used at Vinette and for multiple finds at the Great Lakes region.[33] $\delta^{13}C$ ratios can only be used to show positive evidence for maize in residue, not negative evidence. The dating technique is accurate for uncooked remains, but only looking at that will result in sample bias. This can be seen at the accurate dating at Vinette were maize phytoliths -and thus cooking evidence- is much older than uncooked samples. Later on, New York state saw an exponential increase of maize within ceramic residue in the 400-500 A.D. period and $\delta^{13}C$ ratios did increase, coinciding with more finds of microbotanical remains. Yet a similar trend of $\delta^{13}C$ increase also exists in Michigan in the same period, but here there is a lack of corroborating microbotanical proof.[34]

Research on maize phytoliths in the Midwest is unfortunately less extensive than in the Northeast. Another factor which complicates things is that during initial introduction maize would not have been eaten in large quantities, making another way to find early maize; analysation of diet, less than viable. Neither can a diet accurately represent all kinds of usage for maize. This is why for maize, the lack of evidence should not automatically count as evidence of absence. For example, for maize to have reached the Northeast the way it did the Great Plains were crossed, yet so far there is no concrete evidence for maize dated to this early diffusion in the region.[35] What the lack of evidence only really can say it that during its earliest penetration maize did not take root

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[32] W. Lovis, a.o., "Hardwood ash nixtamalization may lead to false negatives for the presence of maize by depleting bulk d13C in carbonized residues", *Journal of archaeological science* 38 (2011) 2726-2730, here 2726, 2727, 2729, 2730.
T. Myers, "Hominy technology and the emergence of Mississippian societies", J. Staller, R. Tykot, B. Benz (eds) *Histories of maize: Multidisciplinary approaches to the prehistory, linguistics, biogeography, domestication and evolution of maize* (New York, 2006) 511-520, here 514, 515, 518.
Hart, *Reevaluating what we know*, 188.
Emerson, *Isotopic confirmation of maize consumption*, 254.
[33] Hart, *Extending the phytolith evidence for early maize*, 257, 265, 266.
Simon, *Reevaluating the evidence*, 147.
[34] J. Hart, a.o., "The potential of bulk δ13C on encrusted cooking residues as independent evidence for regional maize histories", *American antiquity* 77 (2012) 315-325, here 317, 319, 323, 324.
Lovis, *Hardwood ash nixtamalization*, 2726, 2727, 2729, 2730.
[35] Simon, *Reevaluating the evidence*, 148.

everywhere it travelled. Cultivation experiments were not successful enough to result in continued exploitation until it reached the Finger Lakes.[36]

As stated, while the Finger Lakes establishment of maize was a one-time event, influxes of maize from the outside could still have occurred to some degree. For the Midwestern American Bottoms, an important region of cultural development in the Eastern Woodlands, it is believed repeated introductions of maize occurred as well. Here, however, early small maize populations seem not to have been sustainable.[37] Import might have been practical enough for this region to make cultivation experiments less cost efficient in comparison. Maize is a very easily portable crop and the Midwest was situated near the maize growing centre of the Southwest, and later also the Northeast.

The same situation of lack of maize finds and maize diet also apply to the Southeast and Lower Mississippi valley where intensive maize farming can only be pointed at in the Late Woodland/ Mississippian transition around AD 950, despite some older maize finds. This region probably played an even smaller role in maize dissemination to the North due to the location and lack of proof.[38]

The people of the Eastern Woodlands and their interactions

Now that there is more information maize's travel, the people it travelled to will be looked at in order to understand the social dynamics that could have influenced maize's movement.

An important Precolumbian Eastern Woodlands hunter-gathering tactic was the gathering of nuts. This was done during a small autumnal time-window and forced people to move to nut-rich regions. But there was also a horticultural trend in the central Eastern Woodlands since the Late Archaic, the "Eastern Agricultural Complex". While less energy-rich than nuts, the small seed-providing weedy plants that were cultivated thrived in habitat disturbed by human habitation and annual flooding, making them easy crops.[39]

In the Middle Woodland period food production markedly increased and spawned economies based on it. In the Midwest this coincided with growing human habitation and the rise of the Ohio basin based Adena and later Hopewell traditions. These traditions constructed similar ritual buildings and artifacts, imported similar exotic materials and subsisted on hunting-gathering and

[36] Hart, *Reevaluating what we know,* 185.
[37] M. Simon, K. Parker, "Prehistoric plant use in the American Bottom: New thoughts and interpretations", *Southeastern archaeology* 25 (2006) 212-257, here 229, 230.
[38] A. Wright, "Local and "global" perspectives on the Middle Woodland Southeast", *Journal of archaeological research* 25 (2017) 37-83, here 44.
M. Rolingson, R. Mainfort, "Woodland period archaeology of the Central Mississippi valley", D. Anderson, R. Mainfort (eds) *The Woodland Southeast* (Tuscaloosa, 2002) 20-43, here 23, 35, 37-39.
[39] D. Zeanah, "Foraging models, niche construction, and the Eastern Agricultural Complex", *American antiquity* 82 (2017) 3-24, here 3-7, 12.
Rolingson, *Woodland period archaeology*, 23.

some horticulture. The Adena and Hopewell overlapped in geography and sometimes chronology, but the Adena tradition was older and more localized, while the Hopewell were part of a widespread Eastern Woodlands interaction sphere. This resulted in multiple regions outside of the Ohio basin sharing "Hopwellian" characteristics. While maize spread during the Adena and Hopewell, it wasn't until after both had disappeared, around 800-1100 A.D., that maize started to become the most important crop for many Eastern Woodlands populations.[40]

What makes these complexes relevant to the thesis, is their religious behaviour which would influence the entire region. They were part of a pan-regional increase of group ritual in the Eastern United States between 500 B.C. to 500 A.D. Both traditions used and revisited ritual centres during meetings or reunions, but the Hopewell lived further away from such sites than the Adena did, which implies a stronger "pull" to these places among their populations. The Adena started with single group ritual gatherings which over time expanded in scope, while the Hopewell had multigroup gatherings from the beginning. These group interactions had dimensions of ideology and material exchange, possibly including marriage candidates. The Hopewell tradition's multigroup use of cemeteries, increased complexity of architecture and overall increase in ritual, forms a break from the previous era in the region. A likely result of their multi-group behaviour was the enhancement of ritual social roles to ease tensions, a role shaped differently per Hopewell group.[41] Adena ideology on the other hand was somewhat more egalitarianist.[42]

Yet, while maize eventually travelled among them, maize's trail in the Eastern Woodlands started outside of these communities. The Finger Lakes are part of the Northeast, where EAC

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[40] N'. Greber, "Adena and Hopewell in the Middle Ohio valley: To be or not to be?", D. Applegate, R. Mainfort (eds) *Woodland period systematics in the Middle Ohio valley* (Tuscaloosa, 2005) 19-39, here 20, 24, 23, 24, 29.
L. Sieg, "Valley view Hopewell taxonomy in the Middle Ohio region", D. Applegate, R. Mainfort (eds) *Woodland period systematics in the Middle Ohio valley* (Tuscaloosa, 2005) 178-196, here 179, 193.
D. Charles, "Colorful practices in Hopewellian earthwork construction", *RES: Anthropology and aesthetics* 61/62 (2012) 343-352, here 349.
Pearsall, *People, plants, and culinary traditions*, 83.
B. Smith, "Origins of agriculture in Eastern North America", *Science* 246 (1989) 1566-1571, here 1566.
E. Henry, "Building bundles, building memories: Processes of remembering in Adena-Hopewell societies of Eastern North America", *Journal of archaeological method and theory* 24 (2017) 188-228, here 189.
Smith*, Origins of agriculture in Eastern North America*, 1566.
[41] Greber, *Adena and Hopewell in the Middle Ohio valley*, 29, 30, 35, 36.
S. Martin, "Languages past and present: Archaeological approaches to the appearance of Northern Iroquoian speakers in the lower Great Lakes region of North America", *American antiquity* 73 (2008) 441-463, here 443.
[42] S. Rafferty, "The many messages of death mortuary practices in the Ohio valley and Northeast", D. Applegate, R. Mainfort (eds) *Woodland period systematics in the Middle Ohio valley* (Tuscaloosa, 2005) 150-167, here 156, 157, 165.
M. Heckenberger, a.o., "Early Woodland period mortuary ceremonialism in the far Northeast: A view from the Boucher cemetery", *Archaeology of Eastern North America* 18 (1990) 109-144, here 130.

horticulture barely existed until the Middle Woodland period.[43] Here another interaction complex existed, the "Meadowood interaction sphere", in which groups shared "supra-local values, rituals, behaviours, styles, and raw material".[44] It reached from the Midwest to the Atlantic coast and New Jersey and existed during the Early Woodland period. They had standardized import and export of specific "exotic" goods with socio-political importance, of which cherts from Onondaga limestone were the most valued. Some outcrops of this material are found around the Finger Lakes, which might have given populations here some power within this interaction sphere. Control on limestone flow seems to exist, as some Meadowood sites/populations received more cherts than others, regardless of their proximity to the source. This and the Meadowood's impact on future burial characteristics might explain how maize's early context could have spread.[45]

Even the Adena seem to have been indebted to the Meadowood for some of their own characteristics. But other complexes existed in the Northeast too, some overlapping with the Meadowood sphere, others replacing it. Around 450 B.C. population mobility decreased slightly and Meadowood was disappearing in favour of more local groups. When looking at New York state, the north participated in the Point Peninsula complex which shared some burial rituals with its predecessor and occasionally imitated Adena and Hopewell burial practices by importing Ohio valley grave goods.[46] Western New York state meanwhile contained the Hopewell tradition "Squawkie Hill phase", containing many exotic goods typical for Hopewell traditions and procuring materials originating from Ohio.[47] Meanwhile, Adena mortuary features are found in New York state and specifically multiple Finger Lakes sites, New England, Ontario and beyond. While a characteristic of the "Middlesex complex", this tradition has roots older than the Adena.[48] Finally, central New York is

[43] A. Fulton, C. Yansa, "Onset of the Paleoanthropocene in the lower Great Lakes region of North America: An archaeological and paleoecological synthesis", *Annals of the American Association of Geographers* 111 (2021) 771-783, here 779.
Zeanah, *Foraging models, niche construction*, 4.
H. Brumbach, "The history of the collared rim in the Finger Lakes, New York", C. Rieth, J. Hart (eds) *Current research in New York archaeology: A.D. 700-1300* (2011) 83-93, here 89.
[44] K. Taché, "New perspectives on Meadowood trade items", *American antiquity* 1 (2011) 41-79, here 42.
[45] Taché, *New perspectives on Meadowood trade items*, 41-43, 46-48, 68-70.
[46] J. Wright, *History of the Native people of Canada: Volume II (1,000 B.C. - A.D. 500)* (Gatineau, 2006) 607, 611, 617, 666, 671, 672, 675.
J. Tharp, J. Chapin, "Terminal Late Archaic Glacial Kame and its Meadowood phase", *Central States archaeological journal* 51 (2004) 41-54, here 42.
C. Chapdelaine, "Overview of the St. Lawrence Archaic through Woodland", T. Pauketat (ed) *The Oxford handbook of North American archaeology* (Oxford, 2012) 250-262, here 257, 258.
[47] M. Boulanger, "Geochemical analysis of mica source specimens and artifacts from the Abbott farm National Historic Landmark (28ME1)", *American antiquity* 82 (2017) 374-396, here 378.
[48] D. Rutherford, "Reconsidering the Middlesex Burial phase in the Maine-Maritimes region", *Canadian journal of Archaeology / Journal Canadien d'Archéologie* 14 (1990) 169-181, here 169, 170, 172, 173, 176, 177.
D. Grayson, "Statistical inference and Northeastern Adena", *American antiquity* 35 (1970) 102-104, here 103, 104.

known for its admixture of Meadowood and Middlesex ritualism and the large region of western New York state, eastern Ontario and western Quebec, shared many Early Woodland characteristics, utilized Meadowood and Adena materials and used the same pottery type which was much produced at Vinette.[49] Overall, Ohio import seems to have been very popular, but it is unclear what items, if any, may have reached back in return. Could this have been maize?[50]

The Northeast's interaction with the Midwest involved religion and would have involved maize-cultivation. The Ohio-based Adena and Hopewell traditions had strong religious impact in the Eastern Woodlands which possibly reverberated all the way into the Historical era, but the Northeast also had distinct and old traditions. The Middlesex tradition for example, while later on sharing some Adena traits, had older sites, old ceremonies developed since the end of the Archaic period and a mound possibly originating in 1000 B.C. The Adena and Middlesex both shared the same appreciation for certain materials and goods and inherited traits from the Meadowood and "Glacial Kame complex". The latter, which would transition into the Meadowood, was the forerunner of Adena and Hopewell burial ritual and mound-making. Still, Middlesex' connections to the Adena was so distinct that this is what separates them from the Meadowood.[51]

Early Northeastern maize users could thus take part in multiple overlapping interaction networks between populations who shared multiple religious traits. Through such networks maize probably travelled to other regions. For example, all the way on Block island, south of the coast of Connecticut, multiple maize phytolith samples were found from the same date-range as the Vinette maize. The population here were part of the Meadowood Interaction Sphere and used Vinette pottery. It is so far the only evidence of early maize in this region, with little proof of it originating from the mainland coastal area. People from the island thus went out of their way to import the product.[52]

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[49] Heckenberger, *Early Woodland period mortuary ceremonialism*, 139.
L. Parker, "The Fitzgerald site: A non-Meadowood Early Woodland site in southwestern Ontario", *Canadian journal of Archaeology / Journal Canadien d'Archéologie* 21 (1997) 121-148, here 135, 136.
S. Loring, "Boundary maintenance, mortuary ceremonialism and resource control in the Early Woodland: Three cemetery sites in Vermont", *Archaeology of Eastern North America* 13 (Milford, 1985) 93-127, here 95.
[50] Boulanger, *Geochemical analysis of mica source specimens*, 378.
[51] Tharp, *Terminal Late Archaic Glacial Kame*, 42.
Heckenberger, *Early Woodland period mortuary ceremonialism*, 109, 111, 113, 120, 122, 130, 134, 135, 137-140.
Loring, *Boundary maintenance in the Early Woodland*, 95.
[52] K. Dotzel, "Mind the gap: Maize phytoliths, macroremains, and processing strategies in southern New England 2500-500 BP", *Economic botany* 75 (2021) 30-47, here 35, 37-39.
M. Neskov, "Maritime settlement and subsistence along the southern New England coast: Evidence from Block Island, Rhode Island", *North American archaeologist* 18 (1997) 343-361, here 348.

Seasonality of societies

But how did such interactions look like? The Eastern Agricultural Complex is believed to have influenced Midwest populations to coalesce more often, yet while the Northeast groups were on the fringe of this horticultural tradition, populations here they too would periodically gather.

Seasonal cycles of spring coalescence at a settlement and dispersals at fall occurred in the Northeast and Great Lakes region since the Late Archaic and continued in the Early Woodland period. Springtime fish runs must have forced multiple populations to aggregate at favourable fish harvesting areas which were possibly preceded by rituals expressing solidarity, such as funerals. After these fish harvests, populations could spread from these interaction centres throughout the summer, distributing themselves more evenly. It is believed that during this season people were occupied with a mixture of hunting, fishing and gathering. Once fall came, family groups scattered to inland fall camps for nut collecting, to disperse once again after nutting season. People went further into the interior to forage until the cycle repeated.[53]

The Spring meetings in the Meadowood complex have been called trade fairs and were part of intergroup integrations. These must have occurred at places of predictable resource abundance and sources of exotic materials. The proposed sites for these fairs, based on archaeological evidence, are near rich lakes and rivers, an archipelago and one possibly near the Atlantic coast, all prime fishing stations for cooperative harvesting. At such fairs exotic objects were exchanged and ceremonies practiced, which included funerals as well as feasts. These rituals have been found in pairs, were different communities created burials on opposite sides of the rivers. For places like southern Ontario, large fishing sites for spring occupation and fall dispersal were still created into the Middle Woodland period and this behaviour is also proposed for the wider Point Peninsula complex.[54]

The same seasonal behaviour of spring coalescence and fall dispersal is theorized for the Late Archaic Northwest Ohio and southeast Michigan and this continued into the Middle Woodland period. Settlements around lake Eerie are all clustered around good fishing spots. Spring hunting and tuber collecting could have additionally supported these temporary settlements. Even at Cahokia,

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[53] K. Taché, A. Burke, O. Craig, "From molecules to clay pot cooking at the Archaic-Woodland transition: A glimpse from two sites in the Middle St. Lawrence valley, QC", *Canadian journal of archaeology / Journal Canadien* d'archéologie 41 (2017) 212-237, here 224, 226, 228, 230.
T. Abel, D. Fuerst, "Prehistory of the St. Lawrence river headwaters region", *Archaeology of Eastern North America* 27 (1999) 1-53, here 17, 21-23.

[54] Taché, *New perspectives on Meadowood trade items*, 61, 65, 70-72.
N. Ferris, M. Spence, "The Woodland traditions in southern Ontario", *Revista de arqueología Americana* 9 (1995) 83-138, here 99, 100, 103.

the quintessential site of the sedentary Mississippian tradition, spring fish seasonality was present.[55] Yet in the Midwest it obviously also depended on availability, as in the Late Woodlands mid-Ohio aquatic resources only played a minor role.[56]

For the Northeast, everything seems to point at the early introduction of maize not changing this seasonal behaviour. As mentioned, it was just not an important part of the diet early on. The earliest introduction of maize in New York state did not change the subsistence regime of the region and other examples of early maize such as in Michigan show that maize was not adopted and consumed by every occupant of the find site. The earliest finds of maize of southern Quebec also precede sedentarism and thus probably preceded farming.[57] There was a change overtime however: after 150 A.D. both human population and horticulture seem to have increased in the Northeast.[58]

Maize's uneasy early position

The Eastern Agricultural Complex crops were productive foods that grew naturally without human intervention and could be left alone until harvest after broad seed scattering. This was still done in the Historical era. Maize in comparison needed more preparing for consumption, needed better prepared and maintained fields and had seeds needing to be individually sown. Seeds were buried deep as animals tended to dig up corn hills with visible kernels and not all seeds germinate, even in modern times. Maize's root system is also shallow, Northern Flint stalks had to be additionally hilled after reaching half a meter as wind blew it over otherwise, forcing people to put it upright again, sometimes multiple times throughout its growth. This is a problem the Maya had as well and prompted the same solution. Amerindian agriculturalists cared much about corn's well-being, expending significant time tending and watching it throughout its growth, sometimes entire days. Some even soaked kernels in special concoctions as protection.[59] Adopting maize would also have

[55] D. Stothers, T. Abel, "Archaeological reflections of the Late Archaic and Early Woodland time periods in the western lake Erie region", *Archaeology of Eastern North America* 21 (1993) 25-109, here 50, 51.
M. Levine, "The Clauson site: Late Archaic settlement and subsistence in the uplands of central New York", *Archaeology of Eastern North America* 32 (2004) 161-181, here 175.
W. Lovis, R. Donahue, M. Holman, "Long-distance logistic mobility as an organizing principle among northern hunter gatherers: A Great Lakes Middle Holocene settlement system", *American antiquity* 70 (2005) 669-693, here 675.
R. Yerkes, "Bone chemistry, body parts, and growth marks: Evaluating Ohio Hopewell and Cahokia Mississippian seasonality, subsistence, ritual, and feasting", *American antiquity* (2005) 241-265, here 245, 250.
[56] M. Seeman, W. Dancey, "The Late Woodland period in southern Ohio: basic issues and prospects", T. Emerson a.o. (eds) *Late Woodland societies: Tradition and transformation across the Midcontinent* (Lincoln, 2000) 583-611, here 594.
[57] Hart, *Extending the phytolith evidence for early maize*, 580.
Albert, *Earliest microbotanical evidence for maize*, 349, 353.
St-Pierre, *After Hopewell in southern Québec*, 78.
[58] Fulton, *Onset of the Paleoanthropocene*, 10.
[59] Christenson, *Who shall be a sustainer?*, 94.

changed certain associations with the environment, such as ranking plants that can provide food like wild sunflower as weeds when in maize fields, or seeing heavy flooding as negative for maize while it was a positive for EAC crops.[60]

This once again speaks against early maize as an easy backup food. Advocates of this theory suppose maize can be left for a time, but this would have been detrimental to maize's early survival in the Northeast. The factors mentioned forced even Historic era Amerindians who periodically left maize to still occasionally return or leave people behind for activities like weeding. This issue was not present for EAC crops. Historical parttime agriculturalists who did leave maize could additionally supply themselves with maize from other maize cultivators, early maize adopters did not have this luxury.[61]

A Historical example of such maize supplementation occurred between mobile Plains groups and the agricultural Arikara, during the latter's annual religious maize harvest ceremony. The mobile Plains groups visited and exchanged products for maize and noted how, unlike themselves, maize was religiously important to the Arikara. They respected the Arikara's harvest ceremony, ending existing hostility for this event, and were taught how to grow maize by them. For the Arikara, spreading maize to others was almost a religious task. This exchange seems to be an applicable model for the spread of maize, maize-agriculture and maize-related ideas outside of the Northeast, through annually reoccurring multi-group ceremonies.[62]

B. Smith, C. Cowan, "Domesticated crop plants and the evolution of food production economies in Eastern North America", P. Minnis (ed) *People and plants in ancient Eastern North America* (Washington D.C., 2003) 105-125 here 109, 110, 119, 120.
G. Wilson, *Uses of plants by the Hidatsas of the northern Plains* (Lincoln, 2014) 4, 10, 14, 15.
M. Gilmore, "Arikara agriculture", *Gilmore papers* (n.y.) 1-7, here 3, 4.
<https://aisri.indiana.edu/research/editorial/gilmore/arikara_agriculture.pdf> (26/4/2022)
R. Yerkes, "Hopewell tribes: A study of Middle Woodland social organization in the Ohio valley", W. Parkinson (ed) *The archaeology of tribal societies* (Ann Arbor, 2002) 227-245, here 236.
C. Scarry, "Crop husbandry practices in North America's Eastern Woodlands", E. Reitz, C. Scarry, S. Scudder, (eds) *Case studies in environmental archaeology* (New York, 2007) 391-404, here 397.
F. Waugh, *Iroquis foods and food preparation* (Ottawa, 1916) 18, 19.
[60] Zeanah, *Foraging models, niche construction*, 7, 13.
A. Presotto, a.o., "Sunflower crop-wild hybrids: Identification and risks", *Crop protection* 30 (2011) 611-616.
Gilmore, *Arikara agriculture*, 4.
<https://aisri.indiana.edu/research/editorial/gilmore/arikara_agriculture.pdf> (26/4/2022)
[61] Hart, *Maize agriculture evolution in the Eastern Woodlands*, 151.
Hart, *Reevaluating what we know*, 194, 195.
Smith, *Domesticated crop plants in Eastern North America*, 119, 120.
G. Will, G. Hyde, *Corn among the Indians of the upper Missouri* (Lincoln, 1964) 113.
[62] M. Gilmore, "Information on the divine gift of corn to the Arikara, and of ceremonies of religious worship when the Hukawirat sacred bundle is opened", *Gilmore papers* (n.y.) 1-29, here 1, 5-8.
<https://aisri.indiana.edu/research/editorial/gilmore/information_on_the_divine_gift_of_corn_to_the_arikara_and_of_ceremonies_of_religious_worship_when_the_hukawirat_sacred_bundle_is_opened.pdf> (26/4/2022)
M. Gilmore, "Notes on intertribal commerce between the Arikara and other tribes", *Gilmore papers* (n.y.) 1-3, here 1, 2.

Chapter 2. Use of maize

Ethnographic research shows food preference is based on a wide variety of factors, the most important being tastiness. Another factor is its use in social and ritual activities.[63] While maize used to be one of the few sources of sugar in the Americas, other sources like honey and different sugary plants were by no means scarce, especially in Mesoamerica. The fact that early maize was not a staple food and had not reached its full productivity potential, yet travelled so widely, creates the conundrum of what the return cost was for such time and labour investment. Explanations that rely on its sugary quality have been widely criticized, yet the counter-explanation of it being a back-up food raises more questions than it answers as well. One hypothesis that combines both the incentive of flavour and social activity claims it was used for ritual beverages, but this too, has been heavily criticized. While it is true for some regions, not every area maize spread to contains evidence of maize beverages, especially in North America.[64]

So, the question becomes: what could have induced the spread and adoption of maize in so vast a region? Politics/hierarchy may play a role, but most of the areas concerned still lacked robust hierarchical structures. With no easy access to maize, sufficient motive to import it is needed. If this was truly influenced by elites, the crop had a heightened worth behind it. It could have either given validation of special status or was deemed to have high economic worth.[65]

The other interpretation, maize as a back-up food, has become the go-to explanation because it points at a practical function: survival. Yet the small evidence for actual consumption of maize simply does not support this. Importing and adopting maize meant straining time and material and during the process of adoption there were likely multiple cases of extinction before maize was successfully established, meaning multiple retries occurred. This chapter will show that maintenance of maize required effort. A practical focus on human survival does not explain why on the fringes of

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<https://aisri.indiana.edu/research/editorial/gilmore/notes_on_intertribal_commerce.pdf> (26/4/2022)
K. Kroupa, "Education as Arikara spiritual renewal and cultural evolution", *History of education quarterly* 54 (2014) 303-322 here 315.
D. Posthumus "Hereditary enemies? An examination of Sioux-Arikara relations prior to 1830", *Plains anthropologist* 61 (2016) 361-382, here 365, 368, 371.

[63] I. Farrington, J. Urry, "Food and early history of cultivation", *Journal of ethnobiology* 5 (1985) 143-157, here 145, 146.

[64] J. Smalley, M. Blake, "Sweet beginnings: Stalk sugar and the domestication of maize", *Current anthropology* 44 (2003) 675-703, here 675, 677, 678, 680, 689-692.

[65] J. Arnold, "The archaeology of complex Hunter-Gatherers", *Journal of archaeological method and theory* 3 (1996) 77-126, here 100, 110.
Taché, *New perspectives on Meadowood trade items*, 67, 70, 71.
K. Hudson, J. Henderson, "Long-distance exchange and centralized political power in Precolumbian America", D. Wood (ed) *Anthropological considerations of production, exchange, vending and tourism* (Bingley, 2017) 87-114, here 108.

the Eastern Agricultural Complex, established crops were bypassed for the foreign and barely eaten maize. This despite some EAC crops containing similar yields, better nutritional balance and/or needing lower time and energy investment.[66] Thus, a high maintenance, barely used back-up food does not make sense. Early maize had to adapt to local conditions and would have given small returns. Yet despite not being a popular food, it was integrated into the social sphere of society, being continuously exchanged between multiple groups.

Economic factors could have played a role, but these mobile societies lacked an agricultural economy. Items of exchange in the Northeast instead held strong religious-ceremonial and possibly ideological value. Goods were exchanged based on ceremonial worth and not hoarded but "consumed" in rituals, like burials. Such ritual exchange systems mostly gave people of elite status options to improve their positions in society.[67] Trade items had ritual connotations. Evidence for this continues throughout the Northeast's interaction with the Adena and Hopewell burial complexes. As we shall see, this strongly supports the idea that maize had ritual significance.

In Mesoamerica, the ritual connotations of maize were very clear, being thoroughly related to death and rebirth beliefs. The cycle of life and death was always continuing, like the cycle of maize planting and harvesting. The plant was and is seen as sacred and life giving. It had strong associations to human life, often represented through children. Sometimes it was metaphor, other times such as among the Maya, maize was a ceremonial object in childbirth rituals and was afterwards planted or preserved for later use by the child. Older children were reborn through water as a life stage milestone ceremony, which was explained as representing the growth of a plant through water. It was also believed dead family members could be reborn through birth, which is why the Tz'utujil Maya say "he/she returned" or "he/she sprouted" after births.[68] Most importantly, multiple narratives speak of humankind being created from maize, more on this in chapter 3.

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[66] F. Rose, "Intra-community variation in diet during the adoption of a new staple crop in the Eastern Woodlands", *American antiquity* 73 (2008) 413-439, here 415.

[67] Taché, *New perspectives on Meadowood trade items*, 42, 63, 64, 66, 67, 70, 71.

[68] G. Vail, "The serpent within: Birth rituals and midwifery practices in Pre-Hispanic and Colonial Mesoamerican cultures", *Ethnohistory* 66 (2019) 689-719, here 695, 708.
L. Huff, "Sacred sustenance: Maize, storytelling, and a Maya sense of place", *Journal of Latin American geography* 5 (2006) 79-96, here 81, 85.
A. Scherer, "The Classic Maya sarcophagus: Veneration and renewal at Palenque and Tonina", *RES: Anthropology and aesthetics* 61/62 (2012) 242-261, here 245, 247, 258.
M. de Orellana, a.o., "The mythology of corn", *Artes de México* 79 (2006) 65-80, here 69.
J. Źrałka, a.o., "In the path of the Maize god: a royal tomb at Nakum, Peten, Guatemala", *Antiquity* 85 (2011) 890-908, here 891, 893-895, 904.
M. Fierer-Donaldson, *To be born an ancestor: Death and the afterlife among the Classic period royal tombs of Copán, Honduras* (Philosophy doctorate dissertation, Anthropology, Harvard University, Cambridge, 2012) 68, 69, 81, 100-102, 104.

Throughout Mesoamerica it is believed corn had a soul and emotions like humans. Similar ideas exist in North America, such as singing to corn the same way as is done to children and linking human life stages directly to maize and maize agriculture ceremonies. Mesoamericans also connected maize to death, maize altars were also altars for the Day of the Dead and some Maya filled the mouths of their dead with ground corn. The Precolumbian Zapotecs had burial vessels possibly containing maize and made urns with maize growth motifs while the Huichol venerated ancestors in temples where they also stored sacred corn and had cornfields with similar layouts to their temples.[69]

Harvest ceremonies for premature and mature corn were widespread and could involve human and animal blood offerings and in the past human sacrifice, as ceremonies were related to fertility and indebtedness to the corn-giving deities. Death and burial were needed for the renewal of life. "Dead" maize seeds were buried to be reborn and harvest ceremonies were referred to as "Feast of the Dead", partly because autumn/winter was the time vegetation began to "die".[70]

Maize's ritual significance can already be seen in its usage by the earliest complex society of Mesoamerica, the Olmec. As a new crop, maize was overwhelmingly found in ritual context on fancy serving ware. While used differently per Olmec region, there are multiple examples of it being ritually important and not a back-up food. Higher consumption is seemingly connected to centres of developing socio-political power, even when other food resources were available.[71] The crop was not yet productive. Many researchers believe that like cacao, which was used in elite burial ceremony and similarly consumed, maize was a luxury commodity used in rituals and feasting. It was

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[69] A. Sellen, "Sowing the blood with the maize: Zapotec effigy vessels and agricultural ritual", *Ancient Mesoamerica* 22 (2011) 71-89, here 71, 72, 80, 86, 87.
de Orellana, *The mythology of corn*, 67.
M. de Orellana, a.o., "Rituals of corn", *Artes de México* 78 (2006) 65-80, here 66-69, 71-73, 78, 79.
J. Neurath, D. Bahr, "Cosmogonic myths, ritual groups, and initiation: Toward a new comparative ethnology of the Gran Nayar and the Southwest of the U.S.", *Journal of the Southwest* 47 (2005) 571-614, here 598.
de Orellana, *Rituals of corn*, 74, 75, 77.
J. Howard, "The Arikara Buffalo society medicine bundle", *Plains anthropologist* 19 (1974) 241-271, here 263, 264.
M. Gilmore, "The sacred bundles of the Arikara", *Gilmore papers* (n.y.) 1-16, here 3. <https://aisri.indiana.edu/research/editorial/gilmore/the_sacred_bundles_of_the_arikara.pdf> (28/4/2022)
D. Gradwohl, "Shelling corn in the Prairie-Plains: Archaeological evidence and ethnographic parallels beyond the pun", D. Ubelaker, H. Viola (eds) *Plains Indian studies: A collection of essays in honor of John C. Ewers and Waldo R. Wedel* (Washington D.C., 1982) 135-156, here 136-143, 148, 151, 152.

[70] I. Šprajc, "The Venus-rain-maize complex in the Mesoamerican world view: Part I", *Journal for the history of astronomy* 24 (1993) 17-70, here 17, 20, 21, 33-38.
T. Grigsby, C. de Leonard, "Xilonen in Tepoztlán: A comparison of Tepoztecan and Aztec agrarian ritual schedules", *Ethnohistory* 39 (1992) 108-147, here 113, 115, 116.
Sellen, *Sowing the blood with the maize*, 71, 72, 80, 86, 87.
de Orellana, *Rituals of corn*, 67-69, 79.

[71] A. VanDerwarker, R. Kruger, "Regional variation in the importance and uses of maize in the Early and Middle Formative Olmec heartland: New archaeobotanical data from the San Carlos homestead, southern Veracruz", *Latin American antiquity*, 23 (2012) 509-532, here 510-513, 523-526.

an important exotic product and consumption was an expression of power.[72] Ritual appreciation for maize when first introduced is even present all the way into the Andes region, consumed in ceremonial contexts and found in rituals involving death long before becoming a dietary staple. It was even found at the top of an earthen ceremonial mound with burial/offering ceramics.[73]

In the Eastern Woodlands, the maize-adopters must have had the motivation and knowledge to cultivate maize, with indifference or cultivation ignorance even in the short term decreasing the change of maize survival. The higher cultivation cost of maize compared to local plants would have been especially felt in the Northeast with its poorer climate for exotic plants. Therefore, ceremonial use of maize seems the most plausible background for these societies. Examples of later exponential growth of maize-use have also been linked to religious values, such as in the central Illinois river valley. Increased usage occurred despite its not being economically and ecologically viable and in the exact period when hierarchy and Cahokian-style rituals increased in the Eastern Woodlands.[74] In the Historical era mistreatment of maize was a religious taboo and similar behaviours might have surrounded maize earlier.[75]

Pottery

If the evidence points at maize mainly being used in ceremonial contexts, then how was it used? For this, we need to look at pottery.

The Northeast had an uninterrupted ceramic tradition, starting in the Early Woodland period with "Vinette 1" type pottery. It was succeeded by the Early Middle Woodland period with Vinette 2, a more elaborate and decorated form. Elaboration trends are found as early as 300 B.C. at the namesake site Vinette and through the Middle Woodland period art motifs became further elaborated and widespread.[76] It was a Vinette-style pot at Vinette in which the earliest example of maize was found. These pots were not meant for practical use and held great ceremonial importance throughout the wider region, being emulated by the Meadowood and Middlesex complexes. The increase of decoration on them -first attested at Vinette and in the same period as the earliest

[72] VanDerwarker, *Regional variation of maize in the Olmec heartland*, 513, 526-528.
[73] A. Logan, C. Hastorf, D. Pearsall, "Let's drink together": Early ceremonial use of maize in the Titicaca basin", *Latin American antiquity* 23 (2012) 235-258, here 237, 248, 251, 252.
J. Staller, R. Thompson, "A multidisciplinary approach to understanding the initial introduction of maize into coastal Ecuador", *Journal of Archaeological Science* 29 (2002) 33-50, here 38, 39, 42, 43.
R. Burger, N. Van Der Merwe, "Maize and the origin of highland Chavín civilization: An isotopic perspective", *American anthropologist* 92 (1990) 85-95, here 85, 87, 90-92.
[74] Hart, *Maize agriculture evolution in the Eastern Woodlands*, 151-153.
VanDerwarker, *Maize adoption and intensification*, 148, 163, 164.
P. Minnis, "Prehistoric ethnobotany in Eastern North America: An introduction", P. Minnis (ed) *People and plants in ancient Eastern North America* (Washington D.C., 2003) 1-16, here 1-4.
Rose, *Intra-community variation in diet*, 415, 416.
[75] G. Lankford, *Looking for lost lore: Studies in folklore, ethnology, and iconography* (Tuscaloosa, 2008) 41.
[76] Brumbach, *The history of the collared rim*, 83-85, 88.

evidence for maize use- suggests a desire to distinguish these vessels as mortuary objects. Vinette pottery was interred in burials whole or ritually broken, sometimes containing food remains. The first Vinette vessel with maize contained nothing else.[77]

Vinette 1 is believed to have been used for springtime feasts on labour-intensive prestige foods, mostly aquatic animal products. Most sites containing Vinette 1 are near fishing spots. Yet the innovation of Northeastern pottery was not triggered due to practical demand and is believed to have spawned from social consumption contexts, connected to the new elaborate mortuary trends and prestige item circulation.[78] Maize became associated with this ritual pottery in other Northeastern regions too, such as southern Quebec. Around the fifth century maize became more important to the diet and spread further throughout and outside of the Northeast. While the pottery tradition did not travel with it, the burial context of maize was still present.[79]

Usage for burials

Seasonal community aggregations for burials and feasts occurred in the Eastern Woodland from the Late Archaic to the Historical era. Vinette 1's selective use for aquatic food and little use for autumn resources such as deer meat and nuts shows spring was the most important ceremonial season here. Some EAC crops could have supported the ceremony, able to be harvested and used in spring after autumn sowing.[80]

Meanwhile, although planting can be celebrated in spring, maize historically has feast and harvest celebrations during summer and autumn. While it can be eaten somewhat earlier when immature, such as in the Historical era Green Corn Ceremony, this reduction in mature maize would have greatly increased the risk of inbreeding and extinction of early maize, making this highly unlikely for a time when maize was still uncommon. Also, Historical reasons to eat green maize was partly its

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[77] K. Taché, "Explaining Vinette I Pottery variability: The view from the Batiscan Site, Québec", *Canadian journal of archaeology / Journal Canadien d'archéologie* 29 (2005) 165-233, here 165, 167, 168, 194, 195, 201.
Brumbach, *The history of the collared rim*, 88-90.
Heckenberger, *Early Woodland period mortuary ceremonialism*, 122.
Taché, *From molecules to clay pot cooking*, 229-231.

[78] K. Taché, D. White, S. Seelen, "Potential functions of Vinette I pottery: Complementary use of archaeological and pyrolysis GC/MC data", *Archaeology of Eastern North America* 36 (2008) 63-90 here 67-70, 73, 74, 79.
Taché, *From molecules to clay pot cooking*, 212, 219, 224, 226, 228, 230.
K. Tache, O. Craig, "Cooperative harvesting of aquatic resources and the beginning of pottery production in north-eastern North America", *Antiquity* 89 (2015) 177-190, here 184-186.

[79] St-Pierre, *Phytolith evidence for the early presence of maize in Quebec*, 409, 410.
Brumbach, *The history of the collared rim*, 85, 86, 88, 89.

[80] Yerkes, *Bone chemistry*, 246, 251.
Stothers, *Archaeological reflections in the lake Erie region*, 50, 51.
T. Madrigal, J. Holt, "White-tailed deer meat and marrow return rates and their application to Eastern Woodlands archaeology", *American antiquity* 67 (2002) 745-759, here 753, 757.
Scarry, *Crop husbandry practices*, 397.
Smith, *Domesticated crop plants in Eastern North America*, 121.
Tache, *Cooperative harvesting of aquatic resources*, 184, 185.

sweetness, but back then the sweetness of mature maize was already exceptional compared to the bland-tasting local crops.[81]

Maize did not lend itself to spring celebrations and forced extra harvesting efforts upon people in late summer/autumn, usually a time of foraging dispersal. The maize harvest meant the ending of a season of heightened care for plants which even EAC horticulturalist might not have experienced. It was a climax. Maize was also still fresh and tasty after harvest, compared to old and dried in spring.[82] Maize harvest celebrations thus likely would have been an alternative to the springtime harvesting gatherings, which can explain why maize was seen as "Vinette-pottery worthy", showing high appreciation for the crop. Maize also likely recontextualized spring gatherings partly as a planting ceremony.

This also meant change in burial practices over time. At Kipp Island, Finger Lakes, a 650 A.D. cemetery shows maize was part of the diet and was cooked at the site. Its secondary burials are believed to have spawned from *summer* coalescence of otherwise dispersed communities and contained crops usually harvested late summer/autumn, including maize.[83] After circa 500 A.D. the evidence for Eastern Woodlands communities using maize grows, still also found in burial contexts. Similar warm season burial assemblies occurred in Late Woodland northern Ohio at "mortuary districts". Here springtime production of fish and feasts on surplus occurred and in autumn maize was harvested, their other surplus feast produce. It is believed to have been introduced here as a funerary ritual food, with maize also being found as burial offering in two burial pits. The region's ossuaries, secondary burials and skeletal alterations also show possible death-rebirth beliefs, an important subject that will be discussed later.[84]

At Gard Island, lake Erie, a 7th-9th century settlement contained maize in burial as well. While still not part of the average diet, in this period some individuals from the wider region show increased maize consumption. Mortuary ritualism in the surrounding area also increased, but burials were still rare. One of the few mound sites in the area, used as early as 436 A.D., did contain burials and was revisited for secondary burials. Near the mound, pits contained ceramics, animal bones and maize despite maize consumption and horticulture still being rare, making these mound burials very

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[81] Hart, *Maize agriculture evolution in the Eastern Woodlands*, 152.
E. Nelson, A. Peles, M. Melton, "Foodways and community at the Late Mississippian site of Parchman Place", *Southeastern archaeology* 39 (2019) 1-22, here 14.
J. Spencer, "Shawnee folk-lore", *The journal of American folklore* 22 (1909) 319-326, here 322.
[82] Yerkes, *Hopewell tribes*, 236.
Scarry, *Crop husbandry practices*, 397.
[83] J. Hart, L. Anderson, R. Feranec, "Additional evidence for cal. seventh-century A.D. maize consumption at the Kipp island site, New York", C. Rieth, J. Hart (eds) *Current research in New York archaeology: A.D. 700-1300* (Albany, 2011) 27-40, here 27, 28, 31, 32, 38.
[84] D. Stothers, T. Abel, "The Early Late Woodland in the Southwestern Lake Erie littoral region", J. Hart, C. Rieth (eds) *Northeast subsistence-settlement change: A.D. 700-1300* (Albany, 2002) 73-96, here 78, 81, 85, 89, 92.

unique events. Contemporary neighbouring populations to the south also coalesced seasonally but did not all practice special burial events. Even into 1050 A.D. these populations contained members who had never eaten maize. Yet when in the Late Woodlands period the same northern burial tradition caught on here, their highly ritualized burials housed elite individuals who consumed significant amounts of maize, still a rare diet within the wider region.[85]

Around 500 A.D. maize had even travelled to regions where it was too cold to grow, found as residue on ceramic vessels in the Canadian prairie and subarctic boreal region. Their users, of the Laurel culture which spread from Quebec to Saskatchewan, are believed to have derived their mortuary mound-building tradition indirectly from the Hopewell and Hopewell mortuary artefacts are found at Laurel sites. Interestingly, maize farming spread through the Hopewellian region around the same period the Laurel culture adopted mound-creation. Information and goods travelled between the Laurel and Hopewell communities and as maize was only a fraction of the Laurel diet it seems that the crop was part of the ceremonial transfer of ritual goods and knowledge. Maize had spread suddenly and rapidly throughout boreal North America thanks to these Hopewellian contacts. Similarly, maize-cultivation was popularized together with tobacco -a ritual crop- in the Great Plains during increased Hopewellian influence.[86]

Mounds

The Hopewell visited mounds during spring and autumn, and since possibly as early as the Middle Woodland period maize has been found in mounds.[87] Like burials, mound constructions brought people periodically together and connected them to the land.

Both the Hopewell and Mississippians performed planned rituals at their mounds. Within Mississippian mounds hearths, pottery, tobacco and maize seeds can be found -suggestive of conspicuous ritual consumption- and food preparation occurred using hearths near their ritual plazas and courtyards. These were periodically refurbished, possibly alluding to “renewal ceremonies”, special seasonally recurring ceremonies that celebrated the renewal of life.[88]

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[85] M. Schurr, B. Redmond, “Stable isotope analysis of incipient maize horticulturalists from the Gard Island 2 site”, *Midcontinental journal of archaeology* 16 (1991) 69-84, here 71-73, 76.
B. Redmond, “Intrusive Mound, Western Basin, and the Jack’s Reef Horizon: Reconsidering the Late Woodland archaeology of Ohio”, *Archaeology of Eastern North America* 41 (2013) 113-144, here 113, 119, 120, 128, 131, 134-137.

[86] M. Boyd, C. Surette, “Northernmost Precontact maize in North America”, *American antiquity* 75 (2010) 117-133, here 117-120, 129, 130.
M. Adair, “Great Plains paleoethnobotany”, P. Minnis (ed) *People and plants in ancient Eastern North America* (Washington D.C., 2003) 258-346, here 286, 289-291, 294, 295.

[87] G. Crawford, D. Smith, V. Bowyer, “Dating the entry of corn (Zea mays) into the Lower Great Lakes Region”, *American antiquity* 62 (1997) 112-119, here 118.
N. Mueller, *Mound centers and seed security: A comparative analysis of botanical assemblages from Middle Woodland sites in the lower Illinois valley* (New York, 2013) 49, 53.

[88] Yerkes, *Bone chemistry*, 242.

Mound and agricultural activities occasionally overlapped. In the Mississippian and Historical era, some maizefields were communal property and both maizefields and mounds were created by the community. In Mississippian era Wisconsin and Michigan communal maizefield-construction even replaced mound-building and fields sometimes emulated symbols from burial pottery. Generally, both building-projects also involved burning, being used in mound burial rituals and to clear vegetation on mounds and maizefield plots. As chapter 3 will show, burning was important in religious narrative. That chapter will also show how mounds and "corn hills" could both simulate cosmological centres. Corn hills are heaped soil, used in the Northern Hemisphere to raise maize above saturation levels, as overly wet soil can be detrimental to maize-growth. Mounds could similarly be used to raise crops above flooding levels, as has been observed in Florida.[89] Another connection between mounds and corn hills is that the act of planting seeds within corn hills possibly was an allegory for the internment of bodies into mounds, as the subsequent subsection will show. In narrative, mounds can also connect to food/maize provision and maize and mound narratives both pertain to life renewal/rebirth.[90]

Hart, *Additional evidence for maize consumption*, 32.
O. Lindauer, J. Blitz, "Higher ground: The archaeology of North American platform mounds", *Journal of archaeological research* 5 (1997) 169-207, here 186.
Henry, *Building bundles, building memories*, 189, 191, 192.
D. Hally, J. Langford, "Mississippi period archaeology of the Georgia Valley and Ridge province", *Georgia archaeological research design paper* 4 (1995) V-VIII, 1-119, here 55, 72, 77.

[89] R. Sasso, "Vestiges of ancient cultivation: The antiquity of garden beds and corn hills in Wisconsin", *Midcontinental journal of archaeology* 28 (2003) 195-231, here 206, 208, 219, 213, 222, 224.
W. Gartner, "Late Woodland landscapes of Wisconsin: Ridged fields, effigy mounds and territoriality", *Antiquity* 73 (1999) 671-683, here 677, 680-682.
J. Gallagher, "Agricultural intensification and ridged-field cultivation in the Prehistoric Upper Midwest of North America", D. Harris, G. Hillman (eds) *Foraging and farming: The evolution of plant exploitation* (London, 1989) 572-584, here 578-580.
Rose, *Intra-community variation in diet*, 431.
E. Curtin, "A small site in Coxsackie, circa A.D. 1200: Some ecological issues concerning its age and location", C. Rieth, J. Hart (eds) *Current research in New York archaeology: A.D. 700-1300* (Albany, 2011) 53-76, here 60.
Scarry*, Crop husbandry practices*, 395, 396, 398.
G. Wagner, "Eastern Woodlands anthropogenic ecology", P. Minnis (ed) *People and plants in ancient Eastern North America* (Washington D.C., 2003) 126-171, here 146, 147.
G. Crawford, D. Smith, "Paleoethnobotany in the Northeast", P. Minnis (ed) *People and plants in ancient Eastern North America* (Washington D.C., 2003) 172-257, here 207.
T. Kidder, S. Sherwood, "Look to the earth: The search for ritual in the context of mound construction", *Archaeological and anthropological sciences* 9 (2017) 1077-1099, here 1082, 1085, 1086.
M. Seeman, F. Soday, "The Russel Brown mounds: Three Hopewell mounds in Ross county, Ohio", *Midcontinental journal of archaeology* 5 (1980) 73-116, here 75-78, 82-84, 90, 91.
Yerkes, *Hopewell tribes*, 236.
D. Charles, "Woodland demographic and social dynamics in the American Midwest: Analysis of a burial mound survey", *World archaeology* 24 (1992) 175-197, here 176.

[90] D. Benn, E. Bettis, R. Mallam, "Cultural transformations in the Keller and Bluff top mounds", *Plains anthropologist* 38 (1993) 53-73, here 71.
A. Skinner, "Traditions of the Iowa Indians", *The journal of American folklore* 38 (1925) 425-506, here 501.

Finally, as mentioned in chapter 1, the spread of maize likely occurred during multi-group meetings, something which occurred near mounds. Mounds acted as communication bridges between multiple territories in Southeastern Ohio, placed specifically for visibility and to spot other mounds. Seed exchanges between communities were also needed for harvest security, seed stocks could be traded or gifted during mounds ceremonies and cultivation techniques could have been taught. Studies on behaviourisms regarding dispersal of new crops in farming communities across the globe show that seed exchanges were prominent events where exchange of information on cultivation took place and that new crops were introduced by trusted community members. This fits the Hopewell mound ceremonies, which connected small local communities with possible family ties.[91]

Like the Eastern Woodlands, Mesoamericans also burned fields for preparation, had cooperative farming, different corn races and other smaller similarities in cultivation. Here in wetlands, natural little hills were the favourable places for planting and were probably the precursor to artificial platforms used for cornfields. These platforms had connotations to the Underworld, death and rebirth.[92]

Return from the afterlife and renewal

Life-renewal beliefs were widespread in North America, usually framed as the possibility to return from the afterlife, which could happen multiple times in different bodies. Partial resurrection could also be through ceremonially taking the name and responsibility of the deceased. Returning from death is also a recurring subject in hero narratives.[93]

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[91] J. Waldron, E. Abrams, "Adena burial mounds and inter-hamlet visibility: A GIS approach", *Midcontinental journal of archaeology* 24 (1999) 97-111, here 107.
Clay, *The essential features of Adena ritual*, 13, 14-16.
Mueller, *Mound centers and seed security*, 2, 3, 16, 57, 58.

[92] de Orellana, *The mythology of corn*, 80.
de Orellana, *Rituals of corn*, 72, 73, 76.
A. Siemens, "Wetland agriculture in Pre-Hispanic Mesoamerica", *Geographical review* 73 (1983) 166-181, here 166, 167, 169, 170, 176, 178, 180.
B. Just, "Mysteries of the Maize god", *Record of the Art Museum, Princeton University* 68 (2009) 2-15, here 7.

[93] M. Thurman, "Covering the dead" and Arikara mortuary practices", *Plains anthropologist* 29 (1984) 61-63, here 61.
C. Speal, "The social implications of Younge Complex mortuary ritual: A survey of post-mortem skeletal modifications from Riviere au Vase, Michigan", *Archaeology of Eastern North America* 34 (n.p., 2006) 1-28, here 16.
L. Irwin, "Reincarnation in America: A brief historical overview", *Religions* 8 (2017) 1-26 here 3, 4.
Å. Hultkrantz, "The immortality of the soul among North American Indians", *Zeitschrift für Ethnologie* 121 (1996) 221-243, here 237, 239.
J. Mooney, "Myths of the Cherokee", *Annual report of the Bureau of American Ethnology to the Secretary of the Smithsonian Institution* 19 part 1 (1900) 3-548, here 262, 474.
A. Gernet, "Saving the souls: Reincarnation beliefs of the seventeenth-century Huron", A Mills, R. Slobodin (eds) *Amerindian rebirth: Reincarnation belief among North American Indians and Inuit* (Toronto, 1994) 38-54, here 44-48, 50, 51.

In the archaeological field, death-to-life beliefs can often be found through burial related ceremonialism. Secondary burials for example strongly relate to concepts of transition and metamorphosis, while the form of interment places can carry symbols of regeneration, for example granaries or butterflies.[94] Secondary burials, a typical feature of the Mississippians, can also coincide with community/agriculture renewal ceremonies.[95] Mortuary rituals were very important to Mississippians and large ceremonial sites had a part in it, such as Moundville which was fully dedicated to burials in its final stages[96] and the Spiro mounds which were used as ossuaries for its maize-eating elites. The majority of interments at Spiro were in fact secondary.[97]

By the Historic era, secondary burials were widespread throughout the Eastern Woodlands. They could be done after de-fleshing the body or by waiting for decomposition. Bodies were laid out for indefinite time, in some cases years until special occasions. At the Huron "Feasts of the Dead" large numbers of remains were interred together, which could be once every 8-12 years. The burial ceremony involved eating and gift-giving. These burials could even have political dimensions as neighbouring villages and friendly tribes could be invited. Similar ceremonies have been recorded among neighbouring nations. Other Eastern Woodland groups likewise had large feasts for their communal burials.[98] Among the Onondagas guests were summoned to these feasts with a grain of corn.[99]

Another aspect of renewal ceremony was burning. In the Mississippian era American Bottoms, building-burning changed from being practical destruction with small ceremonial offerings of nuts and maize to full-blown rituals of renewal. At Cahokia burning ceremonial buildings symbolised

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[94] D. Ilan, Y. Rowan, "Expediting reincarnation in the fifth millennium BCE: Interpreting the Chalcolithic ossuaries of the southern Levant", *Oxford journal of archaeology* 38 (2019) 248-270, here 261, 263, 264.
[95] I. Kuijt, "The regeneration of life: Neolithic structures of symbolic remembering and forgetting", *Current anthropology* 49 (2008) 171-197 here 172, 175, 176, 190, 192.
L. Goldstein, "Aztalan mortuary practices revisited", L. Sullivan, R. Mainfort (eds) *Mississippian mortuary practices: Beyond hierarchy and the Representationist perspective* (Gainesville, 2010) 90-112, here 108, 111.
[96] G. Wilson, "Community, identity, and social memory at Moundville", *American antiquity* 75 (2010) 3-18, here 11, 12, 14, 15.
[97] A. Mayes, "Spiro mounds, Oklahoma: Dental evidence for subsistence strategies", *International journal of osteoarchaeology* 26 (2016) 749-758, here 751.
Charles, *Colorful practices in Hopewellian earthwork*, 346, 347.
[98] G. Shaffer, "Nanticoke Indian burial practices: Challenges for archaeological interpretation", *Archaeology of Eastern North America* 33 (2005) 141-162, here 145-149.
R. Johnston, "Notes on ossuary burial among the Ontario Iroquois", *Canadian journal of archaeology / Journal Canadien d'archéologie* 3 (1979) 91-104, here 95, 96.
M. Kapches, "Ossossané ossuary: The circle closes", *Archaeology of Eastern North America* 38 (2010) 1-15, here 1, 2, 6.
Speal, *The social implications of mortuary ritual*, 16.
D. Curry, "Ossuary burials in middle Atlantic landscapes", *Archaeology of Eastern North America* 43 (2015) 1-22, here 1-4.
[99] W. Beauchamp, "Indian corn stories and customs", *The journal of American folklore* 11 (1898) 195-202, here 197.

renewal and burning was connected to mound construction. Maize was used as offering and complete storages containing maize and other ritual objects were purposely burned. Maize is believed to have acted as ritual commodity itself in American Bottoms, sometimes found in special wrappings in burned pits or unusually arranged and burned.[100] An artefact containing cosmological meaning was found together with burned maize pits in a sacred space near a mound, suggesting cosmological narrative played a role in these rituals.[101] Intentional burning of large amounts of maize also occurred at Mississippian and Historical era sites in the Southeast. The renewal ceremonies during which maize and ritual artefacts were burned may have been the early Mississippian version of the Green Corn Ceremony.[102]

The Green Corn Ceremony is one of the most important renewal ceremonies of the Historical era Eastern Woodlands. It marked the renewal of life, the community and forgiveness of past wrongdoings, which even applied to tribes who had been at war.[103] It usually occurred before or during the ripening of maize, between late July and early September, and could include disposal and burning of food as ritual purification. Great fires in which all old objects were disposed could be involved and some communities created mounds out of the ash heaps and cleaning activities through the years. Maize-burning was often its own ritual, a harvest thanksgiving. Many of the Mississippian renewal ceremonies involving maize seem analogous and similar communal cleaning events and ash dumps can be found throughout the Mississippian period.[104] Sacred public spaces were purified and sometimes symbolically buried during the Historical GCC. Ancestor veneration

[100] M. Baltus, G. Wilson, "The Cahokian crucible: Burning ritual and the emergence of Cahokian power in the Mississippian Midwest", *American antiquity* 84 (2019) 438-470, here 450, 451, 453, 455, 457, 459, 465.
T. Pauketat, a.o., "A Mississippian conflagration at East St. Louis and its political-historical implications", *Journal of field archaeology* 38 (2013) 210-226, here 210, 215-217, 219.
[101] L. Kozuch, "The Cahokia fenestrated shell gorget", *Illinois archaeology* 22 (2010) 502-507, here 503, 505, 506.
[102] A. VanDerwarker, B. Idol, "Rotten food and ritual behavior: Late woodland plant foodways and special purpose features at Buzzard Rock II, Virginia (44RN2/70)", *Southeastern archaeology* 27 (2008) 61-77, here 63, 68, 69, 73.
[103] Gilmore, *Arikara agriculture*, 5.
<https://aisri.indiana.edu/research/editorial/gilmore/arikara_agriculture.pdf> (2/5/2022)
Kroupa, *Education as Arikara spiritual renewal*, 315.
B. Grantham, *Creation myths and legends of the Creek Indians* (Gainesville, 2002) 75, 76.
[104] VanDerwarker, *Rotten food and ritual behavior*, 70, 73.
Nelson, *Foodways at the Parchman Place*, 14-16.
M. Smith, M. Williams, "Mississippian mound refuse disposal patterns and implications for archaeological research", *Southeastern archaeology* 13 (1994) 27-35, here 32.
VanDerwarker, *Rotten food and ritual behavior*, 73, 74.
T. Emerson, *Cahokia and the archaeology of power* (Tuscaloosa, 1997) 70, 71, 87, 89, 91, 97, 99, 104, 121, 131, 133, 135-137.

might also have been part of the ceremony in the past and outside this ceremony the Iroquois burned corn specifically to feed the dead.[105]

Another Mississippian example of maize-renewal beliefs is the possible relation between urn burials and maize cooking. One widespread tradition was their combined use of shell-tempered pottery with maize. At Moundville and in North Carolina, many vessels, used priorly for cooking maize, were used as burial containers, in the latter region specifically for infants. Maize cooking was partly contextualized as related to the afterlife, or perhaps maize even represented human life-stages. Rebirth beliefs of the Historical era show that dead individuals returning to life were seen the same as buried seeds germinating and springing to life. Some groups even associated germination with darkness and the Underworld, the place humans visit after death.[106]

This human-maize identification is how rebirth beliefs are perceived in large parts of Mesoamerica as well, often invoked through children.[107] It could be that the maize's many vulnerabilities were somewhat equated to the vulnerability of young children. North Amerindian accounts tell of the necessity of protecting maize from all kinds of mammals, birds and insects. Women, men and children were all involved in their protection.[108] A Hidatsa account states in the past corn was cared for similarly to caring for ones' child and growing corn was sung to as was done for children. An Arikara story likens a corn ear to a fragile child needing the attention of a mother, while a Prairie Potawatomi clan specifically only named their children after their maize harvest.[109]

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[105] V. Knight, "The institutional organization of Mississippian religion", *American antiquity* 51 (1986) 675-687, here 683, 684.
R. Hall, "Ghosts, water barriers, corn, and sacred enclosures in the Eastern Woodlands", *American antiquity* 41 (1976) 360-364, here 363.
J. Hewitt, "The Iroquoian concept of the soul", *The journal of American folklore* 8 (1895) 107-116, here 109, 110.

[106] M. Maxham, "Rural communities in the Black Warrior valley, Alabama: The role of commoners in the creation of the Moundville I landscape", *American antiquity* 65 (2000) 337-354, here 341, 348-350.
R. Briggs, "The civil cooking pot: Hominy and the Mississippian standard jar in the Black Warrior valley, Alabama", *American antiquity* 81 (2016) 316-332, here 317, 321, 326, 329.
E. Boudreaux, "A functional analysis of Mississippian ceramic vessels from Town Creek", *Southeastern archaeology* 29 (2010) 8-30, here 18, 19.
J. Rafferty, a.o., "Cooking pots as burial urns", *Midcontinental journal of archaeology* 40 (2015) 48-72, here 67, 68.
Hall*, Ghosts, water barriers, corn,* 363.

[107] Vail, *The serpent within*, 695, 708.
Neurath, *Cosmogonic myths* 598.
J. Chevalier, A. Bain, *The hot and the cold: Ills of humans and maize in native Mexico* (Toronto, 2003) 42-44.

[108] M. Gilmore, "A harvest home ceremony of the Arikara", *Gilmore papers* (n.y.) 1-8, here 4, 5. <https://aisri.indiana.edu/research/editorial/gilmore/a_harvest_home_ceremony_of_the_arikara.pdf> (2/5/2022)
T. Pleger, "Old Copper and Red Ocher social complexity", *Midcontinental journal of archaeology* 25 (2000) 169-190, here 185.
Smith, *Domesticated crop plants in Eastern North America*, 119.

[109] M. Mclaughlin, *Myths and legends of the Sioux* (1990, Lincoln) 11.
D. Brown, "Wisconsin Indian corn origin myths", *Wisconsin archeologist* 21 (1940) 19-27, here 21.

The Maya and Nahua similarly connect the beginning of a child's life with corn, which comes from their belief of maize and the beginning of human life being related. The Arikara and Navajo likewise celebrated a person's life-stages with rituals involving maize.[110] The Fox saw corn as kindred to humans, with each grain having feelings like humans.[111] Similar anthropomorphism of corn is found throughout North and Meso-America and multiple Amerindians regarded maize so very close to humans, that cobs could represent the fate of their own lives.[112]

A Lenape account shows another example of maize's connection to rebirth, stating that some people likened themselves to maize, as like maize, when thrown out and buried in the soil, they'd come up again.[113] In many Eastern Woodlands stories, the supernatural representative of corn is killed and buried and arises as corn from the ground.[114] The burial of maize as an allegory for the burial of humans is also a very prominent aspect of maize-human conceptualization in Mesoamerica and maize seeds here are by many conceptualized as human bones.[115]

This human-maize equation was likely a factor for the importance of the GCC. Cleansing rituals sometimes extended to the new corn, which is covered with clay and washed before people cover themselves with the same clay and washing. Going to the water meant dying and gaining new life, much like the harvest of corn represented new life. The usage of water also possibly partly symbolized germination of corn. Germination was part of the planting cycle for many tribes, soaking

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S. Wertz, "Maize: The Native North American's legacy of cultural diversity and biodiversity", *Journal of agricultural and environmental ethics* 18 (2005) 131-156, here 136-138, 140, 141.

[110] G. Witherspoon, *Navajo kinship and marriage* (Chicago, 1975) 16-19.

Kroupa, *Education as Arikara spiritual renewal*, 317.

Z. Nuttall, "Ancient Mexican superstitions", *The journal of American folklore* 10 (1897) 265-281, here 271, 272, 274, 275.

Vail, *The serpent within*, 695, 708.

[111] Brown, *Wisconsin Indian corn origin myths*, 23.

[112] W. Beauchamp, "The new religion of the Iroquois", *The journal of American folklore* 10 (1897) 169-180, here 172.

Nuttall, *Ancient Mexican superstitions*, 271, 272, 274, 275.

Waugh, *Iroquis foods and food preparation*, 41.

Mclaughlin, *Myths and legends of the Sioux*, 11.

G. Grinnell, "Some early Cheyenne tales", *The journal of American folklore* 20 (1907) 169-194, here 183, 191, 192.

Bain, *The hot and the cold*, 43, 44.

[113] Hultkrantz, *The immortality of the soul*, 233, 234.

[114] Brown, *Wisconsin Indian corn origin myths*, 19.

J. Swanton, "Myths and tales of the Southeastern Indian", *Smithsonian Institution Bureau of American Ethnology bulletin* 88 (1929) 1-275, here 9-17, 230-234.

T. Perdue, *Cherokee women gender and culture change, 1700-1835* (Lincoln, 1998) 26, 27, 32, 33, 36.

Grantham, *Creation myths of the Creek*, 61, 246, 252.

[115] N. Segura, E. Mazzetto, "Contexts of offerings and ritual maize in the pictographic record in Central Mexico", *Scripta Instituti Donneriani Aboensis* 26 (2015) 82-100, here 86, 87, 92.

A. Christenson, *Popol Vuh: Sacred book of the Quiché Maya people* (n.p., 2007) 115. <https://www.mesoweb.com/publications/Christenson/PopolVuh.pdf> (17/6/2022)

Fierer-Donaldson, *To be born an ancestor*, 81, 100.

maize in liquid before planting. The Maya similarly had water rites for children which in fact represented germination and water-germination was an important plot in their hero rebirth narratives.[116]

The GCC could mark the new year and represented the start of creation itself. Among some tribes bloodletting was also involved, representing human creation. The rekindling of the town fire was a significant part of the ceremony in the Southeast, representing new life and other cosmological concepts that will be mentioned in Chapter 3. Maize was specifically cooked with this "new fire". Overall, birth and death were connected concepts which is why the GCC was relevant to both.[117] Even as late as 1100 A.D. communities in the central Atlantic coast region with no agricultural background came into contact with maize for the first time. These communities still embedded maize into a ritual context of seasonal assemblies, feasts and burials.[118]

Who consumed?

Maize was also an important food to Mississippians, but eating habits differed per community and even community members.

What dictated diet difference is not fully clear. Maize consumption was present since the start of Cahokia, but populations here were more dependent upon spring fish runs and more meat was eaten here than in surrounding communities. A varied diet was the indicator of Cahokian status and the site gained provisions of deer meat from the wider region. Maize was perhaps a tribute as well, as was the case at Moundville. Food tribute would have allowed the elite to be selective, while outside of Cahokia individuals were sometimes very dependent on maize. Still, Cahokia was started by farmers and focussed a lot on fertility rituals, its religious dominance in the wider region would have made the site very important to maize farmers.[119]

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[116] J. Witthoft, "The Cherokee Green Corn Medicine and the Green Corn Festival", *Journal of the Washington Academy of Sciences* 36 (1946) 213-219, here 214, 215.
B. Grantham, *Creation myths of the Creek*, 71, 72, 75, 76, 78, 79.
Waugh, *Iroquis foods and food preparation*, 18.
Christenson, *Popol Vuh*, 112-115, 146, 164-167, 173, 175.
<https://www.mesoweb.com/publications/Christenson/PopolVuh.pdf> (17/6/2022)

[117] Grantham, *Creation myths of the Creek*, 69-76, 79.

[118] M. Gallivan, "The archaeology of Native societies in the Chesapeake: New investigations and interpretations", *Journal of archaeological research* 19 (2011) 281-325, here 299.
VanDerWarker, *Maize adoption and intensification*, 163, 164.

[119] Rose, *Intra-community variation in diet*, 416, 421, 422, 424, 426, 430, 431.
Yerkes, *Bone chemistry*, 245, 246, 249, 250, 253, 254, 259, 260.
Emerson, *Isotopic confirmation of maize consumption*, 255.
T. Emerson, a.o., "Interrogating diaspora and movement in the Greater Cahokian world", *Journal of archaeological method and theory* 27 (2020) 54-71, here 57, 62-64, 66, 67.
T. Peres "Foodways archaeology: A decade of research from the Southeastern United States", *Journal of archaeological research* 25 (2017) 421-460, here 433, 434, 441.
K. Hedman, "Late Cahokian subsistence and health: Stable isotope and dental evidence", *Southeastern archaeology* 25 (2006) 258-274, here 269.

In Pre-Mississippian era American Bottoms and Michigan maize eating was not related to status or mound burial, the opposite to the earlier mentioned maize-eating elite burials of Late Woodland Ohio, showing how consumption traditions can differ per region. After maize became more equally permeated in the Mississippian diet, high status meant either consuming more, or less maize than the general populace.[120] Many Mississippian elites did embrace it. At Spiro high status individuals consumed more and at Moundville elites were provided with shelled corn by farming communities. For Mesoamerica a similar maize connection to hierarchy has been suggested for the Formative period Olmec.[121] However, among Precolumbian Mayan some communities had elites eating more maize and others meat, even when maize agriculture was pervasive. Again, the real sign of status here was having a more balanced diet.[122]

At Spiro the maize-status connection *did* exist. Here and in its greater surroundings near the Southwest and Plains, maize was slow to be adopted as it was first mostly destined for the elites found in mounds. Mound building started from 900 A.D. in eastern Oklahoma and all high-status individual buried within consumed maize but one. Similar behaviour existed in the lower Illinois valley. Later maize adoption among the wider populace at Spiro did not come from food procurement stress. High-status individuals apparently could take roles as "early adopters", as before and during the Mississippian era not every region had the same maize-access.[123]

Meanwhile, Middle Ohio valley communities increased maize consumption after Mississippian maize-consuming authority figures and normal-status individuals migrated. Maize was already integrated in the Eastern Woodlands communal ceremony pre-800 A.D, found at mounds and plaza's and in association with exotic ritual goods. This means these Mississippians perhaps introduced "knowledge" about breaking older taboos of maize use. Another explanation is that they introduced better agricultural/food processing techniques, yet this does not erase maize's earlier religious and elite-status significance in Ohio.[124]

Emerson, *Isotopic confirmation of maize consumption*, 242, 253-255.
S. Ambrose, J. Buikstra, H. Krueger, "Status and gender differences in diet at Mound 72, Cahokia, revealed by isotopic analysis of bone", *Journal of anthropological archaeology* 22 (2003) 217-226, here 217, 223, 224.
[120] Rose, *Intra-community variation in diet*, 417, 418, 426, 427, 430-433, 435.
[121] VanDerwarker, *Maize adoption and intensification*, 148, 163, 163.
T. Peres, *Foodways archaeology*, 440, 441.
[122] A. Scherer, "Bioarchaeology and the skeletons of the Pre-Columbian Maya", *Journal of archaeological research* 25 (2017) 133-184, here 143-146.
[123] Mayes, *Spiro mounds, Oklahoma* 749, 751, 754, 756.
J. Rogers, "Stable isotope analysis and diet in Eastern Oklahoma", *Southeastern archaeology* 30 (2011) 96-107, here 100-102.
[124] R. Cook, M. Schurr, "Eating between the lines: Mississippian migration and stable carbon isotope variation in Fort Ancient populations", *American anthropologist* 111 (2009) 344-359, here 355.
R. Cook, T. Price, "Maize, mounds, and the movement of people: Isotope analysis of a Mississippian/Fort Ancient region", *Journal of archaeological science* 61 (2015) 112-128, here 125-127.
Scarry, *Variability in Mississippian crop production strategies*, 88-90.

Maize's meaning was partly formed by increased hierarchy. While not every Mississippian village shows maize use, the largest Mississippian sites always had strong impact on maize's production. In the American Bottom corn cultivation already intensified after 750 A.D. and the rise of Cahokia around 1000 A.D. is directly related to farmers focussing more on corn. This change was part of the rapid adoption of Cahokian religious and political characteristics in the region. Vice versa, cultivation decreased once Cahokia lost its prominence. Maize's rise also appears directly related to the emergence of complex polities in Missouri and Arkansas, where corn only became an important part of the diet after 1200 A.D. Another example is West-central Alabama, were corn cultivation intensified because of Moundville after 1050 A.D. Here the increase occurred in densely but also thinly populated areas. Food specialisation in small communities poses serious food security risks, showing how strong the push for maize must have been.[125]

The emergence of Cahokia, Moundville and Etowah all occurred shortly after the intensification of maize-agriculture in the surrounding regions and either the elite or all residents at these sites were provisioned with maize surplus. Religious rituals largely focussed on fertility and the harvest became systematized at these sites. Communal ceremonial gatherings involving food sharing occurred at these sites, made political by the growing hierarchy, such as at Moundville where these transformed into maize tributes to the elite. Other Moundville residents seem to have been provided with maize from the surrounding region as well. Mississippian centres also possibly acted as places for protected storage. Harvests from communal fields had to be stored in communal granaries which could partly act as an elite food stock. Further redistribution likely occurred at gatherings, delegated by high-status individuals.[126] In the Historical era a dual system of production existed in the Southeast, involving both household and communal granaries. In some cases however hierarchy was strong enough that communal cultivation took place on the "chief's field", which meant food ended up in his granary.[127]

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[125] D. Bardolph, "Evaluating Cahokian contact and Mississippian identity politics in the Late Prehistoric central Illinois river valley", *American antiquity* 79 (2014) 69-89, here 71.
Scarry, *Variability in Mississippian crop production strategies*, 81-86, 88-90.
[126] Maxham, *Rural communities in the Black Warrior valley*, 341, 343-345.
V. Knight, "Characterizing elite midden deposits at Moundville", *American antiquity* 69 (2004) 304-321, here 308, 309, 314.
Peres, *Foodways archaeology*, 439, 440.
Emerson, *Isotopic confirmation of maize consumption*, 250, 253-255.
A. King, "Long-term histories of Mississippian centers: The developmental sequence of Etowah and its comparison to Moundville and Cahokia", *Southeastern archaeology* 20 (2001) 1-17, here 9, 10.
J. Blitz, "Big pots for big shots: Feasting and storage in a Mississippian community", *American antiquity* 58 (1993) 80-96, here 81, 93.
Scarry, *Crop husbandry practices,* 395, 396.
[127] C. Scarry, J. Scarry, "Native American 'garden agriculture' in Southeastern North America", *World archaeology* 37 (2005) 259-274, here 262, 263.

Despite the elite's power, most Mississippians were self-sufficient and could maintain relationships between communities without hierarchical influence. Commoners had their own ceremonies. Even near large sites like Moundville smaller celebrations could occur were maize and other food was processed and cooked by groups outside of elite control. These seem to have acted as rites of passage like birth, marriage and death as well as harvest feasts. Throughout the Middle and Late Mississippian Southeast smaller communities outside the reach of larger ceremonial sites also still created mounds and practiced communal eating events near them. Such feasts involved multiple households and often contained large amounts of maize. Next to mound building and mortuary ritual these feasts acted as harvesting ceremonies. High ratios of burned food at some feasts might point at "first fruit" offerings like the GGC. In some locales mound feasts continued into the Historical era, such as among the Southeastern Natchez who held harvest and funerary feasts near their mound centre.[128]

[128] Nelson, *Foodways at the Parchman Place*, 1, 6, 13, 14.
E. Boudreaux, "Community and ritual within the Mississippian center at Town Creek", *American antiquity* 78 (2013) 483-501, here 493, 496, 497.
K. Lorenz, "Small-scale Mississippian community organization in the Big Black River valley of Mississippi", *Southeastern archaeology* 15 (1996) 145-171, here 160, 161, 163, 164.
Maxham, *Rural communities in the Black Warrior valley*, 341, 348-350.
Boudreaux, *A functional analysis of ceramic vessels*, 27.

Chapter 3. Mythology of maize

This chapter is about death and resurrection narratives connected to maize and the strong parallels between Mesoamerican Amerindian narratives and those of the North American Plains and Eastern Woodlands.[129] Maize travelled from Mesoamerica to the north and was particularly appreciated as renewal symbol, the narratives here will show what made the plant such an icon.

But first some nuances need to be addressed. Social dynamics were different and changed over time in both continents, losing community centralisation and cohesion. The arrival of Europeans and new diseases were disastrous for the populations in the Americas and uprooted the social order. Less specialization and less attention given to certain social roles meant the purpose of narratives change. In North America, leaders had to compete for authority with others and were no longer directly connected to specific supernatural entities. Supernatural origin narratives were instead connected to clans in Historic times and could differ between them, sometimes due to a clan consisting of adopted outsider tribal remnants. Still, there wasn't complete cultural collapse and decentralization events also occurred in Precolumbian times. Narratives remained important and were relayed by canon-keepers, people whose responsibility it was to put extra effort in remembering narratives and instructing their successors canon keepers. Many of the oral traditions were systematized, connected to rituals and using tactics like mnemonic devices and word and theme sequence, which shows in the Historical era as some narratives recorded by European outsiders remained constant through the centuries. Mistakes in relaying could also have real and/or perceived repercussions.[130]

Next to the religious class retaining esoteric knowledge, other narratives were remembered by ordinary people due to containing meaning that held significance to them. Fertility, health and power remained desired and these narratives explained how to get it, making past supernatural heroes connected to leadership now examplaries on gaining such desired traits. Other narratives, such as

[129] Plains groups are included because many are believed to have had more eastern homelands originally or because their ancestors are believed to have been involved with the Hopewell and Mississippian traditions. Additionally, many share strong similarity in narrative traditions and beliefs with Eastern Woodlands groups, pointing at strong historical connections between both.

[130] J. Duncan, "The cosmology of the Osage", G. Lankford, F. Reilly, J. Garber (eds) *Visualizing the sacred: cosmic visions, regionalism, and the art of the Mississippian world* (Austin, 2011) 18-33, here 27.
G. Lankford, *Native American legends of the Southeast: Tales from the Natchez, Caddo, Biloxi, Chickasaw, and other nations* (Tuscaloosa, 2011) 46, 47, 49.
C. Cobb, A. King, "Re-inventing Mississippian tradition at Etowah, Georgia", *Journal of archaeological method and theory* 12 (2005) 167-192, here 185.
G. Lankford, *Reachable stars: Patterns in the ethnoastronomy of Eastern North America* (Tuscaloosa, 2007) 48.
M. Smith, "Understanding the Protohistoric period in the Southeast", *Revista de arqueología Americana* 23 (2004) 215-229, here 218, 220-223.
Kehoe, *Osage text and Cahokia data*, 248, 249.

world creation and life after dead, were deeply rooted in societies and show up similarly in the archaeological record or earlier traditions.[131] Other narratives espoused folk morality in the clou but retained various specific details with archaic purposes. Narratives which are thoroughly similar have been connected to multiple Precolumbian beliefs by archaeologists, being evidence of shared religious participation in a past cultural milieu, such as the Mississippian tradition. These will be analysed in this chapter.[132]

Comparing different communities with shared beliefs in past and present has shown to be a viable technique in identifying important narrative elements. Such comparative research and combination of anthropology with archaeology is widely practiced among Mesoamericanists due to the strong similarities in culture and religion in the region.[133] It has also become accepted for North Amerindian groups believed to have had roots in the Mississippian tradition, as here too strong religious and cultural sharing was present.[134] Since anthropologist Robert Hall and colleagues managed in 1983 to convincingly connect Mississippian era cave iconography with Historical era stories, entire Mississippian narratives have been reconstructed. Unlike the Hopewell, the Mississippians had routinized religious narratives in art which remained consistent through time.[135]

Many different variations of narratives were read, analysed and categorized for this chapter, selected on recurring narrative episodes and motif combinations that carry the same symbolic meaning. Recurring deities, personages and phenomena will be grouped with their multiple cognates when they perform the same roles and carry the same meaning in narrative. These will be mentioned with a capital letter, as for example “the Creator”, the one to create life.

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[131] Lankford, *Native American legends of the Southeast*, 50.
Mooney, *Myths of the Cherokee*, 189, 452, 508.
C. Carr, R. McCord, “Ohio Hopewell depictions of composite creatures: Part I-Biological identification and ethnohistorical insights”, *Midcontinental journal of archaeology* 38 (2013) 5-81, here 36, 57.
C. Carr, R. McCord, “Ohio Hopewell depictions of composite creatures: Part II-Archaeological context and a journey to an afterlife”, *Midcontinental journal of archaeology* 40 (2015) 18-47, here 39.
[132] Lankford, *Reachable stars*, 18, 25, 26.
J. Brown, “On the identity of the Birdman within Mississippian period art and iconography”, F. Reilly, J. Garber (eds) *Ancient objects and sacred realms: Interpretations of Mississippian iconography* (Austin, 2007) 56-106, here 93-96.
Sabo, *Cosmological landscapes,* 263, 268-270.
M. Wagner, K. Sharp, J. Remo, “Transformed spaces: A landscape approach to the rock art of Illinois”, C. Diaz-Granados a.o. (eds) *Transforming the landscape: Rock art and the Mississippian cosmos* (Havertown, 2018) 100-154, here 110, 143.
[133] E. Williams, *Ancient West Mexico in the Mesoamerican ecumene* (Oxford, 2020) 1, 3-5.
[134] Lankford, *Some cosmological motifs*, 8, 10, 11, 15, 16.
[135] R. Beck, J. Brown, “Political economy and the routinization of religious movements: A view from the Eastern Woodlands”, *Archeological papers of the American Anthropological Association* 21 (2011) 72-88, here 82.
Brown, *On the identity of the Birdman*, 57.

The Cosmos

To explain the parallels of the many maize narratives, first the cosmos in which these narratives play out has to be explained. The core subdivision of the cosmos is similar in North and Central America, both in the Precolumbian and Historical era. There exists three realms: the Upperworld, This World and the Underworld. While a realm can consist of more subdivisions, these always follow the same rules and themes of their overarching realm. These rules and themes are:

- Upperworld: is the sky, place of flying things, a possible destination for heroes and humans, realm of supernatural anthropomorphized astral objects and the Creator.
- This World: is Earth, floats on water, often is the back of a reptilian, realm of humans and the Fertility goddess.
- Underworld: is below earth, full of water, source of fertility, has an overlord, represented as a womb and a reptilian, realm of the dead.[136]

Next to this there are also the four cardinal directions of This World. East and West are the most relevant, with East representing life and West death. This conforms to the sun's path, which is an inherent part of the life-death narratives. Venus and the moon sometimes replace the sun in these stories.[137]

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[136] B. Redmond, "Connecting heaven and earth: Interpreting Early Woodland nonmortuary ceremonialism in Northern Ohio", *Midcontinental journal of archaeology* 41 (2016) 41-66, here 59, 60.
Lankford, *Some cosmological motifs*, 8, 10, 11, 15-24, 29-33, 35-37.
G. Lankford, "The Great Serpent in Eastern North America", F. Reilly, J. Garber (eds) *Ancient objects and sacred realms: Interpretations of Mississippian iconography* (Austin, 2007) 107-135, here 116, 117.
P. Rice, "Maya crocodilians: Intersections of myth and the natural world at Early Nixtun-Ch'ich', Petén, Guatemala", *Journal of archaeological method and theory* 25 (2018) 705-738, here 714, 717, 719, 720.
S. Milbrath, *Star gods of the Maya*: *Astronomy in art, folklore, and calendars* (Austin, 1999) 18, 20-22, 42, 43, 119.
F. Reilly, "Cosmos and rulership: The function of Olmec-style symbols in Formative period Mesoamerica", *Visible language* 24 (1990) 12-37, here 18, 20-25.
S. Milbrath, "Decapitated lunar goddesses in Aztec art, myth, and ritual", *Ancient Mesoamerica* 8 (1997) 185-206, here 187.
Vail, *The serpent within*, 696, 699, 714.

[137] Milbrath, *Star gods of the Maya*, 17-19, 21-23, 31, 35.
Rice, *Maya crocodilians,* 727.
M. Callaghan, "Paint it black": Wealth-in-people and Early Classic Maya blackware pottery", *Economic anthropology* 7 (2020) 228-240, here 233, 234.
F. Estrada-Belli, "Lightning sky, rain, and the Maize god: The ideology of Preclassic Maya rulers at Cival, Peten, Guatemala", *Ancient Mesoamerica* 17 (2006) 57-78, here 71.
Šprajc, *The Venus-rain-maize complex*, 17-22, 30, 31, 40-45.
J. Simek, A. Cressler, B. Henson, "Prehistoric rock art, social boundaries, and cultural landscapes on the Cumberland Plateau of southeast North America", C. Diaz-Granados a.o. (eds) *Transforming the landscape: Rock art and the Mississippian cosmos* (Havertown, 2018) 156-198, here 191.

Planets, however, can also seem to "go East" when their position to the stars are observed each night in certain periods. These so-called 'retrograde' motions were important to sky watchers and were connected to narratives. Venus, the brightest celestial object after the sun and moon and with unique movements and periodical disappearances, was an especially potent subject for resurrection narratives. It is seen either rising in the East (Morningstar) or setting in the West (Eveningstar). As it transitions from Evening- to Morningstar Venus disappears for 8 days, which happens 5 times in its 8-year synodic period. These numbers are important to Mesoamericans. They cared a lot about numerology and celestial movements and combined these numbers in their architecture, art, ceremonies and narratives connected to Venus. In the Mesoamerican calendar 4 years are a unit, making 8 years 4 + 4, while 5 was also deconstructed as cardinal directions + the centre of the world. In narrative 4 on its own also represented Morningstar becoming brighter and moving higher in the sky for 4 days after first emergence. All of this is why Venus-heroes might either disappear for 8 days like the real Venus or struggle for 4 days, his battle and eventual triumph representing the real Morningstar 'emerging' in the East. Sometimes 8 and 4 are both used, the hero dying or preparing for 4 days and triumphing for the other 4 days.[138]

Why is this relevant? As will be shown, religious narratives in North and Central America often identify a heroic supernatural who is able to die and be reborn with Venus. Furthermore, in Mesoamerica this figure also represents maize arriving on earth. In both regions death ceremonies and narratives on journeys to the Underworld can contain the idea that a 4 day journey to the Underworld is experienced as 4 years. In Mesoamerica this is explicitly linked with Venus having an

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G. Sabo, J. Simek, "Materiality and cultural landscapes in Native America", C. Diaz-Granados a.o. (eds) *Transforming the landscape: Rock art and the Mississippian cosmos* (Havertown, 2018) 1-28, here 11, 17, 19, 22.
T. Mould, *Choctaw tales* (Jackson, 2004) 81-84.
Lankford, *Native American legends of the Southeast*, 209, 210.
J. Hewitt, "Iroquoian cosmology: Second part", *Annual report of the Bureau of American Ethnology to the Secretary of the Smithsonian Institution* 43 (1928) 449-819, here 792, 797, 799, 800, 802, 805, 812, 814, 815.
[138] Šprajc, *The Venus-rain-maize complex*, 17, 21, 22, 24, 26, 28, 31, 32, 34-36, 39-42, 45, 47-50, 64, 65.
A. Aveni, "Venus and the Maya: Interdisciplinary studies of Maya myth, building orientations, and written records indicate that astronomers of the pre-Columbian world developed a sophisticated, if distinctive, cosmology", *American scientist* 67 (1979) 274-285, here 274-276, 279-285.
A. Aveni, "Archaeoastronomy", *Advances in archaeological method and theory* 4 (1981) 1-77, here 17, 24, 36.
M. Cohodas, "The symbolism and ritual function of the Middle Classic ball game in Mesoamerica", *American Indian quarterly* 2 (1975) 99-130, here 110.
S. Milbrath, "Gender and roles of lunar deities in Postclassic Central Mexico and their correlations with the Maya area", *Estudios de cultura Nahuatl* 25 (1995) 45-93, here 74, 75.
Milbrath, *Star gods of the Maya*, 51, 187.
G. Vail, "Venus lore in the Postclassic Maya codices: Deity manifestations of the Morning and Evening star", *Ancient Mesoamerica* 28 (2017) 475-488, here 481.
J. Carlson, "Transformations of the Mesoamerican Venus turtle carapace war shield: A study in ethnoastronomy", *Archaeoastronomy* 12 (1996) 99-112, here 100, 114.
G. Brotherston, "Far as the solar walk": The path of the North American shaman", *Indiana* 9 (1984) 15-30, here 17, 23-25.

8-year synodic cycle and "disappearing" for 8 days. Despite some exceptions, less concrete allusions to Venus are found in North America. As stated, this might be in part due to the loss of social order, as it seems that the Mississippian and Hopewellian peoples were very interested in astral movement calculation and expressed this interest similarly as was done in Mesoamerica. The day-year concept was also used in maize rituals, such as the Nahua ceremony to "revive maize from death" being held once every 8 years and taking 8 days. Likewise, a North Amerindian Muskogean chief explained the Green Corn festival taking 4 + 4 days as representing the 4 + 4 years an ancestor is on its "journey".[139]

Another shared concept is the "centre of the world", or Axis Mundi. This centre was usually something that stood upright like a pole or tree and was said to touch all 3 supernatural realms, making it an important icon of death-rebirth beliefs by representing the path the dead traversed. Throughout the Precolumbian and Postcolumbian era, poles representing this Axis Mundi were used in both death and renewal ceremonies. Many ceremonies for remembrance of the dead involved central poles and in both regions some groups climbed it, just as the dead did. Gods could also be involved in pole ceremonialism, such as the Nahua afterlife god or the Mississippian Twins. Throughout Mesoamerica it was also part of harvest ceremonies, as these and other central pole rituals were also performed to induce agricultural fertility and renewal. In the Late Woodland era American Bottoms, the central pole was also used to represent the quincunx cosmogram (cardinal directions + centre) of This World and Mississippians erected giant poles under and on top of mounds and burials.[140]

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[139] A. Aveni, "Archaeoastronomy in the Ancient Americas", *Journal of archaeological research* 11 (2003) 149-191, here 170-173.
R. Fletcher, a.o., "Serpent mound: A Fort Ancient icon?", *Midcontinental journal of archaeology* 21 (1996) 105-143, here 138, 139.
A. Marshack, "A lunar-solar year calendar stick from North America", *American antiquity* 50 (1985) 27-51, here 44, 51.
T. Pauketat, S. Alt, J. Kruchten, "The emerald acropolis: Elevating the moon and water in the rise of Cahokia", *Antiquity* 91 (2017) 207-222, here 213-216.
A. González-García, I. Šprajc, "Astronomical significance of architectural orientations in the Maya Lowlands: A statistical approach", *Journal of archaeological science, reports* 9 (2016) 191-202, here 194, 195, 198, 199, 201.
G. Brotherston, *Book of the Fourth world: Reading the Native Americas through their literature* (Cambridge, 1992) 112-115, 269-271, 275, 347.
Brotherston, *Far as the solar walk*, 16-21.

[140] Neurath, *Cosmogonic myths*, 577, 595.
Speal, *The social implications of Younge Complex mortuary ritual*, 16.
F. Reilly, "Ritual languages of the Southeast: Sacred bundles in the memory theaters of Mississippian period ritualism", D. Dye (ed) *Mississippian culture heroes, ritual regalia, and sacred bundles* (Lanham, 2021) 57-81, here 66-68.
W. Beauchamp, "Iroquois games", *The journal of American folklore* 9 (1896) 269-277, here 274, 275.
R. Hall, "The Cahokia site and its people", R. Townsend, R. Sharp (eds) *Hero, Hawk, and Open Hand: American Indian art of the ancient Midwest and South* (New Haven, 2004) 92-103, here 99, 100.
C. Beekman, "Agricultural pole rituals and rulership in Late Formative Central Jalisco", *Ancient Mesoamerica* 14 (2003) 299-318, here 302-304, 306-312, 314.

Historical records of both regions show another Axis Mundi icon was the central fire, a very important element of their Green Corn Ceremonies which was also connected to authority.[141] In Mesoamerican iconography and narrative, maize and the Reviving hero were situated at the worlds centre and represented the Axis Mundi. Both could travel through all 3 realms, for maize explained as starting underground, piercing the surface and growing into the air.[142] The North Amerindian Axis Mundi also represented central deities and Reviving heroes.[143] The Axis and its anthropomorphised

Redmond, *Connecting heaven and earth*, 59, 60.
W. Marquardt, L. Kozuch, "The lightning whelk: An enduring icon of southeastern North American spirituality", *Journal of anthropological archaeology* 42 (2016) 1-26, here 17.
M. Gilmore, "Arikara ceremonies", *Gilmore papers* (n.y.) 1-18, here 7, 8.
<https://aisri.indiana.edu/research/editorial/gilmore/arikara_ceremonies.pdf> (10/5/2022)
R. Hall, "Medicine wheels, sun circles, and the magic of world center shrines", *Plains anthropologist* 30 (1985) 181-193, here 183-185, 188, 191.
[141] J. Loubser, S. Ashcraft, J. Wettstaed, "Betwixt and between: The occurrence of petroglyphs between townhouses of the living and townhouses of spirit beings in northern Georgia and western North Carolina", C. Diaz-Granados a.o. (eds) *Transforming the landscape: Rock art and the Mississippian cosmos* (Havertown, 2018) 200-244, here 231.
Redmond, *Connecting heaven and earth*, 59, 60.
Cobb, *Re-inventing Mississippian tradition at Etowah*, 180.
F. Speck "Catawba religious beliefs, mortuary customs, and dances", *Primitive man* 12 (1939) 21-57, here 44.
Sabo, *Materiality and cultural landscapes*, 21, 22.
C. Rodning, "Mounds, myths, and Cherokee townhouses in southwestern North Carolina", *American antiquity* 74 (2009) 627-663, here 633.
J. Martin, "The Green Corn Ceremony of the Muskogees", J. Martin, C. McDannell (eds) *Religions of the United States in practice: Volume 1* (Princeton, 2018) 48-66, here 50, 51, 61.
Beekman, *Agricultural pole rituals and rulership*, 311, 314.
A. Vázquez, "Mitote and the Cora Universe", *Journal of the Southwest* 42 (2000) 61-80, here 61, 63, 64, 67, 69.
[142] M. de Orellana, a.o., "Huichol art", *Artes de México* 75 (2005) 69-100, here 75.
K. Taube, "The Olmec Maize god: The face of corn in Formative Mesoamerica", *RES: Anthropology and aesthetics* 29/30 (1996) 39-81, here 39, 40, 44, 45, 48-51, 54-56, 59, 60, 62, 65, 68.
Estrada-Belli, *Lightning sky and the Maize god*, 61-63.
[143] Duncan, *The cosmology of the Osage*, 21, 27.
Lankford, *Reachable stars*, 73.
A. Chamberlain, "Nanibozhu amongst the Otchipwe, Mississagas, and other Algonkian tribes", *The journal of American folklore* 4 (1891) 193-213, here 206.
W. Hoffman, "The Midē'wiwin or "Grand medicine society" of the Ojibwa", *Annual report of the Bureau of Ethnology to the Secretary of the Smithsonian Institution* 7 (1891) 143-300, here 166, 291.
A. Santina, "Recreating the world: Tipi Ornaments by Cheyenne and Arapaho Women", *Women's studies* 33 (2004) 933-960, here 945, 948.
A. Kehoe, "Ethnoastronomy of the North American Plains", *Archaeoastronomy* 12 (1996) 127-139, here 132.
J. King, C. Ventura, "A Southeastern Native American tradition: The Ofo calendar and related sky lore", *Archaeoastronomy* 14 (1994) 109-135, here 125.
G. Dorsey, *Traditions of the Arikara* (Washington D.C., 1904) 13, 17, 20, 21, 30, 35.
B. Skousen, "Posts, places, ancestors, and worlds: Dividual personhood in the American Bottom region", *Southeastern archaeology* 31 (2012) 57-69, here 63, 64.
A. Sievert, "Ornaments and decorations", *Smithsonian contributions to anthropology* 49 (2011) 105-148, here 131.
H. Shepard, "Geometry in Apalachee buildings at Mission San Luis", *Southeastern archaeology* 22 (2003) 165-175, here 165, 167-169, 171, 173.

supernatural representative were also used as important icons of rulership in both North and Meso-America.[144]

Maize was also used to represent the cosmogram, the cardinal directions and Axis Mundi in art and planting rituals. The Maya for example contextualized their field as This World and first planted maize at the centre and/or four corners while in planting rituals and narratives of multiple Plains populations maize had to be planted in corn hills with 4 grains that explicitly represented the cardinal directions and sometimes one in the middle representing the world centre.[145] The Olmec and Southwestern North Amerindians made quincunx patterns with jade -which represented maize- and the Pueblo and Huichol also used different maize variants to represent the cosmic quincunx. Maize was a good representative of cardinal directions due to its different colours, colours which in

[144] Beck, *Political economy of religious movements*, 80.
J. Brown, D. Dye, "Severed heads and sacred scalplocks: Mississippian iconographic trophies", J. Brown, D. Dye (eds) *The taking and displaying of human body parts as trophies by Amerindians* (New York, 2007) 278-298, here 281, 286, 289, 293.
Cobb, *Re-inventing Mississippian tradition at Etowah*, 174, 182, 183, 186.
K. Sampson, D. Esarey, "A survey of elaborate Mississippian copper artifacts from Illinois", *Illinois archaeology* 5 (1993) 452-480, here 452, 454, 465-467.
A. Waring, P. Holder, "A Prehistoric ceremonial complex in the Southeastern United States", *American anthropologist* 47 (1945) 1-34, here 7, 8, 10, 12.
Emerson, *Cahokia and the archaeology of power*, 131.
Beekman, *Agricultural pole rituals and rulership*, 313, 314.
K. Taube, *The Olmec Maize god*, 48, 53, 54.
Estrada-Belli, *Lightning sky and the Maize god*, 63.

[145] K. Taube, "Gateway to another world: The symbolism of supernatural passageways in the art and ritual of Mesoamerica and the American Southwest", *Museum of Northern Arizona bulletin* 67 (2010) 73-120, here 76, 79, 115.
K. Taube, "Lightning celts and corn fetishes: The Formative Olmec and the development of maize symbolism in Mesoamerica and the American Southwest", *Studies in the history of art* 58 (2000) 296-337, here 329.
H. Braakhuis, *Xbalanque's marriage: A commentary on the Q'eqchi' myth of sun and moon* (Doctorate dissertation, Social and behavioural sciences, Leiden University, Leiden, 2010) 124, 135, 219, 220, 237.
B. Stross, "Eight reinterpretations of submerged symbolism in the Mayan Popol Wuj", *Anthropological linguistics* 49 (2007) 388-423, here 413-415.
Sellen, *Sowing the blood with the maize*, 80, 82, 84.
Grinnell, *Some early Cheyenne tales*, 181.
McLaughlin, *Myths and legends of the Sioux*, 64, 65.
Gilmore, *Arikara agriculture*, 1-3.
<https://aisri.indiana.edu/research/editorial/gilmore/arikara_agriculture.pdf> (26/4/2022)
Gilmore, *A harvest home ceremony*, 1, 5.
<https://aisri.indiana.edu/research/editorial/gilmore/a_harvest_home_ceremony_of_the_arikara.pdf> (2/5/2022)
Loubser, *Betwixt and between*, 231.
W. Whitman, "Origin legends of the Oto", *The journal of American folklore* 51 (1938) 173-205, here 197.

the Eastern Woodlands were used to present the cardinal directions since at least Hopewellian times.[146] The Olmec put their supernatural representative of maize at the centre.[147]

The Axis Mundi was also a place, a central mountain or tree from where both humans and corn came on earth after leaving the underground. This is why the Axis Mundi also represented abundance, as there is life inside of it.[148] While sometimes separate stories, the arrival of corn and humans were closely related events that parallel the journey of the Reviving (maize) hero in many Mesoamerican and multiple North Amerindian narratives. The belief of people being created from corn and emerging on earth from the Underworld through mountains and caves was widespread in Mesoamerica. For the Southeastern North Amerindian, people left the underground through a sacred mound or the mouth of a cave and World Tree which took 4 days to reach and the Southwestern Zuni called this place Corn Mountain. In Southwestern and Plains narratives people travelled to the surface along with corn or with corn's supernatural representation guiding them. The Arikara and Navajo even state that the people underground were corn.[149]

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[146] J. Powell, "Report of the director", *Annual report of the Bureau of American Ethnology to the Secretary of the Smithsonian Institution* 19 part 1 (1900) XI-XCII, here LI.
S. Plog "Exploring the ubiquitous through the unusual: Color symbolism in Pueblo black-on white pottery", *American antiquity* 68 (2003) 665-695, here 671, 678.
Taube, *Lightning celts and corn fetishes*, 329, 330.
de Orellana, *Rituals of corn*, 75.
W. Brown, E. Anderson, "The Northern Flint corns", *Annals of the Missouri botanical garden* 34 (1947) 1-20, 22-29, here 6, 7.
Greber, *Adena and Hopewell in the Middle Ohio valley*, 32.
Charles, *Colorful practices in Hopewellian earthwork*, 343-347.
[147] Estrada-Belli, *Lightning sky and the Maize god*, 61-63.
[148] Lankford, *Native American legends of the Southeast*, 100, 101, 128, 129.
Swanton, *Myths and tales of the Southeastern Indian*, 123, 124, 168, 270.
Christenson, *Popol Vuh*, 112.
<https://www.mesoweb.com/publications/Christenson/PopolVuh.pdf> (17/6/2022)
K. Taube, "The Teotihuacan cave of origin: The iconography and architecture of emergence mythology in Mesoamerica and the American Southwest", *RES: Anthropology and aesthetics* 12 (1986) 51-82, here 65.
Stross, *Eight reinterpretations of submerged symbolism*, 413-415.
[149] Taube, *The Teotihuacan cave of origin*, 51, 56-60, 62, 65.
Sabo, *Materiality and cultural landscapes*, 21, 22.
Mould, *Choctaw tales*, 64-66, 77, 250.
Dorsey, *Traditions of the Arikara*, 12-15, 18, 20-23, 25, 27, 30, 31, 34, 37, 39, 42, 43.
Vail, *Venus lore*, 484.
A. Fletcher, "The Hako: A Pawnee ceremony", *Annual report of the Bureau of American Ethnology to the Secretary of the Smithsonian Institution* 22 part 2 (1904) 5-368, here 69.
J. Levy, *In the beginning: The Navajo Genesis* (Berkeley, 1998) 58, 59, 73, 74, 120, 132, 163.
Braakhuis, *Xbalanque's marriage*, 215-217.
Christenson, *Popol Vuh*, 179.
<https://www.mesoweb.com/publications/Christenson/PopolVuh.pdf> (17/6/2022)
J. Doyle, "Creation narratives on ancient Maya codex-style ceramics in the Metropolitan Museum", *Metropolitan Museum journal* 51 (2016) 42-63, here 51, 55-58.
K. Taube, "The symbolism of jade in Classic Maya religion", *Ancient Mesoamerica* 16 (2005) 23-50, here 42.
Lankford, *Looking for lost lore*, 54, 55.
Taube, *Gateway to another world*, 92.

These underground travels resemble the belief of the path of life after death, which will be referred to as the "Path of souls". Yet another significantly similar belief in both regions, it was walked by people and the Reviving hero and involves going through the Underworld. It entailed going West, into caves, passing rivers on logs, canoes or the backs of reptiles and travelling over the observable Milky Way. Dogs were also strongly involved in the path and death ceremony in both regions, which is why Mesoamerican canine deities often also partly represented Venus. In both regions the travel on the Path of souls and the Milky Way were thought of as being on the Underworld Reptile. While the Milky Way is in the sky, it was still the Underworld, as the black night represented the Underworld and cave in both regions[150], while another Mesoamerican explanation was that the World Tree connects to the Milky Way.[151]

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[150] J. Coltman, "Where night reigns eternal: Darkness and deep time among the Ancient Maya", N. Gonlin, A. Nowell (eds) *Archaeology of the night: Life after dark in the Ancient World* (Boulder, 2018) 201-222, here 202, 206.
Callaghan, *Paint it black*, 233, 234.
Lankford, *The Great Serpent*, 107, 128-134.
Pauketat, *The emerald acropolis*, 218.
S. Alt, "The Emerald Site, Mississippian Women, and the Moon", N. Gonlin, A. Nowell (eds) *Archaeology of the night: Life after dark in the Ancient World* (Boulder, 2018) 223-246, here 226.
Lankford, *Some cosmological motifs*, 16.

[151] Carr, *Ohio Hopewell composite creatures: Part II*, 28, 30.
T. Campbell, "The Choctaw afterworld", *The journal of American folklore* 72 (1959) 146-154, here 148.
C. Carr, R. Weeks, M. Bahti, "The functions and meanings of Ohio Hopewell ceremonial artifacts in ethnohistorical perspective", D. Case, C. Carr (eds) *The Scioto Hopewell and their neighbors: Bioarchaeological documentation and cultural understanding* (New York, 2008) 501-521, here 504.
C. Diaz-Granádos, a.o., "AMS radiocarbon dates for charcoal from three Missouri pictographs and their associated iconography", *American antiquity* 66 (2001) 481-492, here 487, 488.
Rice, *Maya crocodilians*, 717, 719.
Taube, *The Olmec Maize god*, 62, 92, 95, 97.
J. McDonald, B. Stross, "Water lily and cosmic serpent: Equivalent conduits of the Maya spirit realm", *Journal of ethnobiology* 32 (2012) 74-107, here 75, 76, 81, 89, 92, 97-99.
Taube, *Gateway to another world*, 89, 93, 95-97.
Estrada-Belli, *Lightning sky and the Maize god*, 67, 68, 73, 74.
Milbrath, *Star gods of the Maya*, 11, 21, 23, 35, 39-41, 43, 127-131, 140, 162, 163, 199-201, 208, 226, 275, 277, 286, 292.
Fierer-Donaldson, *To be born an ancestor*, 106-108, 149.
M. Beckwith, "Mythology of the Oglala Dakota", *The journal of American folklore* 43 (1930) 339-442, here 411.
Brotherston, *Far as the solar walk*, 20, 21.
G. Lankford, "The path of souls": Some death imagery in the Southeastern Ceremonial Complex", F. Reilly, J. Garber (eds) *Ancient objects and sacred realms: Interpretations of Mississippian iconography* (Austin, 2007) 174-212, here 175, 177-186, 188-191, 206, 207, 211.
R. Cook, "Dogs of war: Potential social institutions of conflict, healing and death in a Fort Ancient village", *American antiquity* 77 (2012) 498-523, here 500.
Lankford, *Reachable stars*, 208-210, 212, 213.
B. Lepper, "Tracking Ohio's Great Hopewell Road: Aerial reconnaissance and infrared photography help scholars map a sacred roadway nearly 60 miles long", *Archaeology* 48 (1995) 52-56, here 54-56.
Hoffman, *The Midē´wiwin of the Ojibwa*, 185.
Hewitt, *Iroquoian cosmology*, 468, 469.
F. Speck, "Notes on Chickasaw ethnology and folk-lore", *The journal of American folklore* 20 (1907) 50-58, here 58.

The cave also meant many things. It was both the Underworld and the entrance to it and therefore also the Reptile's maw, body or habitat[152], but also the earth womb from which people emerged and the sweat bath from which people were reborn. It was a potent symbol of death, rebirth and fertility related to the Underworld and the Maize-moon goddesses who will be mentioned later.[153] Interestingly, many of these ideas on the cosmos, reptiles, caves and (plant) fertility seem to have existed in the original regions maize spread before the Olmec, expressed on cave walls and rock outcrops near rivers in Oaxaca and East Guerrero.[154]

Taube, *The Teotihuacan cave of origin*, 56, 62, 63.
K. Taube, "Flower Mountain: Concepts of life, beauty, and paradise among the Classic Maya", *RES: Anthropology and aesthetics* 45 (2004) 69-98, here 69, 70, 81.
F. Neumann, "The dragon and the dog: Two symbols of time in Nahuatl religion", *Numen* 22 (1975) 1-23, here 15-19, 23.
Lankford, *the Great Serpent*, 107, 128-134.
[152] Reilly, *Cosmos and rulership*, 19, 20, 25, 27, 29, 30.
Taube, *The Olmec Maize god*, 54.
Diaz-Granádos, *AMS radiocarbon dates*, 484, 486-488, 490.
Lankford, *Native American legends of the Southeast*, 87-89.
M. Werness-Rude, K. Spencer, "Imagery, architecture, and activity in the Maya world: An introduction", M. Werness-Rude, K. Spencer (eds) *Maya imagery, architecture, and activity: Space and spatial analysis in art history* (Albuquerque, 2015) 1-105, here 21, 33.
Fierer-Donaldson, *To be born an ancestor*, 106.
Z. Nuttall, "A note on ancient Mexican folk-lore", *The journal of American folklore* 8 (1895) 117-129, here 123-125, 127.
F. Robicsek, D. Hales, *The Maya book of the dead: The ceramic codex: The corpus of codex style ceramics of the Late Classic period* (Charlottesville, 1981) 107, 109, 113.
O. Chinchilla-Mazariegos, "Cosmos and warfare on a Classic Maya vase", *RES: Anthropology and aesthetics* 47 (2005) 107-134, here 128.
[153] D. Heyden, "An interpretation of the cave underneath the Pyramid of the Sun in Teotihuacan, Mexico", *American antiquity* 40 (1975) 131-147, here 134.
T. Knowlton, G. Vail, "Hybrid cosmologies in Mesoamerica: A reevaluation of the Yax Cheel Cab, a Maya World Tree", *Ethnohistory* 57 (2010) 709-739, here 723-725.
Rice, *Maya crocodilians*, 717-719, 721, 730.
Coltman, *Where night reigns eternal*, 207, 208.
Vail, *The serpent within*, 695, 702, 703, 705, 707.
J. Nielsena, J. Brady, "The couple in the cave. Origin iconography on a ceramic vessel from Los Naranjos, Honduras", *Ancient Mesoamerica* 17 (2006) 203-217 here 208, 209, 211.
Alt, *The Emerald site*, 231, 235, 237, 238.
S. Dorland, "Sensoriality and Wendat steams: The analysis of fifteenth- to seventeenth-century Wendat steam lodge rituals in southern Ontario", *American Indian quarterly* 41 (2017) 1-30, here 19.
J. Duncan, C. Diaz-Granados, "The Big Five petroglyph sites: Their place on the landscape and relation to their creators", C. Diaz-Granados a.o. (eds) *Transforming the landscape: Rock art and the Mississippian cosmos* (Oxford, 2018) 30-56, here 36, 39, 53, 54.
J. Duncan, C. Diaz-Granados "Landscape, cosmology, and the Old Woman: A strong feminine presence", C. Diaz-Granados a.o. (eds) *Transforming the landscape: Rock art and the Mississippian cosmos* (Oxford, 2018) 57-74, here 61, 62, 70-72.
D. Dye, "Mississippian religious traditions", S. Stein (ed) *The Cambridge history of religions in America: Volume 1: Pre-Columbian times to 1790* (n.p., 2012) 137-155 here 146, 147.
[154] G. Gutierrez, "Four thousand years of graphic communication in the Mixteca-Tlapaneca-Nahua Region", M. Jansen, L. van Broekhoven (eds) *Mixtec writing and society: Escritura de Ñuu Dzaui* (Amsterdam, 2008) 71-107, here 72-78.

Male hero

With maize being so important in rebirth and renewal beliefs and rituals, a male hero who fully encapsulates this concept will be looked at. The Reviving hero is the supernatural protagonist of many similar narratives on life and death. He has many names, of which the most relevant here are the Maize god (Mayan and Olmec), Quetzalcoatl (Aztec), Red Horn (Winnebago), Manabozho (Algonquian) and the Birdman (Mississippian).

This figure was a hero who went to the Underworld, struggled against its overlord(s), and broke out of it. The story often ends with the hero ascending as a celestial being.[155] As he traversed the three realms by dying, reviving and transcending to the sky, he was a symbol of the Axis Mundi. Precolumbian rebirth might have been partly related to hierarchy, as leaders represented themselves as him and the Axis in death. Historical era ceremonies for reanimating the essence of old leaders also existed and membership to religious secret societies could help your reincarnation.[156] For ordinary people survival through progeny was more obtainable, which the Reviving hero also represented, being revived by his sons/nephews in narratives.[157] Preclassical

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C. Mautner, *Man and the environment in the Coixtlahuaca basin of Northwestern Oaxaca, Mexico: Two thousand years of historical ecology* (Philosophy doctorate dissertation, University of Texas, Austin, 1999) 227, 228, 233.
C. Mautner, "The pictographic assemblage from the Colossal Bridge on the Ndaxagua, Coixtlahuaca basin, northwestern Mixteca Alta of Oaxaca, Mexico", *Ketzalcalli* 2 (2005) 2-70, here 2, 15, 38-41, 53, 54.
A. Lambert, "Cave imagery in the non-Olmec rock art of Oxtotitlán, Guerrero, Mexico", *The post hole* 37 (May, 2014)
<https://www.theposthole.org/read/article/278> (12/5/2022)
[155] Robicsek, *The Maya book of the dead*, 114-115, 117, 123.
Źrałka, *In the path of the Maize god*, 891, 893-895, 904.
Šprajc, *The Venus-rain-maize complex*, 28-30.
Lankford, *Native American legends of the Southeast*, 154, 160-164, 170.
Brown, *On the identity of the Birdman*, 77, 83, 88-91, 93-96, 99.
Sabo, *Cosmological landscapes*, 263, 268-270.
Wagner, *Transformed spaces*, 110, 123, 143.
[156] Taube, *The Olmec Maize god*, 39, 40, 44, 45, 48-51, 54-56, 59, 60, 62, 65, 68.
Źrałka, *In the path of the Maize god* 891, 893-895, 904.
Rice, *Maya crocodilians*, 720.
Fierer-Donaldson, *To be born an ancestor*, 109.
Šprajc, *The Venus-rain-maize complex*, 17-22, 30, 31, 40-45.
Cohodas, *The symbolism of the ball game*, 110.
Robicsek, *The Maya book of the dead*, 137, 153, 155.
Beck, *Political economy of religious movements*, 80.
Brown, *Severed heads and sacred scalplocks*, 279, 281, 286, 289, 293.
Cobb, *Re-inventing Mississippian tradition at Etowah*, 174, 182, 183, 186.
P. Radin, "The Winnebago tribe", *Annual report of the Bureau of American Ethnology to the Secretary of the Smithsonian Institution* 37 (1923) 35-550 here 314, 315.
Gernet, *Saving the souls*, 47, 50, 51.
[157] Christenson, *Popol Vuh*, 112-116, 121.
<https://www.mesoweb.com/publications/Christenson/PopolVuh.pdf> (17/6/2022)
Brown, *On the identity of the Birdman*, 58, 56, 71, 73-75, 91, 93-96.
Sabo, *Cosmological landscapes*, 263, 268-270.

Mayan art also shows the Maize god reviving on his own strength while in Classic era art he is assisted by two figures, the Hero Twins.[158]

These Twins sometimes replace the Reviving hero in narrative, making them the symbol of revival and defeat of the Underworld and the Path of Souls.[159] Other times the hero had the solo adventure of reviving his dead brother/nephew.[160] In both regions the Twins were usually characterized as somewhat opposites, one symbolizing wilderness, animals and the hunt and the other civilization, humans and agriculture.[161] The overlapping Twin and singular Reviving hero

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Wagner, *Transformed spaces,* 123, 143.
Lankford, *Reachable stars*, 66-68, 91, 92, 94, 120-124.
Heyden, *An interpretation of the cave underneath*, 136.
A. Skinner, "Traditions of the Iowa Indians", *The journal of American folklore* 38 (1925) 425-506, here 457, 458.
Braakhuis*, Xbalanque's marriage*, 161, 162.
Šprajc, *The Venus-rain-maize complex*, 29, 30.
Taube, *The Teotihuacan cave of origin*, 55, 56, 69, 72.
J. Delhalle, A. Luykx, "Les compagnons de l'enfer: Xolotl et le dieu du zéro", *Revue de l'histoire des religions* 213 (1996) 301-319, here 304-306.

[158] Fierer-Donaldson, *To be born an ancestor*, 106-108.

[159] M. Carroll, "Folklore and psychoanalysis: The Swallowing Monster and Open-Brains allomotifs in Plains Indian mythology", *Ethos* 20 (1992) 289-303, here 293-297.
Lankford, *Native American legends of the Southeast*, 154, 170, 209, 210.
Brown, *Severed heads and sacred scalplocks*, 286.
Mould, *Choctaw tales*, 81-84.
Hewitt, *Iroquoian Cosmology*, 792, 797, 799, 800, 802, 805, 812, 814, 815.
Christenson, *Popol Vuh*, 114-116, 121, 173, 177.
<https://www.mesoweb.com/publications/Christenson/PopolVuh.pdf> (17/6/2022)

[160] P. Radin, A. Reagan, "Ojibwa myths and tales. The Manabozho cycle", *The journal of American folklore* 41 (1928) 61-146, here 68, 73-75.
Chamberlain, *Nanibozhu amongst Algonkian tribes*, 196-205, 207, 208, 210-213.
J. Dorsey, "Nanibozhu in Siouan mythology", *The journal of American folklore* 5 (1892) 293-304, here 297, 300, 303.
W. Jones, "Episodes in the culture-hero myth of the Sauks and Foxes", *The journal of American folklore* 14 (1901) 225-239, here 225, 226, 228, 229, 234, 235, 237.
J. Dorsey, "Abstracts of Omaha and Ponka Myths: II", *The journal of American folklore* 1 (1888) 204-208, here 204-206.
J. Owen, D. Swanton, "A dictionary of the Biloxi and Ofo languages: Accompanied with thirty-one Biloxi texts and numerous Biloxi phrases", *Bureau of American ethnology bulletin* 47 (1912) 1-340, here 43, 44.

[161] Chamberlain, *Nanibozhu amongst Algonkian tribes*, 204, 205, 210-213.
Radin, *Ojibwa myths and tales*, 70-75.
Duncan, *The Big Five petroglyph sites*, 40-42, 44, 45, 47, 48.
H. Hale, "Huron folk-lore: I: Cosmogonic myths: The Good and Evil Minds", *The journal of American folklore* 1 (1888) 177-183, here 181, 182.
Lankford, *Native American legends of the Southeast*, 171.
Duncan, *The cosmology of the Osage*, 26-28.
Taube, *The Teotihuacan cave of origin*, 55, 56, 72.
Delhalle, *Les compagnons de l'enfer*, 304-306.
Šprajc, *The Venus-rain-maize complex*, 29, 30.
L. Brown, K. Emery, "Negotiations with the animate forest: Hunting shrines in the Guatemalan highlands", *Journal of archaeological method and theory* 15 (2008) 300-337, here 304, 305.
K. Taube, "Ancient and contemporary Maya conceptions about forest and field", A. Gomez-Pompa, a.o. (eds) *The lowland Maya area. Three millennia at the human-wildland interface* (Binghamton, 2003) 461-492, here 472.

narratives sometimes ended up in a loop, where one hero replaced the other at the end of the narrative.[162] Whether the hero saves himself, showing his rebirth power, or is saved, symbolizing the survival through progeny, these narratives celebrate life overcoming death.[163]

As stated, the Path of souls for humans is the same as that of these heroes. However, heroes did more, they made a safe world where monsters and the Underworld, representing darkness and the wilderness, didn't rule. It was a widespread belief that earth/This World used to be dangerous for humans and that after the heroes defeat their antagonists a much safer earth was created, a place for agriculture, ordered nature.[164] This concept aligns with the hero sometimes following the Path of Souls not to be reborn, but to bring maize and in some cases humans onto earth.[165] When it

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R. Bell, "The history of the Che-che-puy-ew-tis: A legend of the Northern Crees", *The journal of American folklore* 10 (1897) 1-8, here 1, 2, 5, 6, 8.
R. Lowie, "The test-theme in North American mythology", *The journal of American folklore* 21 (1908) 97-148, here 104.
P. Furst, B. Myerhoff, "Myth as history: The Jimson weed cycle of the Huichols of Mexico", *Antropologica: Organo del instituto Caribe de antropologia y sociologia de la fundacion la salle de ciencias naturales* 17 (1966) 3-39, here 3, 7, 12, 13, 29, 30, 32.
B. Myerhoff, *Peyote hunt: The sacred journey of the Huichol Indians* (Ithaca, 1976) 77, 78, 79, 81, 82.
[162] Duncan, *The cosmology of the Osage*, 26, 27.
R. Hassig, *Time, history, and belief in Aztec and Colonial Mexico* (Austin, 2001) XII, 5.
[163] Robicsek, *The Maya book of the dead*, 86.
Lankford, *Reachable stars*, 86, 94-96, 102.
Lowie, *The test-theme*, 103, 139, 140, 142.
Christenson, *Popol Vuh,* 160.
<https://www.mesoweb.com/publications/Christenson/PopolVuh.pdf> (17/6/2022)
Braakhuis, *Xbalanque's marriage*, 27-29, 93-95, 111, 113, 135, 265.
Milbrath, *Star gods of the Maya*, 131, 159, 160.
Vail, *Venus lore*, 475, 476, 479, 484.
Šprajc, *The Venus-rain-maize complex*, 17–22, 30, 31, 40-45.
Brotherston, *Far as the solar walk*, 19, 20.
C. Ehrlich, "Tribal culture in Crow mythology", *The journal of American folklore* 50 (1937) 307-408, here 400, 401.
[164] Christenson, *Popol Vuh*, 172-175.
<https://www.mesoweb.com/publications/Christenson/PopolVuh.pdf> (17/6/2022)
Braakhuis, *Xbalanque's marriage*, 215, 216.
Taube, *Ancient conceptions about forest*, 467, 472.
E. de Jonghe, "Histoyre du Mechique: Manuscrit français inédit du XVIe siècle", *Journal de la Société des Américanistes: Nouvelle Série* 2 (1905) 1-41, here 28, 29.
P. Arnold, "The shark-monster in Olmec iconography", *Mesoamerican voices* 2 (2005) 1-38, here 13, 14, 19.
Radin, *The Winnebago tribe*, 312.
Wagner, *Transformed spaces*, 123.
M. Randle, "The Waugh collection of Iroquois folktales", *Proceedings of the American Philosophical Society* 97 (1953) 611-633, here 630.
G. Dorsey, *Traditions of the Caddo* (Washington D.C., 1905) 31-39, 46-50.
W. Jones, *Episodes in the culture-hero myth*, 225, 226, 228, 229, 234, 235, 237.
J. Dorsey, "Abstracts of Omaha and Ponka myths", *The journal of American folklore* 1 (1888) 74-78, here 76.
Hale, *Huron folk-lore: I*, 181, 183.
[165] Wertz, *Maize: The Native North American's legacy*, 138, 139.
Skinner, *Traditions of the Iowa Indians*, 439.
Grinnell, *Some early Cheyenne tales*, 170, 173, 179, 180, 184, 185-194.
A. Kroeber, "Cheyenne tales", *The journal of American folklore* 13 (1900) 161-190, here 163, 179, 180.

is about a hero dying, the same consequence of inception of agriculture is implied when this Reviving hero is maize. His (re)arrival on earth was associated with the arrival of humans and maize on earth and the mountain out of which he came was the same from which the first humans came according to many Mesoamericans groups.[166]

For North America, the Reviving hero was not always explicitly maize. Manabozho is maize in one narrative, but usually he and similar heroes only introduced maize or made maize agriculture possible.[167] The same is however also true for multiple Mesoamerican heroes that went to the Underworld.[168] Also, some differently structured North Amerindian narratives do talk about supernatural maize representatives dying and maize spawning from their grave, reiterating the death's journey being the source of maize. Sometimes this representative is female, more on this in the Female maize subsection.[169] At other times maize is found *during* the journey on the Path by human protagonists without it being the main plot point, which is the revival of a loved one.[170] A Plains/Southwest description of their male maize supernatural's appearance is also very similar to some Mesoamerican male maize heroes.[171] For the Mississippian era, next to the Reviving hero on

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Hale, *Huron folk-lore: I*, 180, 181.
F. Boas, "Dissemination of tales among the Natives of North America", *The journal of American folklore* 4 (1891) 13-20, here 15.
Lankford, *Native American legends of the Southeast*, 156, 211-217.
Heyden, *An interpretation of the cave underneath*, 136.
Taube, *The Teotihuacan cave of origin*, 51-82, here 56, 57.

[166] Fierer-Donaldson, *To be born an ancestor*, 81, 83, 85, 92, 95, 97, 100, 106-109.
Taube, *The Olmec Maize god*, 39, 40, 44, 45, 48-51, 54-56, 59, 60, 62, 65, 68.
Nielsena, *The couple in the cave*, 208, 209.
G. Foster, "Sierra Popoluca folklore and beliefs", *American archaeology and ethnology* 42 (1945) 177-255, here 191-194.

[167] Brown, *Wisconsin Indian corn origin myths*, 19.
Brotherston, *Book of the Fourth World*, 347.
W. Jones, "Notes on the Fox Indians", *The journal of American folklore* 24 (1911) 209-237, here 209, 210, 215.
Randle, *The Waugh collection of Iroquois folktales*, 629, 630.
Hewitt, *Iroquoian cosmology*, 466, 467, 468, 792, 797, 799, 800, 802, 812, 814, 815.

[168] Taube, *The Teotihuacan cave of origin*, 56, 59.
Šprajc, *The Venus-rain-maize complex*, 24.
Braakhuis, *Xbalanque's marriage*, 215, 216, 242-244.
J. Neurath, "El doble personaje del planeta Venus en las religiones indígenas del Gran Nayar: Mitología, ritual agrícola y sacrificio", *Journal de la Société des Américanistes* 90 (2004) 93-118, here 104.

[169] W. Fenton, "This island, the world on the turtle's back", *The journal of American folklore* 75 (1962) 283-300, here 297.
Brown, *Wisconsin Indian corn origin myths*, 19, 21, 22.
Whitman, *Origin legends of the Oto*, 183, 194-196.
Leeming, *The Oxford companion to world mythology*, 267.
Beauchamp, *Indian corn stories and customs*, 197, 198.

[170] Wertz, *Maize: The Native North American's legacy*, 138, 139.
Lankford, *Native American legends of the Southeast*, 108, 110-112.
A. Gayton, "The Orpheus Myth in North America", *The journal of American folklore* 48 (1935) 263-293, here 272, 273.
Skinner, *Traditions of the Iowa Indians*, 439.

[171] Lankford, *Looking for lost lore*, 50, 52, 53, 55, 56.

the Path of souls and a female maize representative, there is possibly also a male figure representing maize on certain grave vessels, sporting a maize-like head/hat. As the bowls represented the cosmos with Upperworld and Underworld figures and were used in graves, this figure was likely important to death rituals.[172]

Another dissimilarly structured maize-hero narrative exists among the Iroquoian-speaking groups. Their contrasting Twins can be different to an extreme, where one is good and the other evil. The good Twin is associated with agriculture and either he or his grandmother or mother who fell from the sky is the origin of corn and humans. His mother usually dies, again making it a narrative about life overcoming death. In addition, his and his mother/grandmother's arrival on earth follow after a giant earth-encompassing flood, an episode significantly connected to the hero's journey.[173]

A giant deluge which destroyed and recreated earth is found in the Reviving hero narratives of both regions. It was an extension of the hero's struggle with the watery Underworld, sometimes specifically it's revenge due to the hero's prior victory over it.[174] These flood struggles transport the Underworld conflict onto the realm of This World and make the solution to the problem once again descension to a realm full of water, mirroring the first conflict. To some heroes the Flood helped them ascend to the sky, the Upperworld, after which they descend back to earth. In addition, these journeys sometimes contain Path of Souls motifs and themes.[175] The encompassing flood was a symbol of death, of a new era and of renewal. Once subsided it could be a permanent victory over evil which made earth somewhat safer for humans, but it could also be a symbol of seasonality. In Mesoamerica it represented the rainy season. After this it was the time of agriculture and

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[172] C. Azar, *Making heads or tails: An iconographic analysis of Late Mississippian rim-effigy bowls in the Central Mississippi River valley* (MA thesis Anthropology, Chapel Hill, 2020) 19, 52-58, 60, 86, 91-93, 107.
G. Lankford, D. Dye, "Conehead effigies: A distinctive art form of the Mississippi valley", *The Arkansas archeologist* 53 (2014) 37-50, here 37.

[173] W. Beauchamp, *Iroquois folk lore: Gathered from the Six Nations of New York* (Syracuse, 1922) 11, 12, 216, 218.
G. Prentice, "An analysis of the symbolism expressed by the Birger figurine", *American antiquity* 51 (1986) 239-266, here 250.

[174] G. Vail, C. Hernández, "The construction of memory: The use of Classic period divinatory text in the Late Postclassic Maya codices", *Ancient Mesoamerica* 22 (2011) 449-462, here 452, 453, 457.
S. O'Mack, "Yacateuctli and Ehecatl-Quetzalcoatl: Earth-Divers in Aztec Central Mexico", *Ethnohistory* 38 (1991) 1-33, here 17.
Šprajc *The Venus-rain-maize complex*, 28.
Radin, *Ojibwa myths and tales*, 62, 64, 68, 73-75.
Chamberlain, *Nanibozhu amongst Algonkian tribes*, 196-205, 207, 208, 211, 212.
Dorsey, *Nanibozhu in Siouan mythology*, 297, 300, 303, 304.
Jones, *Episodes in the culture-hero myth*, 225, 226, 228, 229, 234, 235, 237.
Dorsey, *Abstracts of Omaha and Ponka myths: II*, 204-206.
Owen, *A dictionary of the Biloxi and Ofo languages*, 43, 44.
Lankford, *Reachable stars*, 84.
Lankford, *Looking for lost lore*, 45, 46.

[175] O'Mack, *Yacateuctli and Ehecatl-Quetzalcoatl*, 2, 16, 17.
Swanton, *Myths and tales of the Southeastern Indian*, 214.

harvesting, the time of maize, and therefore the time of the god who represented or gave maize. He came after the flood, ridding the earth of danger to make way for agriculture.[176]

This is true for multiple maize origin stories of both regions; the defeat of the Underworld and the Flood were the precursor to the arrival of maize on earth. The Flood also often preceded the arrival of the first humans on the new earth, either as survivors, revived dead or supernatural first couples coming out of a cave. The North Amerindian Arikara even explain human Emergence and Flood narratives together: humans were put into earth by their Creator as protection against the Flood.[177] The first people of new earth could be the ones to introduce corn on earth, or were corn themselves.[178] Some, like the Tzotzil Maya, even saw the recreation of earth as rising from sown maize by the Maize god.[179] Many renewal stories and ritualism involved water and maize, as water had the power to grant rebirth, just like the Flood. Water helped both humans and maize to "sprout"

[176] Vail, *The construction of memory*, 452, 453, 457.
de Orellana, *The mythology of corn* 77, 78.
[177] Brown, *Wisconsin Indian corn origin myths*, 21.
Randle, *The Waugh collection of Iroquois folktales*, 629.
J. Curtin, J. Hewitt, "Seneca fiction, legends, and myths", *Annual report of the Bureau of American Ethnology to the Secretary of the Smithsonian Institution* 32 (1918) 37-813, here 636-638, 642, 812.
Lankford, *Native American legends of the Southeast*, 145-147, 173.
Taube, *The Teotihuacan cave of origin*, 52, 53, 55, 58, 65, 73.
Christenson, *Popol Vuh,* 71-73, 177-180.
<https://www.mesoweb.com/publications/Christenson/PopolVuh.pdf> (17/6/2022)
Milbrath, *Star gods of the Maya*, 162.
H. Braakhuis, "The bitter flour birth scenes of the Tonsured Maize god", R. van Zantwijk, R. de Ridder, H. Braakhuis (eds) *Mesoamerican dualism: Symposium ANT. 8 of the 46th International Congress of Americanists, Amsterdam 1988* (Utrecht, 1990) 125-147, here 137, 138.
Dorsey, *Traditions of the Arikara*, 12-15, 18, 20-23, 25, 27, 30, 31, 34, 37, 39, 42, 43.
Mooney, *Myths of the Cherokee*, 248.
de Jonghe, *Histoyre du Mechique*, 31.
de Orellana, *Huichol art*, 75.
[178] Lankford, *Looking for lost lore*, 32, 45, 46.
Christenson, *Popol Vuh,* 177-180.
<https://www.mesoweb.com/publications/Christenson/PopolVuh.pdf> (17/6/2022)
[179] Braakhuis, *The bitter flour birth scenes*, 137.

into a new being and could be the reason a hero was reborn in the Underworld.[180] Among the Cherokees, people even used to have to bathe after hearing their sacred maize origin narrative.[181]

Back to heroes, in North America a hero could have multiple characteristics out of a complex of characteristics that defined both the Reviving hero and heroes with similar adventures as him, such as the Twins, Orphan and others. These characteristics include: being a rabbit, being an orphan, being adopted by old people, being a twin, wanting to reunite with his father who presides in another realm, wanting to revive a loved one, having celestial origins, killing monsters, ascending to the sky and becoming a celestial object.[182] The latter could be a generic star or specifically Morningstar, which was often the case for actual Reviving heroes.[183] Morningstar or Venus generally was a male warrior with associations to the Easts and a symbol of growth and rebirth.[184]

The Southeast has some divergent but still relevant narratives, such as maize-origins narratives involving orphan or twin protagonists, sometimes with old adoptive mothers.[185] Here the Rabbit, a supernatural morally ambiguous trickster, sometimes has the same antagonists as the Southeastern Twins. North Amerindian heroes in general were sometimes tricksters, even the

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[180] Radin, *The Winnebago tribe*, 286.
Perdue, *Cherokee women*, 31, 32.
Lankford, Reachable stars, 65.
R. Sharp, "Earth mother in the Middle Cumberland: Beneath World powers, and a portal to the Otherworld", D. Dye (ed) *Mississippian culture heroes, ritual regalia, and sacred bundles* (Lanham, 2021) 211-270, here 253.
Duncan, *Landscape, cosmology, and the Old Woman*, 65, 66.
Kroupa, *Education as Arikara spiritual renewal*, 315-317.
Christenson, *Popol Vuh*, 49, 54, 166, 167.
<https://www.mesoweb.com/publications/Christenson/PopolVuh.pdf> (17/6/2022)
Vail, *The serpent within,* 699, 703, 707, 708.
Braakhuis, *The bitter flour birth scenes*, 137, 138.
Robicsek, *The Maya book of the dead*, 77, 93, 94.
[181] Lankford, *Native American legends of the Southeast*, 148.
[182] Lankford, *Reachable stars*, 25, 30, 52, 54.
Lowie, *The test-theme*, 122, 139, 142-144.
Hale, *Huron folk-lore: I*, 180-182.
Dorsey, *Nanibozhu in Siouan mythology***,** 293-299.
Chamberlain, *Nanibozhu amongst Algonkian tribes*, 193, 194, 204, 206-211.
M. Carroll, "Lévi-Strauss, Freud, and the Trickster: A new perspective upon an old problem", *American ethnologist* 8 (1981) 301-313, here 303-305, 309.
Owen, *A dictionary of the Biloxi and Ofo languages*, 36, 45, 46, 99-101, 102-107.
E. Jack, "Maliseet legends", *The journal of American folklore* 8 (1895) 193-208, here 193, 194, 196.
Dorsey, *Abstracts of Omaha and Ponka myths: II,* 204-206.
[183] Brown, *On the identity of the Birdman*, 58, 56, 71, 73-75, 91, 93-96.
Lankford, *Reachable stars*, 30, 52, 56, 58, 60-66, 69, 70, 74, 120.
[184] Lankford, *Reachable stars*, 52, 60, 64, 65, 67, 68.
Duncan, *The cosmology of the Osage*, 20, 24.
Brown, *On the identity of the Birdman*, 58, 56, 71, 73-75, 91.
King, *A Southeastern Native American tradition*, 125.
[185] Mould, *Choctaw tales*, 77, 78.
Lankford, *Native American legends of the Southeast*, 176, 178, 179, 186.

Reviving hero.[186] Southeastern Rabbit's heroics include defeating evil and bringing the renewing fire of the Green Corn Ceremony, as stated an alternative representation of the Axis Mundi. Being the replenisher of fire was also the role of the Morningstar among some tribes, while to others fire and maize were somewhat connected, both coming after the flood or fire being used to make maize available to mankind.[187] The bringing of fire was the role of celestial beings and could even be used to cleanse the earth from monsters, which the Caddo Morningstar did.[188]

The Mesoamerican Reviving hero, as well as to being maize, was also often an orphan and his adoptive parents an old couple that had to be defeated.[189] The Reviving hero here is securely connected to Venus and Morningstar.[190] The rabbit meanwhile, was deeply connected to the moon supernatural, the latter either being a hero or the Maize-moon goddess. The rabbit here was sometimes the Reviving hero as well and a trickster figure.[191] In North Amerindian thought the rabbit

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[186] O. Schwarz, "Hardship and evil in Plains Indian theology", *American journal of theology & philosophy* 6 (1985) 102-114, here 106.
Chamberlain, *Nanibozhu amongst Algonkian tribes*, 196.
M. Carroll, "The Trickster as selfish-buffoon and culture hero", *Ethos* 12 (1984) 105-131, here 106-108, 110.
J. Swanton, "Sun worship in the Southeast", *American anthropologist* 30 (1928) 206-213, here 209.
Radin, *Ojibwa myths and tales*, 92.
[187] Lankford, *Native American legends of the Southeast*, 30, 50, 54, 55, 66-69, 154, 155-157, 222, 228, 229.
J. Swanton, "Animal stories from the Indians of the Muskhogean stock", *The journal of American folklore* 26 (1913) 193-218, here 211, 214, 215.
Swanton, *Myths and tales of the Southeastern Indian*, 4, 5, 42-46, 68, 87, 102-104, 110, 111, 134, 159-162, 203-208, 227, 259-261, 269.
J. Swanton, "Mythology of the Indians of Louisiana and the Texas coast", *The journal of American folklore* 20 (1907) 285-289, here 287.
Hoffman, *The Midē´wiwin of the Ojibwa*, 166, 175-178.
Mooney, *Cherokee myths*, 248.
Lankford, *Reachable stars,* 60-64.
Prentice, *An analysis of the Birger figurine*, 250.
[188] Mooney, *Cherokee myths*, 240.
Radin, *The Winnebago tribe*, 187, 208, 213, 286-287, 440.
R. Dieterle, "Thunderbirds or Thunders (Wakąja, "The Divine Ones")", *Subject entries (personages, lands, sacred objects, concepts)* (18/3/2002)
<http://www.hotcakencyclopedia.com/ho.Thunderbirds.html> (16/5/2022)
A. Gatschet, "A migration legend of the Creek Indians: With a linguistic, historic and ethnographic introduction: Volume 1", *Brinton's library of Aboriginal American literature* 4 (1969) 9-251, here 244-246.
Dorsey, *Traditions of the Caddo*, 30, 47-50.
[189] Braakhuis, Xbalanque's *marriage*, 105, 120, 161, 306.
[190] Estrada-Belli, *Lightning sky and the Maize god*, 71.
Callaghan, *Paint it black*, 233, 234.
Šprajc, *The Venus-rain-maize complex*, 17-22, 26-31, 33-38, 40-45.
[191] Milbrath, *Star gods of the Maya*, 24, 25, 32, 71, 108, 109, 113, 119, 120, 126-138, 150, 153, 154, 156, 213.
P. Velázquez, M. Portilla, *Codice Chimalpopoca: Anales de Cuauhtitlan y leyenda de los soles* (Mexico City, 1975) 121, 122.
L. Burkhart, "Moral deviance in sixteenth-century Nahua and Christian thought: The rabbit and the deer", *Journal of Latin American lore* 12 (1986) 107-139, here 108, 115, 116.
A. Austin, *The rabbit on the face of the moon: Mythology in the Mesoamerican tradition* (Salt Lake City, 1996) 2-5.
M. Graulich, "Aztec human sacrifice as expiation", *History of religions* 39 (2000) 352-371, here 356, 357.

was also sometimes the moon and in one narrative the orphan rabbit Reviving hero was adopted by a female supernatural, the Maize-moon goddess as the next subchapter will show.[192]

Fire was also strongly associated with maize harvest and renewal festivals and could connect to the hero, such as fire being a gift of the celestial or rabbit hero, reviving the hero through fire or fire being used to break open the back of This World's representative, helping the hero escape from earth. However, usually the Reviving hero and/or maize's escape hole was created by lightning. Because this hole was made at the earth's centre, maize, lightning and the Axis Mundi were conceptually linked in Mesoamerica and the North American Southwest.[193] The Mesoamerican maize mountain is either broken open by weather deities, the sun or a lightning-god bird. Similar birds brought fire in North America. In both regions fire and lightning and fire and the sun were deemed related.[194] Some North Amerindian maize's origins show the sun's ray could guide the corn spirit out of its earth imprisonment, or maize becoming available to mankind after its supernatural

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Braakhuis, *Xbalanque's marriage*, 306.
K. Taube, "The major gods of ancient Yucatan", *Studies in Pre-Columbian art and archaeology* 32 (1992) I-V, VII-VIII, 1-160, here 103.
J. Galinier, *La mitad del mundo. Cuerpo y cosmos en los rituales Otomíes* (Mexico City, 1990) 346, 356, 357, 377.
M. Schuetz-Miller, "Spider Grandmother and other avatars of the Moon goddess in New World sacred architecture", *Journal of the Southwest* 54 (2012) 283-293, 295-303, 305-347, 349-397, 399-421, 423-435, here 383.
[192] L. Meeker, "Siouan mythological tales", *The journal of American folklore* 14 (1901) 161-164, here 163.
Chamberlain, *Nanibozhu amongst Algonkian tribes*, 204, 206, 207, 210, 211.
Hale, *Huron folk-lore: I*, 180-182.
[193] Beekman, *Agricultural pole rituals and rulership*, 311.
Rice, *Maya crocodilians*, 717-719.
Fierer-Donaldson, *To be born an ancestor*, 106-108.
Christenson, *Popol Vuh*, 58, 59, 179, 215, 216.
<https://www.mesoweb.com/publications/Christenson/PopolVuh.pdf> (17/6/2022)
Estrada-Belli, *Lightning sky and the Maize god*, 61-63.
Neurath, *Cosmogonic myths*, 591.
Šprajc, *The Venus-rain-maize complex*, 28.
Doyle, *Creation narratives on Maya ceramics*, 50.
Graulich, *Aztec human sacrifice as expiation*, 356, 357, 361.
[194] Milbrath, *Star gods of the Maya*, 23, 34, 81, 201.
Stross, *Eight reinterpretations of submerged symbolism*, 395.
Swanton, *Sun worship in the Southeast*, 206, 208-210, 213.
Radin, *The Winnebago tribe*, 187, 208, 213, 286-287, 440.
Dieterle, *Thunderbirds or Thunders*.
Gatschet, *A migration legend of the Creek Indians*, 244-246.
F. Siebert, "Proto-Algonquian *na:tawe:wa 'massasauga': Some false etymologies and alleged Iroquoian loanwords", *Anthropological linguistics* 38 (1996) 635-642, here 636.
R. Ranking, a.o. (eds), "Burn (1)", *Comparative Siouan dictionary* (2015)
<https://csd.clld.org/parameters/1024#4/42.03/-102.09> (17/5/2022)
Šprajc, *The Venus-rain-maize complex*, 30.

personification burned.[195] Both lightning and fire were deemed sources of fertility and part of the Path of Souls in Meso- and North America.[196]

Finally, in both regions the conflict between the Underworld and the heroes could be a game of sports that symbolised a celestial path. In Mesoamerica the ballcourt represented the Underworld or This World and the game re-enacted cosmic narrative. It had a ritual purpose in agriculture and death-renewal ceremonies. This game was played during the Mayan Green Corn Ceremony and losers were sacrificed, like the Reviving hero dying in the Underworld due to losing the game or like the Maize-moon goddess being decapitated at the ballcourt. The loser's sacrifice was through decapitation, the head represented both the ball and a celestial object. Decapitation was needed for fertility rejuvenation and represented the transition of a celestial object, such as an eclipse.[197] The ballcourt sometimes also represented the Maize mountain, making the game a representation of both world-creation and the origins of maize.[198]

In North America the game of *Chunkey* was played since the Mississippian era. Chunkey is a game involving throwing a round flat object, a chunkey stone, to one side and participants hitting it by throwing a spear. The game was part of planting and harvest ceremonies like the GCC in the Historical era. Another version involved throwing hoops and many considered either version a

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[195] Brown, *Wisconsin Indian corn origin myths*, 26, 27.
Lankford, *Native American legends of the Southeast*, 30, 154, 155-157.
[196] Beekman, *Agricultural pole rituals and rulership*, 302, 303, 306-308, 311.
Neurath, *Cosmogonic myths*, 595.
Curtin, *Seneca fiction, legends and myths*, 172-176.
Radin, *Ojibwa myths and tales*, 135-137.
J. Stauffer, F. Reilly, "Playing the Apalachee ballgame in the fields of the Thunder god: Archaeological and ideological evidence for its antiquity", B. Voorhies (ed) *Prehistoric games of North American Indians: Subarctic to Mesoamerica* (Salt Lake City, 2017) 34-47, here 43.
Gilmore, *Arikara agriculture*, 1-3.
<https://aisri.indiana.edu/research/editorial/gilmore/arikara_agriculture.pdf> (26/4/2022)
Gilmore, *A harvest home ceremony*, 1, 5.
<https://aisri.indiana.edu/research/editorial/gilmore/a_harvest_home_ceremony_of_the_arikara.pdf> (2/5/2022)
Loubser, *Betwixt and between*, 231.
Cobb, *Re-inventing Mississippian tradition at Etowah*, 180.
Speck, *Catawba religious beliefs*, 44.
Rodning, *Mounds, myths, and Cherokee townhouses*, 633.
[197] Cohodas, *The symbolism of the ball game*, 99-104, 107-115, 127.
Christenson, *Popol Vuh*, 113, 114, 143, 144, 155.
<https://www.mesoweb.com/publications/Christenson/PopolVuh.pdf> (17/6/2022)
Milbrath, *Decapitated lunar goddesses in Aztec art*, 185, 187.
Delhalle, *Les compagnons de l'enfer*, 306.
Taube, *The Teotihuacan cave of origin*, 72.
Braakhuis, *Xbalanque's marriage*, 161, 162.
[198] M. Uriarte, "The Teotihuacan ballgame and the beginning of time", *Ancient Mesoamerica* 17 (2006) 17-38, here 32, 33.

sacred game.[199] The Mississippian Reviving hero, Birdman, is depicted playing chunkey, seemingly losing both the game and his head. His head is then rescued by another figure looking like Birdman. The chunkey game was depicted mirroring a battle and the chunkey stone mirrored Birdman's head. He possibly played the game against the Underworld Serpent.[200] In a widespread Historical narrative an evil Gambler owns people's lives by winning these games but loses the game against a protagonist. These protagonists could be the Reviving hero, Twins or somebody with the power to reanimate Gambler's victims. Sometimes, winning meant imprisoned souls were freed from the land of the dead, West. In one version the defeated Keeper of Souls also gave the protagonist fruit, corn and tobacco seeds.[201] Other times Gambler's defeat meant plants became available to mankind.[202] The game could also help or was played before food-procurement in narratives involving hero duo's, Twins and the Orphan. Finally, chunkey is what usually brings Twins and Orphans onto the Path of Souls and/or the path of their antagonists, sometimes the Gambler.[203]

Historical era players often associated the rolling object with celestial objects moving along the horizon. Its movement from East to West could also be important in game and narrative and teams could represent the sun and moon. It was also associated with warriorship, the Axis Mundi pole and the Twins and the game props and field could contain cosmograms and cardinal direction symbolism in the Historical and Mississippian era. Mississippians also buried chunkey stones with humans and beneath buildings, both of high-status. One such a building was used for celestial observations. Lastly, in the Historical era Southwest cornhusks and maize ears were used as the gear material, possibly hinting at a much stronger association to maize narrative than might be seen at face value.[204]

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[199] S. Culin, "Games of the North American Indians", *Annual report of the Bureau of American Ethnology to the Secretary of the Smithsonian Institution* 24 (1907) 1-809, here 421, 422, 442, 451, 454, 461, 462, 464, 465, 478, 479, 485, 486, 488, 493, 507, 508, 513, 514, 516, 518, 562, 563, 569, 575, 588, 589, 591, 612, 616.
T. Zych, "Chunkey and the historic experience in the Mississippian world", B. Voorhies (ed) *Prehistoric games of North American Indians: Subarctic to Mesoamerica* (Salt Lake City, 2017) 63-86, here 64-67, 83-85.
T. Pauketat, *Ancient Cahokia and the Mississippians* (Cambridge, 2004) 61-64.
M. Yancey, B. Koldehoff, "Rolling icons: Engraved Cahokia-style chunkey stones", *Illinois archaeology* 22 (2010) 491-501, here 492, 496-498.
[200] Brown, *On the identity of the Birdman*, 77, 81, 85, 88-91.
[201] Culin, *Games of the North American Indians*, 179, 459, 470, 471, 475.
Radin, *Ojibwa myths and tales*, 61.
Lowie, *The test-theme*, 127, 139, 142, 143.
Hoffman, *The Midēwiwin of the Ojibwa*, 279, 280.
Lankford, *Looking for lost lore*, 33, 34.
Curtin, *Seneca fiction*, 176-180.
[202] Lankford, *Reachable stars*, 87.
[203] Mooney, *Cherokee myths*, 311, 313-315, 347, 434, 464.
Culin, *Games of the North American Indians*, 443, 446, 449, 469, 462, 463, 470.
Lowie, *The test-theme*, 139, 142.
[204] Zych, *Chunkey in the Mississippian* world, 63, 67, 68, 70, 71, 84.

Female maize

Then there is also the female originator of maize.

To understand her role, it has to be mentioned that there is a dissimilar sex differentiation in agricultural labour expectations between the regions. With some exceptions, North Amerindian women are the idealized agricultural workers while in Mesoamerica it was the men. The actual pattern of small-scale farming throughout the world is usually collaborative family work and this can also be seen in Central America, despite art and narrative speaking against women doing such work.[205] North Amerindians on the other hand *did* put their ideal into practice, with more pronounced roles for women in agricultural activity. This was especially so for Eastern Woodlands women, who generally were thought of as responsible for the field.[206] A dichotomy of male hunter-female farmer existed in North America that may exist as early as the first introduction of maize in the Southwest.[207] Despite this difference, both regions had female maize supernaturals and when

Culin, *Games of the North American Indians*, 421, 442, 449, 453, 457, 470, 471, 475, 485, 486, 488, 504, 508, 511.
Pauketat, *Ancient Cahokia and the Mississippians*, 63, 64.
W. Engelbrecht, a.o., "Stone disks in Iroquoia", *Iroquoia: The journal of the conference on Iroquois research* 4 (2018) 41-75 here 44, 45.
T. Pauketat, "America's first pastime: Did rolling stones spread Mississippian culture across North America?", *Archaeology* 62 (2009) 20-25, here 23.
W. DeBoer, "Like a rolling stone: The chunkey game and political organization in eastern North America", *Southeastern archaeology* 12 (1993) 83-92, here 85.
Yancey, *Rolling icons*, 497.

[205] C. Robin, "Gender, farming, and long-term change: Maya historical and archaeological perspectives", *Current anthropology* 47 (2006) 409-433, here 409-411, 417-421.
M. Stockett, "On the importance of difference: Re-envisioning sex and gender in ancient Mesoamerica", *World archaeology* 37 (2005) 566-578, here 570, 571.
R. Netting, *Smallholders, householders: Farm families and the ecology of intensive, sustainable agriculture* (Stanford, 1993) 58-62, 64, 67, 69, 70.
D. Carballo, "Advances in the household archaeology of Highland Mesoamerica", *Journal of archaeological research* 19 (2011) 133-189, here 147, 150.
C. Morehart, S. Morell-Hart, "Beyond the ecofact: Toward a social paleoethnobotany in Mesoamerica", *Journal of archaeological method and theory* (2015) 483-511, here 499.
J. Monaghan, "Sacrifice, death, and the origins of agriculture in the Codex Vienna", *American antiquity* 55 (1990) 559-569, here 563.

[206] K. Simpson, "I look on you... as my children": Persistence and change in Cherokee motherhood, 1750-1835", *The North Carolina historical review* 87 (2010) 403-430, here 407.
Smith, *Domesticated crop plants in eastern North America*, 119.
Scarry, *Crop husbandry practices*, 395, 396.

[207] B. Roth, "The role of gender in the adoption of agriculture in the southern Southwest", *Journal of anthropological research* 62 (2006) 513-538, here 518, 519, 524, 527, 528.

maize's source was female in their narratives, men still were its receiver and spreader on earth.[208] Female corn was in fact often thought of as wife, either in narrative or of the male Amerindian.[209]

She was related to a diverse range of concepts. Both regions had the concept complex of night, Underworld, water and fertility and coupled this with femininity, moon and maize. Because of this female supernaturals representing the moon also represent maize and vice versa.[210] Her identity was especially diverse in the Aztec pantheon, due to each concept being represented with separate female goddesses. These overlapped greatly however and actually represented the same being.[211] In both regions she was the mother of heroes and humans.[212]

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[208] A. del Angel, "Blood in Huichol ritual", *Journal of the Southwest* 42 (2000) 111-118, here 112.
C. García-Weyandt, "Mothers of corn: Wixárika women, verbal performances, and ontology", *AlterNative: An international journal of Indigenous peoples* 14 (2018) 113-120, here 113, 114, 119.
Brown, *Wisconsin Indian corn origin myths*, 20-23.
Wertz, *Maize: The Native North American's legacy*, 138, 139.
Grinnell, *Some early Cheyenne tales*, 170, 173, 179, 180, 184, 185-194.
Kroeber, *Cheyenne tales*, 163, 179, 180.
H. Webkamigad, *Ottawa stories from the Springs: Anishinaabe Dibaadjimowinan Wodi Gaa Binjibaamigak Wodi Mookodjiwong E Zhinikaadek* (East Lansing, 2015) 198, 199.
Lankford, *Native American legends of the Southeast*, 39, 108, 110-112, 147, 149, 154-156, 170, 173.
Swanton, *Myths of the Southeastern Indians*, 17.
Beauchamp, *Indian corn stories and customs*, 195, 196, 198.
Mould, *Choctaw tales*, 77, 250.
Mooney, *Myths of the Cherokee,* 323.
Braakhuis, *Xbalanque's* marriage, 33, 38, 39, 215, 235, 263, 264.
Doyle, *Creation narratives on Maya ceramics*, 51, 55-58.
de Orellana, *The mythology of corn*, 67.
[209] Beauchamp, *Iroquois folk lore*, 60.
Randle, *The Waugh collection of Iroquois folktales*, 630.
Lankford, *Native American legends of the Southeast*, 108, 110-112.
M. Caffrey, "Complementary power: Men and women of the Lenni Lenape", *American Indian quarterly* 24 (2000) 44-63, here 54, 55, 57.
Lankford, *Looking for lost lore*, 40-44, 46, 59, 64, 65.
Grigsby, *Xilonen in Tepoztlán*, 126.
Braakhuis, *Xbalanque's marriage*, 235, 236.
[210] Pauketat, *The emerald acropolis*, 207, 218, 219, 226, 254, 255.
L. Brooks, "Corn and her story traveled: Reading North American graphic texts in relation to oral traditions", K. Raaflaub (ed) *Thinking, recording, and writing history in the Ancient World* (Chichester, 2014) 391-416, here 402, 405.
Hewitt, *Iroquoian cosmology*, 624.
Prenctice, *An analysis of the Birger figurine*, 249-251, 254, 255, 257-259.
Milbrath, *Decapitated lunar goddesses in Aztec art*, 189-191, 195-197, 202.
Milbrath, *Gender and roles of lunar deities*, 57, 81, 83, 84.
de Orellana, *The mythology of corn*, 67.
Z. Paulinyi, "The Maize goddess in the Teotihuacan pantheon", *Mexicon: Zeitschrift für Mesoamerikaforschung* 35 (2013) 86-90, here 86, 87, 89, 90.
Grigsby, *Xilonen in Tepoztlán*, 117.
[211] P. Harrington, "Mother of death, Mother of rebirth: The Mexican Virgin of Guadalupe", *Journal of the American academy of religion* 56 (1988) 25-50, here 31.
D. Dehouve, "The rules of construction of an Aztec deity: Chalchiuhtlicue, the goddess of water", *Ancient Mesoamerica* 31 (2020) 7-28, here 8, 11, 12, 19, 22.
[212] Milbrath, *Gender and roles of lunar deities*, 81.

While the associated concepts might seem broad, they are important in her narratives. First there is her connection to the Underworld. In North America people are believed to return to the Maize-moon goddess after death and she represents West. This is also why she has sexual relationships or marriage bonds with snakes and representatives of the Underworld. This belief was already present among the Mississippians and their Southwestern contemporaries.[213] The Maize-moon goddess in Mesoamerica is likewise heavily associated with the Path of Souls and associated with the reptilian Underworld representative, a conviction even expressed in Christianised beliefs such as among the Otomi where she is reimagined as the Virgin Mary and he as Satan.[214]

She however characterizes *both* parts of the Underworld, death but also fertility and life. Both she and the Underworld representative represent the cave, the entrance and exit of the Underworld. In her case the cave is her womb, it is what instigates rebirth in people. This is also why she is connected to the sweat bath in both regions, prominent tools for rebirth rituals.[215] The cave

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Galinier, *La mitad del mundo*, 342, 344, 345.
Milbrath, *Decapitated lunar goddesses in Aztec art*, 185, 195-200.
Coltman, *Where night reigns eternal*, 204, 207, 211-214.
Lankford, *Some cosmological motifs*, 17.
Prentice, *An analysis of the Birger figurine*, 248-251, 254, 255, 257-259.
[213] Jones, *Notes on the Fox Indians*, 209, 210, 215.
Prentice, *An analysis of the Birger figurine*, 248-251, 254, 255, 257-259.
Diaz-Granádos, *AMS radiocarbon dates*, 487, 488.
Duncan, *The Big Five petroglyph sites*, 38, 39, 53.
Duncan, *Landscape, cosmology, and the Old Woman*, 59, 61, 62, 71, 72.
F. Reilly, "People of earth, people of sky. Visualising the sacred in Native American art of the Mississippian period", R. Townsend, R. Sharp (eds) *Hero, Hawk, and Open Hand: American Indian art of the ancient Midwest and South* (New Haven, 2004) 125-137, here 130, 131, 133, 134.
J. Swanton, *Source material for the social and ceremonial life of the Choctaw Indians* (Tuscaloosa, 2001) 208, 209.
Sharp, *Earth mother in the Middle Cumberland*, 211, 212, 214, 216-219, 231, 235, 241, 248-250, 252, 253.
R. Sharp, "Early female effigies of the Middle Cumberland region", *Central States archaeological journal* 65 (2018) 281-297, here 281, 282, 294.
Taube, *Gateway to another world*, 102.
[214] Galinier, *La mitad del mundo*, 141, 342, 345-347, 360, 361.
Milbrath, *Decapitated lunar goddesses in Aztec art*, 185, 186, 188, 195-200, 202.
Vail, *The serpent within*, 695, 696, 702, 703, 705, 707.
M. Jansen, G. Aurora, P. Jiménez, *The Mixtec pictorial manuscripts: Time, agency and memory in ancient Mexico* (Leiden, 2010) 257, 265-268, 317.
O. Kindl, "The Huichol gourd bowl as a microcosm", *Journal of the Southwest* 42 (2000) 37-60, here 43, 44.
de Orellana, *Huichol art*, 96-98.
[215] Radin, *The Winnebago tribe*, 314, 315.
Lankford, *Reachable stars*, 94-96, 102.
Galinier, *La mitad del mundo*, 344, 345, 360, 361.
Vail, *The serpent within*, 691, 695, 696, 702, 703, 705, 707.
Milbrath, *Decapitated lunar goddesses in Aztec art*, 194, 197.
Coltman, *Where night reigns eternal*, 202, 204, 207, 211-214.
Dye, *Mississippian religious traditions*, 146, 147.
Duncan, *Landscape, cosmology, and the Old Woman*, 59, 61, 62, 71, 72.
Alt, *The Emerald site*, 226, 230-232, 235, 237.
Dorland, *Sensoriality and Wendat steams*, 19.

could also be her dwelling, a part of the Path of Souls.[216] In North America she can be found on the Path, sometimes providing protagonists food, often maize, which could either help the protagonists on their mission on the Path or was the protagonist's main goal to travel on the Path. She could also be in the night sky, the Milky Way and the moon.[217] North Amerindian mounds represent her as well. Thought of as mountains, navels, wombs and the caves of Emergence, mounds were both places of death and birth. In female corn origin narratives mounds and hills were also often the places a male found the female corn. In on story she both resided there and watched over human souls.[218] She is important in Emergence narratives in both regions, either accompanying people out of earth as a representative of corn or people coming out of her womb.[219] Among the Q'eqchi' Maya maize's release from the Granary mountain also meant it was released from her body.[220] A symbol of her womb could even be carried by the Reviving hero.[221]

She can be an antagonist through her relationship with the Underworld representative. In Mesoamerican narrative she can be married to a snake/Underworld figure and both want to eat the heroes, often their adoptive children.[222] North Amerindian heroes have very similar enemies, yet in only a few cases are they married and/or their adoptive parents.[223] Here the male animalistic enemy

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[216] de Orellana, *Huichol art*, 96-98.
Grinnell, *Some early Cheyenne tales*, 170, 173, 179, 180, 184, 185-194.
Kroeber, *Cheyenne tales*, 163, 179, 180.
[217] Hewitt, *Iroquoian cosmology*, 792, 797, 799, 800, 802, 805, 812, 814, 815.
Wertz, *Maize: The Native North American's legacy*, 138, 139.
Lankford, *Native American legends of the Southeast*, 108, 110-112.
Grinnell, *Some early Cheyenne tales*, 170, 173, 179, 180, 184-194.
Gayton, *The Orpheus myth in North America*, 272, 273.
Lankford, *Looking for lost lore*, 32.
Duncan, *Landscape, cosmology, and the Old Woman*, 61, 62, 71-73.
[218] V. Knight, "Symbolism of Mississippian mounds", G. Waselkov, P. Wood, M. Hatley (eds) *Powhatan's mantle: Indians in the Colonial Southeast: Revised and expanded edition* (Lincoln, 2006) 421-434, here 421-425, 429.
Lankford, *Looking for lost lore*, 35, 36, 61.
J. Swanton, "Social and religious beliefs and usages of the Chickasaw Indians", *Annual report of the Bureau of American Ethnology to the Secretary of the Smithsonian Institution* 44 (1928) 169-273, here 174, 178.
Swanton, *Source material for the Choctaw Indians*, 208, 209.
[219] J. Heckewelder, *History, manners and customs of the Indian nations who once inhabited Pennsylvania and the neighboring state: New and revised edition* (Philadelphia, 1881) 249, 250.
Dorsey, *Traditions of the Arikara*, 12-15, 18, 20-23, 25, 27, 30, 31, 34, 37, 39, 42, 43.
K. Taube, "The womb of the world: The Cuauhxicalli and other offering bowls in ancient and contemporary Mesoamerica", *Maya archaeology* 1 (2009) 86-106, here 90, 92, 96.
Heyden, *An interpretation of the cave underneath*, 134-138.
[220] Brotherston, *Book of the Fourth World*, 276.
[221] Milbrath, *Star gods of the Maya*, 119, 186.
[222] Braakhuis, *Xbalanque's marriage*, 50-53, 56, 105, 120, 161, 306, 413.
B. Elson, "The Homshuk. A Sierra Popoluca Text", *Tlalocan: A journal of source materials on the Native cultures of Mexico* 2 (1947) 193-214, here 193, 195-203.
[223] Lowie, *The test-theme*, 139, 142-144.
D. Leeming, M. Leeming, *A dictionary of creation myths* (New York, 1994) 160, 161.
Dorsey, *Abstracts of Omaha and Ponka myths*, 77.

is a wider used figure whose defeat symbolizes the opening of earth and release of life, like the This World-reptile.[224] Maize-moon goddess cognates can also kidnap orphans, just like the evil Mayan adoptive mother.[225] The antagonistic Maize-moon goddess in Precolumbian Mesoamerican art was old, could create floods and sometimes was an alternative version of the primordial This World-reptile.[226] North America also has old frog woman, a possible cognate to the goddess in the Southeast who help their antagonistic father. In the Northeast Frog woman kidnaps boys or is part of the Underworld.[227] Frogs and toads had water associations throughout the Americas and were connected to the This World reptile, sometimes being a version of the reptile and entrance to the Underworld. Frogs were also connected to the Aztec Maize goddess.[228]

Owen, *A dictionary of the Biloxi and Ofo languages*, 102-105.
[224] Lankford, *Reachable stars*, 28-31, 87.
Lankford, *Native American legends of the Southeast*, 128.
Hale, *Huron folk-lore: I*, 180-182.
Brown, *Wisconsin Indian corn origin myths,* 25, 26.
Carroll, *Folklore and psychoanalysis*, 295-297.
Lowie, *The test-theme*, 103, 120, 131, 135, 139, 140, 142, 143.
Mooney, *Cherokee myths,* 320, 347.
[225] Swanton, *Myths of the Southeastern Indians*, 230, 231, 235.
Lankford, *Looking for lost lore*, 56, 57.
Braakhuis, *Xbalanque's marriage*, 59, 76, 77-79, 85, 312, 408.
[226] Rice, *Maya crocodilians*, 719.
Nielsena, *The couple in the cave*, 210, 211.
Arnold, *The shark-monster in Olmec iconography*, 10, 13-15, 17-19, 22.
Taube, *The major gods of ancient Yucatan*, 101-103, 105, 128, 131.
Vail, *The serpent within*, 702, 703, 705, 707.
Milbrath, *Star gods of the Maya*, 77.
Coltman*, Where night reigns eternal*, 204, 207, 211-214.
Christenson, *Popol Vuh,* 52, 120, 122, 124.
<https://www.mesoweb.com/publications/Christenson/PopolVuh.pdf> (17/6/2022)
[227] Lankford, *Native American legends of the Southeast*, 30, 100, 101, 128, 129, 154, 155-157.
Lankford, *Looking for lost lore*, 57, 58.
Swanton, *Myths of the Southeastern Indians*, 85, 123, 124, 133, 134, 168, 181, 222-230, 270.
Lowie, *The test-theme*, 131.
Mooney, *Cherokee myths*, 249, 320, 347.
H. Wassén, "The frog in Indian mythology and imaginative world", *Anthropos* 29 (1934) 613-658, here 640, 641.
Radin, *Ojibwa myths and tales*, 62, 65, 66, 74.
A. Chamberlain, "Tales of the Mississaguas: I", *The journal of American folklore* 2 (1889) 141-147, here 145, 146.
[228] Wassén, *The frog in Indian mythology*, 613, 627, 630-638, 640, 641.
Robicsek, *The Maya book of the dead*, 43-45, 47, 117.
McDonald, *Water lily and cosmic serpent*, 80.
Stross, *Eight reinterpretations of submerged symbolism*, 415.
L. Schele, "Balan-Ahau: A possible reading of the Tikal emblem glyph and a title at Palenque", *Palenque round table* 6 (1985) 59-65, here 65.
Carroll, *Folklore and psychoanalysis*, 295-297.
Lowie, *The test-theme*, 103, 120, 135, 139, 140, 142, 143.
Mooney, *Cherokee myths*, 320, 347.
Wilson, *Uses of plants by the Hidatsas*, 183.

In both regions killing her was represented as positive. The Mesoamerican evil adoptive mother could be burned, her ashes fertilizing the field.[229] In North America she was sometimes killed even when innocent, still being regarded by her sons as dangerous or evil despite giving them food, or she herself insisted on being killed so that corn can appear. Her death can involve burning, which possibly connects to maizefield creation.[230] It is part of the "maize from death" theme, both the male and female maize representative sometimes had to die for maize to grow on earth. In North America, maize either sprung from her grave, maize appeared after her death/disappearance or she is dragged over the field before or after dying. The dragging is commonly done seven times, an important number in this region which represented the four cardinal directions and three worlds.[231]

A mirror image of the dangerous couple were the originators of humans. They come out of caves and their offspring populate earth, a widespread concept in Mesoamerica. These couples were sometimes the same, the Mayan Maize-moon goddess formed the first couple with the human variant of the primordial reptile. Like the Maize god, they appear on earth from the cave of Emergence, surviving the destruction of earth and its recreation.[232] Maize could originate from them, which might either transform into the first humans or represented the Maize god.[233] In North America the Maize-moon Goddess also often was the First woman and the original couple from which humans came were often responsible for maize appearing. In many narratives either First man

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[229] Braakhuis, *Xbalanque's marriage*, 63, 64.
[230] Lankford, *Native American legends of the Southeast*, 154-157.
Lankford, *Looking for lost lore*, 52, 57-59, 61, 62, 64, 65.
Swanton, *Myths of the Southeastern Indians*, 9-17, 230-234.
Duncan, *The Big Five petroglyph sites*, 44.
[231] Webkamigad, *Ottawa stories from the Springs*, 198, 199.
Lankford, *Native American legends of the Southeast*, 39, 147, 148, 150, 151, 154-156, 170, 173.
Swanton, *Myths of the Southeastern Indians*, 9-17, 230-234.
Beauchamp, *Indian corn stories and customs*, 198, 195, 196.
Loubser, *Betwixt and between*, 231.
Lowie, *The test-theme*, 142.
Mould, *Choctaw tales*, 77, 250.
Brown, *Wisconsin Indian corn origin myths*, 22, 23.
Beauchamp, *Iroquois folk lore*, 60.
Lankford, *Looking for lost lore*, 55, 57, 61, 62, 64-66.
F. Speck, "Penobscot tales and religious beliefs", *The journal of American folklore* 48 (1935) 1-107, here 75.
Hale, *Huron folk-lore: I*, 180, 181.
[232] Nielsena, *The couple in the cave*, 206, 208-211.
Taube, *The major gods of ancient Yucatan*, 36, 99, 101, 103.
Rice, *Maya crocodilians*, 719.
Robicsek, *The Maya book of the dead*, 109, 110.
Braakhuis, *Xbalanque's marriage*, 217.
[233] M. Graulich, "L'arbre interdit du paradis Aztèque", *Revue de l'histoire des religions* 207 (1990) 31-64, here 36, 37, 40, 41.
de Jonghe, *Histoyre du Mechique*, 31, 32.
Knowlton, *Hybrid cosmologies in Mesoamerica*, 712, 732.
D. Dütting, "The Great goddess in Classic Maya religious belief", *Zeitschrift für Ethnologie* 101 (1976) 41-146, here 72.

or First woman is maize or the giver of maize, sometimes forming a couple after the great flood. Other times the first thing the first couple found after the flood was maize. Some stories also make it a point maize came from copulation between a man and woman.[234] The Reviving or maize-giving hero could also be the first man or the first created human, birthed by first woman.[235] The first people emerging out the underground also could be maize, take maize with them or were guided by maize, which they called mother.[236] The sun and moon also often act as couple in both regions. To many, female moon and male sun were the ancient couple who started humanity or birthed maize.[237]

There is a certain sex-obfuscation surrounding maize-moon deities, as male heroes can bring maize or be maize, while Maize goddesses exist as well. Among the Classic and Postclassic Maya, the Maize god and good Moon goddess sometimes overlapped in art. Back then the maize-moon concept was represented by both sexes, while in the Historical era it was mostly female. Nevertheless, the Popol Vuh still contained a male and female moon. Male moon was one of the Twins since the Precolumbian era and formed a pair with his Sun brother. The dual sex identity of the Maize-moon representative was widely expressed in Central Mexico, being impersonated by men and women and transforming from female to male deity through death.[238] In North Amerindian narratives the female

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[234] Sharp, *Early female effigies of the Middle Cumberland region*, 281.
Hale, *Huron folk-lore: I*, 180, 181.
Schuetz-Miller, *Spider Grandmother and other avatars*, 367, 370.
Mooney, *Myths of the Cherokee*, 248.
Duncan, *The Big Five petroglyph sites*, 38, 39, 41.
Lankford, *Looking for lost lore*, 32, 35, 36, 45-47, 55, 56.
Lankford, *Native American legends of the Southeast*, 146.

[235] J. Hewitt, "Ethnological researches among the Iroquois and Chippewa", *Smithsonian miscellaneous collections* 78 (1926) 114-117, here 116, 117.
Lankford, *Native American legends of the Southeast*, 64.
C. Leland, *The Algonquin legends of New England: Or, myths and folk lore of the Micmac, Passamaquoddy, and Penobscot tribes* (Boston, 1884) 18.

[236] Fletcher, *The Hako*, 69.
Lankford, *Looking for lost lore*, 54, 55.
W. Newell, "Navaho legends", *The journal of American folklore* 9 (1896) 211-218, here 213-216.
G. Grinnell, "Pawnee mythology", *The journal of American folklore*, 6 (1893) 113-130, here 124-126.

[237] Taube, *Flower Mountain*, 79, 81.
Galinier, *La mitad del mundo*, 348.
Milbrath, Maya star lore, 77.
Braakhuis, *Xbalanque's marriage*, 220.
Milbrath, *Gender roles of lunar deities*, 52, 56, 57.
Lankford, *Reachable stars*, 78-80, 84, 89, 90, 92, 93, 97, 99-101, 105, 107.
Alt, *The Emerald site*, 231, 235, 237, 238.
Duncan, *Landscape, cosmology, and the Old Woman*, 70.
Brooks, *Corn and her story traveled*, 402, 408.
Brotherston, *Far as the solar walk*, 16, 17, 18, 29.

[238] Taube, *The major gods of ancient Yucatan*, 64, 67, 68.
Milbrath, *Gender and roles of lunar deities*, 46-48, 51, 52, 55-58, 73-75, 81.
Milbrath, *Maya cosmos*, 135, 137, 138, 140, 141, 150.

maize-giver and male maize-giver had overlapping roles such as being the guide to earth-emergence, dying and growing maize from the grave or scraping maize from their bodies. In one Emergence story the male maize even made his daughter inherit his powers as he stayed behind. Even in the Southwest where maize is overwhelmingly female a male maize representative exists among some groups.[239]

Galinier, *La mitad del mundo*, 346, 347, 370, 371.

[239] Lankford, *Looking for lost lore*, 50, 52-57.
Lankford, *Native American legends of the Southeast*, 147, 148, 150, 151, 155.
Swanton, *Myths of the Southeastern Indians*, 9-17, 134-138, 168, 178-181, 230-234.

Conclusion

How did Mesoamerican maize beliefs shape the beliefs of North Amerindians in the Eastern Woodlands in the Precolumbian era?

To start, the context of early maize in the Eastern Woodlands was that of a rare ceremonial item. While it eventually became a regularly eaten cultivate, this transition here was not novel. It also occurred in the Andes region and among the Olmec after the initial adoption of maize as a ceremonial item. For the Northeast, it was cultivated by communities around the Finger Lakes who did not eat the cultivate much, but did put a lot of effort into helping the crop survive the region. They enthusiastically exchanged maize among themselves and embedded it into local social, political and religious traditions. These traditions involved using maize together with ceremonial Vinette pottery and this behaviour was later also found outside of the Finger Lakes. This spread was likely thanks to the religious interaction spheres these communities were part of, a sphere which highly valued and exchanged exotic materials to be used in ceremony. Within this sphere Vinette pottery was ceremonially connected to multi-group gatherings and burial.

Maize's early position in the region was precarious: it started as a small population, which severely decreases the chance of survivability. Maize as a plant in general is relatively weak, needing a lot of human attention and energy to thrive. In the Northeast, where horticultural traditions were not yet fully developed, easier crops to cultivate existed. Maize's trail to the Eastern Woodlands also shows maize was likely not introduced by Eastern Agricultural Complex horticulturalists who would have had more cultivation experience. The trail also reveals that maize was adapted to the warm and dry Southwestern climate, which likely decreased maize's changes to survive in the Northeast even more.

People had to change too. In this region spring harvests were important, while during autumn intra-communal cooperation usually began to break up. Maize's growth cycle on the other hand would have made autumn harvests important community events. Maize was also not important to the local diet, making the energy input into maize cultivation unequal to its output. The crop thus had to be introduced with a lot of indispensable knowledge and convincing arguments for it to have been embraced and to have survived among populations whose lifestyles were less amenable to maize farming compared to other populations in the Eastern Woodlands. These concepts seem to have been verbally introduced by non-locals and included explanations on maize's ritual importance. Knowledge about this purpose of maize had found its way to communities that did not grow maize themselves and convinced them to import it, such as at Block Island and southern Quebec. Before this, Finger Lakes populations likely had started importing and growing maize for this reason too.

Vinette pottery was strongly connected to multi-group seasonal rituals and at these gatherings maize could have spread between populations. The ritual value of maize partly explains how it survived in the Northeast, genetic health being retained by yearly ritual exchanges of maize stock from different maize populations. Later maize exports from Hopewellian populations to outside communities likewise seem to have been part of religious exchanges, while within Hopewell communities ceremonial mound gatherings likely were important events for maize exchange.

Hierarchy is also usually strongly connected to worldview. In both the Eastern Woodlands and Mesoamerica maize was not uniformly eaten by everyone at the start of maize adoption. The choice to eat it regularly differed per population and among some it was a food for the elite. In some communities it seems that regular maize-eaters, either outsiders or elites, managed to influence the normalisation of eating maize. But even when it was not elite nourishment, maize cultivation projects and maize surplus might have helped strengthen hierarchy. In the Eastern Woodlands maize-farming seems to have been forced onto multiple communities by larger polities which held strong religious-political influence over them. This happened despite maize-farming not always being practical. Such overriding of practical considerations could have once again occurred due to religious beliefs. Yet these large polities did not dictate maize's association with death and renewal. Maize had this ceremonial role even in regions with less centralisation and hierarchy.

So while maize spread for its religious value to both communities and elites, what did the relevant religious beliefs entail? Death was an important part of the mentioned gatherings, as ceremonial burials occurred during these meetings. Vinette pottery and mounds played large roles in this. As maize spread into the Midwest, the crop similarly seems to have been connected to death rituals. The other ritual purpose of these gatherings was the celebration of renewal. Maize's role as a symbol of renewal is especially identifiable in the Mississippian era. Its strong ritual connection to death and renewal convinced even populations with no prior agricultural history along the central Atlantic Coast in the Mississippian era to immediately embed maize in death and renewal ceremonies once they were introduced to it. Similar events seem to have occurred centuries earlier at Vinette.

Maize shared this role as symbol with other subjects. Together with fire it symbolised renewal and both could be combined in renewal rituals. Field clearing by fire might have helped strengthen this association. Maize also shared death and renewal associations with mounds and both played a role during seasonal gatherings. Maize cultivation and mounds were both good metaphors for death and renewal of humans. The Historical era technique of planting maize into little corn hills could also be metaphorized as human burials, while mounds were very often used for burial. The two manmade constructions might have been associated with each other. Multiple Historical era groups associated

both with narratives explaining the cosmos, such as both constructions representing the Axis Mundi. In the Mississippian era maize also had to share its role as symbol of death and rebirth with the supernatural Birdman figure, a hero who revives from death. Another Mississippian figure with a maize head/hat was also connected to death and possibly rebirth. A female Mississippian figure also represented death, life and maize. This figure is identified as a version of the later Historical era Maize-moon goddess.

In the latter era, narratives reveal maize still represented death and renewal. The cosmos' subdivision in 3 realms, 4 cardinal directions and a centre is also explained through maize metaphor in some Historical era narratives. Maize furthermore represented humans, a belief which might have already existed in the Precolumbian era. Examples for this would be the Mississippian human burials in vessels used for cooking maize and maize in general being connected to human burials. In the Historical era maize again shared its role as symbol of religious concepts with mounds, fire, the Reviving hero and the Maize-moon goddess. These two supernaturals both represented life coming out of the Underworld, much like how maize (life) springs from below the ground (Underworld).

While the Historical era Maize-moon goddess had clearer maize associations, the male Reviving hero or his alternative, the Twins, were also sometimes bringers or finders of maize. Even when this was not the case they had some association with maize through their familial relation to the goddess. Because they are believed to be related to the Mississippian Birdman and the latter symbolised renewal together with maize, it seems reasonable to assume the Birdman and maize also had some associations with each other. Maybe he was a maize-representative, an introducer of maize or he had familial ties to the Maize-moon goddess.

The female-farmer, male-hunter dichotomy known from the Historical era may have made the association of the Reviving hero to maize to be less overt in some narratives. However, next to narratives where they are bringers of maize or are related to the Maize-moon goddess, their recurring role in taming chaos and persevering over the Underworld and the Flood also appears to be a metaphor for agriculture. In Mesoamerica, very similar narratives explicitly represented this metaphor. Additionally, in both regions the meaning of this hero journey is in line with maize's associations to death and renewal. Mesoamerican and North Amerindian narratives shared many similarities and people from both regions had many matching understandings on how the cosmos worked and the logic within this worldview.

Historical era maize narratives strongly identify maize with humankind, as maize either represents humans directly or is closely connected to human origin narratives. The latter include the escape of humans out of the Underworld or their survival of the Flood. The inclusion of maize on this path which parallels that of the Reviving hero's journey, shows once again the agricultural aspect of

this journey. Maize's association with death and humans also manifests in stories where it is found on the Path of Souls, a similar journey meant for humans and supernaturals. As maize was combined with death and renewal rituals in the Precolumbian Eastern Woodlands, it seems very likely maize was associated to the Path of Souls in this era too. Another way humans and maize are somewhat cognates in narrative is through their shared parentage from the Maize-moon goddess. Outside of these narratives, multiple behaviourisms and rituals surrounding maize among North Amerindians also show that many considered themselves to be related to maize. All of this is also true for Mesoamerica, the association of maize with the start of humanity, maize being present in journeys out of the Underworld and after the flood and the belief maize represents humans. Here the Underworld journey was so strongly connected to maize that the Reviving hero himself could be maize.

All things considered, maize was seemingly introduced in the Eastern Woodlands with explanations on maize's value and with ideas which consistently related it to death and renewal. The latter context of maize is the same in Mesoamerica. Both regions have maize narratives which strongly parallel each other, connecting very similar supernatural figures with very similar adventures and connecting the start of humanity to maize. It thus seems that the introduced maize and its attached religious ideas in the Northeastern Woodlands, were already attached to each other in Mesoamerica and remained attached.

Both regions share similar worldviews which act as a basis for beliefs and narrative. They agree on a tamed nature versus wild nature dichotomy, the shape of the divisions of the cosmos and the death and renewal journey through these divisions. While these can be independent from maize, the Mesoamerican maize beliefs followed the rules of this worldview and could have helped imbed them into the similar Eastern Woodlands worldview.

Maize, together with cultivation techniques had been framed as religious by Mesoamericans before being introduced in the Northeast. Techniques like burning of land represented creation or renewal, planting of maize kernels representing human burial and maize's sprouting out of earth represented revival. Such examples helped Mesoamerican religious concepts to remain attached to maize when newly introduced and made the crop a very desirable product with powerful supernatural connotations. The narratives attached maize to the idea that death and renewal are a journey through the three realms of the cosmos, the Underworld, This World and Upperworld. This was a journey which humans and supernaturals could also experience and made maize a close cognate to humans. It made maize popular, helping it to be granted disproportionate attention and energy without immediate return and allowing it to be integrated into the local belief systems. This shared basis in Mesoamerica and the Eastern Woodlands resulted in their Historical era maize

narratives also sharing many similarities. Eastern Woodlands narratives locally evolved after maize's early introduction but still retained Meosamerican ideas, while possibly also being partly shaped by later occasional flow of Mesoamerican maize and narratives to the Eastern Woodlands.

Appendices

Periodization

Table 1: *Generalised Mesoamerican periodization*

Period	**Date**
Archaic period	7000 – 1500 B.C.
Early Formative period	1500 – 900 B.C.
Middle Formative period	900 – 500 B.C.
Late Formative period	500 B.C. – A.D. 300
Classic period	300 – 900 A.D.
Early Postclassic period	900 – 1200 A.D.
Late Postclassic period	1200 – 1520 A.D.
Historic period	1520 A.D. – now
Colonial period	1520 – 1820 A.D.

Table 2: *Generalised periodization of the North American Eastern Woodlands*

Period	**Date**
Archaic period	8000 – 1000 B.C.
Early Woodland period	1000 – 500-200 B.C.
Middle Woodland period	500-200 BC – A.D. 300-500
Late Woodland period	300-500 – 1000 A.D.
Early Mississippian period	1000 – 1200 A.D.
Middle Mississippian period	1200 – 1400 A.D.
Late Mississippian period	1400 – 1600 A.D.
Historic period	1600 A.D. – now

Maps

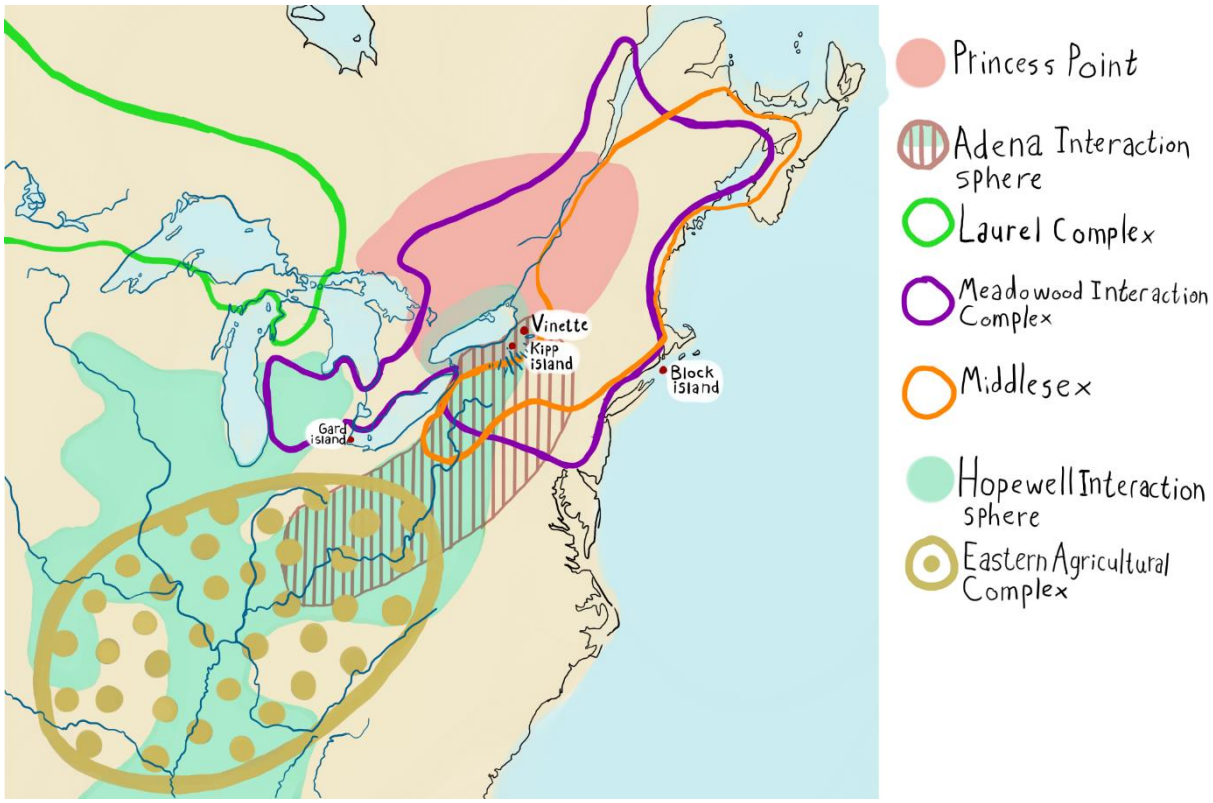

Figure 1: O. van der Dussen, *Mentioned traditions, complexes, interaction spheres and sites between the Archaic and Middle Woodland period* (2022)

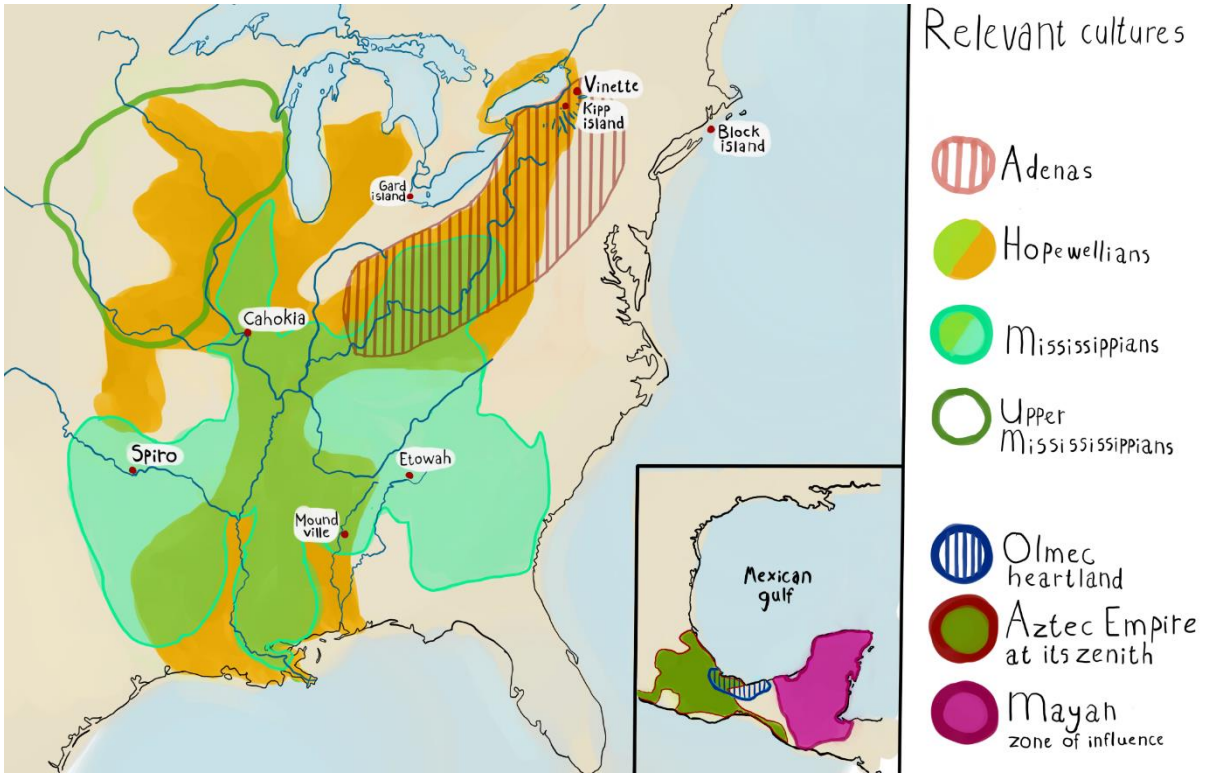

Figure 2: O. van der Dussen, *Important archaeologically defined cultures and sites* (2022)

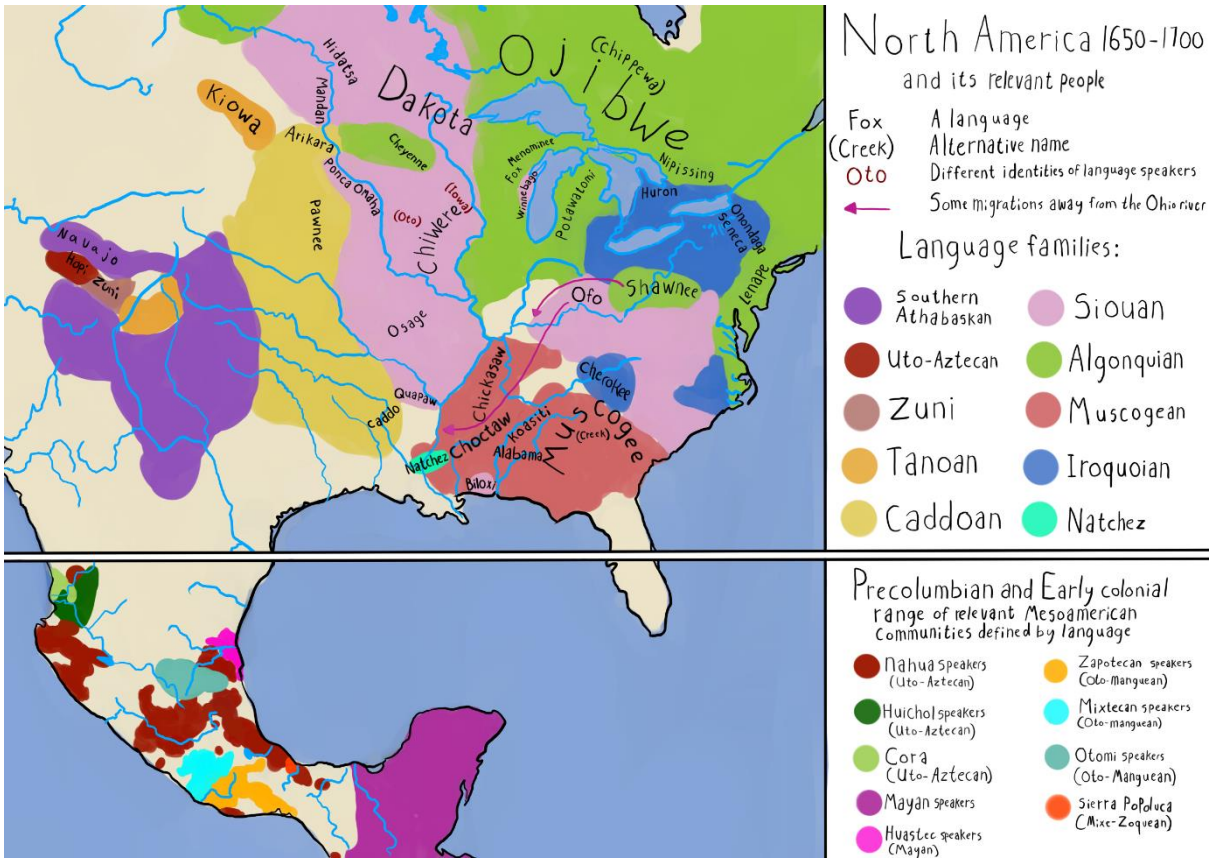

Figure 3: O. van der Dussen, *Geographic reach of important communities defined by linguistics in North and Central America during an era of lesser European influence* (2022)

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Images

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