Remapping King Philip's War:

Gaining New Perspectives About Its Impact on the Nipmuc, Wampanoag, and

Narragansett Nations Using GIS

An Interactive Qualifying Project submitted to the faculty of Worcester

Polytechnic Institute in partial fulfillment of the requirements for the Degree of

Bachelor of Science

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Interactive Qualifying Project Division 53: Historic and Artistic Preservation Technology

Submitted to Professor Jim Cocola

May 17, 2021

Abstract

This is an interactive mapping project showing key events in King Philip's War (1675-1678). We used GeoJSON and Leaflet to build our maps. GeoJSON is a visual data format that sets points, areas, and other annotations on maps. Leaflet is a JavaScript library for GeoJSON that displays images and annotations. It arose in New England between English colonists and the nations which had lived there for eons (e.g., the Wampanoag, Narragansett, and Nipmuc). For centuries, colonists told only their side of the war, as they had control over the press. Yet that story can be unfair to people who were not colonists. This project aims to validate non-colonist views as worthwhile. We want our maps to urge closer looks at King Philip's War and inspire other maps for events in euro-indigenous history.

Executive Summary

This IQP aims to re-examine King Philip's War then use that re-examination as the basis of an interactive digital map. King Philip's War took place from 1675 to 1678. A primary group of participants were English colonists who had recently settled in a land they called New England. Opposite the colonists were several nations which had lived in the New England region for millennia (often called American Indians). The main nations involved were the Wampanoag, Narragansett, Nipmuc, and the Wabinaki Confederation. The war's flashpoint was the attack on the colonist town of Swansea by Wampanoag youth. The attack expressed outrage over the controversial executions of John Sassamon's alleged killers. It evolved into an expression of frustration between the colonists and Indians that entangled the leaders of the involved groups (including the war's namesake and Wampanoag sachem) into the conflict and spurred more violence.

Initially, Philip and his allies performed well. Their superior battleground knowledge and greater military experience proved difficult for newcomers like the colonists to compete with. By fighting and using allies' resources well, Philip and his supporters also succeeded in capturing colonist towns like Deerfield. They then reclaimed captured towns by destroying what the colonists built on it. The colonists, however, were unwilling to surrender. The effects of this persistence and lack of restraint can be seen in the attack on the Great Swamp fortress in Rhode Island. The fortress, meant as a place of refuge for the Narragansett, was difficult to find and reach. Only one bridge linked it to the swamp. The colonists took heavy casualties on the bridge in trying to attack the fortress, until they found another way into the fortress that allowed it to be attacked on two fronts. Having gained the upper hand, the colonists slaughtered anybody not with them until a winter storm forced their retreat. This proved to be a turning point in the war. It

forced the Narragansett to pull out of the war and put Philip and his supporters on the run. They still achieved some victories, but months of evading colonists proved demoralizing for them. Although combat on the southern and western frontiers shriveled after Philip was shot to death in 1676, fighting on the northern frontier continued until the signing of the Treaty of Casco in 1678.

We wanted to re-examine King Philip's War because it is often misrepresented. Both written and visual works about the war tend to focus on the colonist perspectives. This pattern emerged in part from the abundance of primary sources by colonists compared to non-colonists. It also came from colonist efforts to discredit the indigenous perspectives. The colonists' descendants often liked their narrative of victory over dangerous "savages." Beyond simple prejudice, there were also political motivations at play. Excuses for underhanded but lucrative activities like enslavement were in high demand. Expanding the British Empire's territories on American soil also bolstered its ability to control trans-Atlantic trade.

We chose to make maps because a map's scope, scale, and presentation can tell a story like written works do. Yet unlike written works, maps represent spatial relationships in a way people trust. Plus, the topic of King Philip's War is undervalued, meaning that few maps of it pay mind to anything beyond colonist records. We, however, can convey a more factual look at the conflict by recognizing how non-colonists experienced it. This means that we do more than simply cover the battles themselves. Instead, the chronology of our map begins with the events leading up to the war's flashpoint and ends at the Wabinaki's Casco negotiations. Chronology is handled with three time period options: pre-war, war, and post-war. As the viewer navigates each period, they can observe changes like village losses or the onset of internment. Geographically, we represent sites in the Wampanoag, Nipmuc, Narragansett, and Wabinaki Confederacy territories. Less emphasized, but still important, are sites in smaller tribes' territories, like those

of the Nashaway. Also represented are areas in those territories where colonists settled. In this case, the Massachusetts Bay, Rhode Island, Connecticut, and Maine colonies are most prevalent. The locations of "Praying Indian" towns are shown as neither colonist nor Indian. This is because they were built for Christianized Indians who adopted colonist ways, meaning that they did not fit in with colonists or Indians. Finally, locations where slaves were sent, like the Barbados colony in the Caribbean, are also represented. Map landmarks include sites of internment, battles, and information about territory allocation. All along, we have endeavored to use open GIS technologies to convey the fruits of our research. Plus, we created a companion website to provide extra information and resources about some of the locations on the map.

As we gathered information and plotted points on our maps, we noticed that patterns emerged, and narratives became clearer. We found that translating narratives into cartography illuminated different sides of them. For example, we noticed that John Eliot's original Praying Towns formed a line between colonist and Indian villages. This gave their construction a new angle as a buffer between colonists and non-Christian Indians. To get to the colonist villages from an Indian village, it became necessary to pass through a Praying Town. This enabled the Praying Town residents to alert colonists of travelers in the area. Hence, the Praying Towns were intended not just as homes for Christianized Indians, but also as protection for the colonists. Another pattern we noticed was colonist encroachment in contested territories. Encroachments frequently became naked when viewed on a map. For example, the Marlborough meetinghouse is outside Marlborough and in the planting fields of Okkokonimesit (a Praying town), which seems inexplicable. Yet, our map shows that Marlborough was nigh contiguous to the Okkokonimesit planting fields. With that in mind, the meetinghouse's location is unsurprising. It reflects the colonists planting towns like Marlborough, then expanding their borders into lands

they have no claim to. Cases like Marlborough show how tensions rose between colonists and Indians who were friendly and receptive to them.

In terms of separations, we noticed was the locations of Nipmuc wartime villages. On a map, their positions do not follow the occupancy patterns of pre-war Nipmuc villages. They are, however, located far from colonist influences and in areas the colonists had yet to try to grab. This points to the villages existing as a place of refuge from war, and a safe place for Nipmuc and their allies to prepare for battle. Separation was also used by colonists in relocating captive Indians. For example, many Praying Indians were interned on Boston Harbor islands during the war. So scant were the resources on the Boston Harbor islands that most interned Praying Indians starved or froze to death. They were also completely isolated from all the Indian villages present at the time. A more extreme case of separation occurred to enslaved Indian captives. They were frequently shipped abroad to places like Barbados, which was an ocean away from New England. This meant that even if a captive managed to return home, the odds that they ever reunited with their loved ones were slim. In both cases, the separation shows how colonists severed captives' ties to their homeland and cut off their communication with their family.

These, however, are not the only narratives that the interactive map can shed light on. Viewers can the geographic information provided on our maps to gain their own insights about the war. We see plenty of opportunity for future projects or other work using our deliverables as a starting point, including both further works studying King Philip's War specifically, and other work utilizing GeoJSON and Leaflet as a foundation for GIS in the Digital Humanities. The working implementation of the deliverables, as well as all of the source code, is being released and is freely available for others to build upon. As the project utilizes free and open-source technologies, it should be possible to do this without obtaining any costly licenses.

Authorship

Cameron Fiddes worked on the executive summary, introduction, background, icons, and

Appendix B. She also worked on portions of the methodology and results and analysis. She also

was in charge of citations and formatting in the report and website.

Joshua McKeen primarily worked on the methodology, results and analysis, conclusion, and

future recommendations sections. In addition, he was responsible for developing the GeoJSON

and Leaflet guides in Appendix A.

Acknowledgements

Thanks to Kim Toney at the American Antiquarian Society for providing project direction and

assisting us with gathering primary resources to use in the report and the interactive map. Also,

many thanks to our project advisor, Jim Cocola, for his wealth of support, advice, and

understanding throughout the entire process of working on this project.

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Chapter 1: Introduction

This IQP aims to re-examine King Philip's War, which took place in the region now called New England from 1675 to 1678, then use that re-examination as the basis of an interactive digital map. The war was between colonists and the nations which had lived in the New England region for eons (often called American Indians, or simply Indians). Of these nations, the main tribes involved were the Wampanoag, Narragansett, Nipmuc, and Wabinaki Confederation. We wanted to re-examine King Philip's War because it is frequently misrepresented. Both written and visual works about the war tend to disproportionately focus on the colonist perspectives. This pattern emerged in part because the majority of primary source documents available pertaining to King Philip's War are accounts written by colonists and published shortly after the war's conclusion. It also, however, emerged to discredit the indigenous perspective. The colonists' descendants often liked their narrative of victory over dangerous "savages." Beyond simple prejudice, there was also political motivations at play. Excuses for underhanded but lucrative activities like enslavement were in high demand. Expanding the British Empire's territories on American soil also bolstered its ability to control trans-Atlantic trade.

While trying to construct maps depicting the events of this conflict, it can be dangerously easy to rely completely on these accounts and the locations discussed within them. This strategy, however, poses problems. Perspectives written by the colonists are likely to inflate their own victories as well as highly the savagery of the American Indians by choosing convenient battles and casualty statistics to focus on. There are many ways to tell the story of King Philip's War, to the point where even colonial authors of the time disagreed with each other over accuracy of each other's accounts. Recent written works about King Philip's War have been successful at

shifting the focus from the English perspective to the Indian perspective. We aim to show that maps can accomplish the same thing. Our goal with this IQP was to create a web based, interactive, accessible map documenting King Philip's War, with a particular focus on historical figures and locations related to the Nipmuc, Wampanoag, and Narragansett Indians. These maps will include features that may have been underrepresented or inaccurately portrayed in past cartographic resources.

Maps constructed with particular attention to American Indian perspectives and stories can convey a more inclusive and accurate perspective of the conflict. This is because, just like narratives and accounts, maps tell their own story. In contrast to written works, however, people trust maps more to represent spatial relationships. These maps will be constructed using the open-source geographic information system technologies GeoJSON and Leaflet. The use of these technologies will allow us to build engaging, interactive maps based on open and accessible geographic data sets. Besides maps, this project will also deliver a simple companion website which may be opened easily using any web browser. This ensures little-to-no technological compatibility issues and so allows the maps to be viewed from a wide variety of devices and environments. The series of maps created for this project will include details about battle locations, colonial towns, American Indian territories, praying towns, and other key landmarks related to the conflict. Our focus will begin with the events leading up to the flash point of the war and end with the Wabinaki's Casco negotiations. Geographically, we represent sites in the Wampanoag, Nipmuc, Narragansett, and Wabinaki Confederacy territories. Less emphasized, but still important, are sites in smaller tribes' territories, like those of the Nashaway. Also represented are areas in those territories where colonists settled. In this case, the Massachusetts Bay, Rhode Island, Connecticut, and Maine colonies are most prevalent. The locations of

"Praying Indian" towns are shown as neither colonist nor Indian. This is because they were built for Christianized Indians who adopted colonist ways, meaning that they did not fit in with colonists or Indians. Finally, locations where slaves were sent, like the Barbados colony in the Caribbean, are also represented. Map landmarks include sites of internment, battles, and information about territory allocation. Combining these open GIS technologies with careful, inclusive research utilizing primary and recent secondary sources, this project aims to shift the cartographic view of King Philip's War to a place of mindfulness and attention to the American Indian perspective and experience.

Chapter 2: Background

It is difficult to find information on pre-colonial American Indian societies. Many sources begin their history with the arrival of European colonists. There are, however, some generalities that can be found and discussed about this era. Although each tribe in what is now called New England had its own politics, their systems of governance were similar. Their societies were built on the idea that no one person has inherent authority or right to rule others. Instead, skilled persuasion and wise judgement earned people support for their ideas. Even the sachem, the highest-ranking leader, always expected criticism. Although the sachem role was hereditary, no sachem was innately entitled to power or obedience. If anything, use of force to compel citizen behavior was seen as a failure of leadership, as a successful leader was expected to be able to mobilize people without violence or force.[1] This contrasts with the politics of the English colonists, the primary colonial actors in King Philip's War. In England, from fierce partisanship emerged the idea of a universal code of conduct. The English legalized this code through strictly

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1. Russel Lawrence Barsh. "The Nature and Spirit of North American Political Systems." *American Indian Quarterly* 10, no. 3 (1986): 185-186, 192. https://doi.org/10.2307/1184117

enforced laws intended to protect fundamental liberties from a corrupt government. This system was a point of pride for the English. They considered it the ultimate proof that, though all humans could get liberty, the English were born empowered with it. They thought this granted them the unique ability to establish fair governance by any means necessary.[2]

Despite their differences, neither the colonists nor any indigenous people wanted war when they first met. Early on, their relationship was amicable. This proved vital to the colonists, who lacked familiarity with the land they recently settled. They needed guidance from people whose families had lived there for generations to get the resources and care necessary to survive.[3] Sometimes, the colonists were helpful too. In 1632, they helped Massasoit and Canonicus (a Wampanoag and a Narragansett sachem, respectively) settle a conflict.[4] King Philip, as sachem,[5] voluntarily sold Wampanoag lands to various colonists, as his father Massasoit once did. The land sales satisfied both Wampanoag and Englishmen.[6]

Yet tensions emerged early. For one, the colonists earned a reputation for ungratefulness amongst non-colonists. Even as they taught colonists how to survive, colonists often regarded

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2. Christoph Henke, *Common Sense in Early Eighteenth-Century British Literature and Culture: Ethics, Aesthetic, and Politics, 1680-1750*, ed. Lucia Kornexl et al., vol. 46 (De Gruyter, 2014), 165-170, https://ebookcentral.proquest.com/detail.action?docID=1433422

3. William Apess, *Eulogy on King Philip: As Pronounced at the Odeon, in Federal Street, Boston*, 2nd ed. (Boston: self-pub., 1837), 9, 14.

4. Daniel Strock Jr., *Pictorial History of King Philip's War; Comprising a Full and Minute Account of All the Massacres, Battles, Conflagrations, and Other Thrilling Incidents of That Tragic Passage in American History, with an Introduction; Containing an Account of the Indian Tribes, Their Manners and Customs*, Engr. by William Croome (Boston: Horace Wentworth, 1853), 29.

5. Apess, *Eulogy*, 18.

6. Strock Jr., *Pictorial History*, 25-26.

indigenous people in general as savages and devalued their societies as uncivilized. Colonial

memories also grew more selective. They started emphasizing the brutality of the indigenous

people while ignoring the colonists'.[7] Furthermore, to the people indigenous to the New England

region, English governance seemed oppressive. It over-emphasized force and order in a way that

they considered unfit for a free society. Incidentally, the colonists would also characterize

indigenous people as unappreciative. The colonists believed that their cultural institutions and

norms were the world's best. They often claimed to help the world by gifting foreigners with a

special English suite of rights.[8] Expecting cultural monoliths like they knew back in Europe,

they looked in the societies already occupying their new settlements for centralized laws and

religious institutions. When the colonists found no such things, they concluded that the

indigenous people outright had "no [c]ivil [g]overnment, no [r]eligion."[9] This alarmed the

colonists because of how alien it was to them. They had never encountered a society which was

clearly not an anarchy but lacked any centralized authority. Yet here is a land filled with such

societies. As with many unfamiliar things, the colonists concluded that indigenous systems of

governance and religion were simply wrong, and so the colonists sought to correct both.

 Keep in mind though that the extent which the English believed that forced acculturation

helped people is dubious. Many of the earliest colonists sought to enslave indigenous people, as

will be discussed in more detail in chapter 4.5. Despite indigenous people's vulnerability to

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7. Apess, *Eulogy*, 10-16.

8. Henke, *Common Sense*, 213.

9. William Douglass, *A Summary, Historical and Political, of the First Planting, Progressive Improvements, and Present State of the British Settlements in North-America*, vol. 1 (Boston, MA: Rogers and Fowle, 1749), 153, http://name.umdl.umich.edu/N05030.0001.001

European diseases[10] and war propaganda painting people indigenous to the New England region as rebellious and spiteful,[11] the Indian slave trade rivaled the African slave trade in scale and demand.[12] Generally, colonists also supported the growth of the British empire. Since many colonists were a part of the new English merchant class, they aggressively pursued opportunities to expand the British trade network. Often, this entailed establishing economic hegemony in the regions they settled in. If successful, this sabotaged the trade of neighboring Dutch and French colonists by imposing complete British ownership of trade activities between indigenous and European merchants.[13] All these combined point to the colonists acting as conquerors, not aides, from the moment of their arrival.

<div align="center">2.1. Foreshadowing: The Pequot War</div>

A dramatic example of colonists vying for power before King Philip's War was in the aftermath of the Pequot War. It occurred from the summer of 1636 to the autumn of 1638. As the name implies, the Pequot War centered around the emergence of the Pequot as a growing indigenous power. Powered by its successful ventures with the Dutch in the fur and wampum

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10. Douglass, *A Summary, Historical and Political*, 175.

11. Linford D. Fisher, "'Dangerous Designes': The 1676 Barbados Act to Prohibit New England Indian Slave Importation," *The William and Mary Quarterly* 71, no. 1 (2014): 109, https://doi.org/10.5309/willmaryquar.71.1.0099

12. Margaret Ellen Newell, *Brethren by Nature: New England Indians, Colonists, and the Origins of American Slavery* (Ithaca, NY: Cornell University Press, 2015), 168 http://ebookcentral.proquest.com/lib/wpi/detail.action?docID=3425989

13. Edmond Smith, "The Global Interests of London's Commercial Community, 1599–1625: Investment in the East India Company," *The Economic History Review* 71, no. 4 (2018): 1121, https://doi.org/10.1111/ehr.12665; Robert Brenner, *Merchants and Revolution: Commercial Change, Political Conflict, and London's Overseas Traders, 1550-1653* (London, New York: Verso, 2003), 707-708.

trade,[14] and capitalizing on the power vacuum left by the toll of many European-borne diseases on other indigenous tribes in the New England region,[15] the Pequot rapidly expanded their territorial influence eastward. This placed it at odds with England's ambitions of rapid territorial expansion on the continent.[16] It also caused an increase in civil unrest amongst the local indigenous tribes.[17] It is relevant here for a few reasons. For one, it demonstrated a sample of the devastation wrought to indigenous communities by war with the English. Roughly 25% of the Pequot population were casualties in this war, meaning that about 25% of the Pequot participants were either dead, missing, severely wounded, or captured and likely sold into slavery.[18] Granted, this number cannot be placed on only the English. The diplomatic errors of Pequot sachem Sassacus alienated potential allies. By continuing to engage in a separate conflict against the Dutch, the Dutch were assured not to support Pequot agendas. By pursuing rapid expansion of Pequot territorial claims, the Narragansett tribe (the other major indigenous power at the time) perceived the Pequot as a rival tribe rather than a neighboring one. This contributed to the

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14. Mark Meuwese, "The Dutch Connection: New Netherland, the Pequots, and the Puritans in Southern New England, 1620—1638," *Early American Studies* 9, no. 2 (2011): 309.

15. Alfred W. Crosby, *Ecological Imperialism: The Biological Expansion of Europe, 900–1900*, 2nd ed., Canto Classics (Cambridge: Cambridge University Press, 2015, 1983), 202, https://doi.org/10.1017/CBO9781316424032

16. Daniel R. Mandell, ed., *New England Treaties, Southeast, 1524-1761*, vol. 19, 20 vols., Early American Indian Documents: Treaties and Laws, 1607-1789 (Washington, D.C.: University Publications of America, 1979), 52, http://archive.org/details/earlyamericanind0019unse

17. Meuwese, "The Dutch Connection," 309.

18. Sherburne F. Cook, "Interracial Warfare and Population Decline Among the New England Indians," *Ethnohistory* 20, no. 1 (1973): 9, https://doi.org/10.2307/481423

Narragansett sachems' decision to ally with the colonists.[19] It is true, however that the English

activities were decisive in increasing the scale of Pequot casualties. Although unfamiliar with the

area, the English had access to a supply line of much-coveted munitions which they controlled a

large amount of. This meant that neither they nor their allies had to ration or go without guns and

appropriate ammunition. Anybody who sided against them, on the other hand, would find their

suppliers quickly cut off. The English also had the support of the Narragansetts, who could

supply knowledge and intelligence about the area.

 After the war ended, the colonists spent the following decades pressuring the remaining

Pequots to renounce their Pequot affiliations. In response, many Pequot groups were ultimately

split up. Some of their members integrated into another tribe, particularly though not limited to

the Mohegan tribe. Others chose to submit to English rule.[20] Many Pequot lands were likewise

seized and redistributed. Unsurprisingly, the colonists kept most of the seized lands to be

parceled amongst themselves. Their indigenous allies, however, were granted some Pequot lands

too.[21] This fragmented one of the biggest geopolitical powers in the area in a way that made it

harder to resist the colonists. Furthermore, several treaties made between sachems and colonists

had clauses with long-term implications. In the case of the Pequot War, the interests of the

Narragansetts, Mohegans, and smaller nations favored deals with the colonists. With those

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19. John Winthrop to John Winthrop Jr., Aug. 1634, in *New England Treaties, Southeast, 1524-1761*, ed. Mandell, 56; "Conference and Treaty, Massachusetts Bay and Miantonomo, Narragansett Sachem," Oct. 22, 1636, in *New England Treaties, Southeast, 1524-1761*, ed. Mandell, 66-67.

20. "Enclosure: Pequots Subjecting Themselves to English Rule," Oct. 23, 1654, in *New England Treaties, Southeast, 1524-1761*, ed. Mandell, 108-110.

21. Roger Williams to John Winthrop, Sept. 10, 1638, in *New England Treaties, Southeast, 1524-1761*, ed. Mandell, 92-93.

treaties, they could keep their access to European munitions and work together to counter the

growing Pequot influence. Yet signing the treaties carried the unspoken recognition that the

English colonists were not temporary settlers. Rather, they were permanent residents intent on

planting roots in and participating in the politics of the place they called New England. Tellingly,

many treaties specified that their terms were "[t]o continue to the posterity of both parties."[22] In

other words, many treaties designed for the Pequot Wars remained in effect long after its

conclusion. Thus, they would act as a framework for intertribal and tribe-colony relations for

years to come.

<div align="center">2.2. A Brief Assessment of Literature on King Philip's War</div>

The power and land interests of Englishmen are relevant because most retellings of the

war are from a colonist perspective. Within eight years of the war's start, colonists had written

and published at least twenty-one different accounts. Each offered their own version of the war's

proceedings.[23] Two examples of these narratives are Increase Mather's *A Brief History of the*

War with the Indians in New-England[24] and William Hubbard's *Narrative of the Troubles with*

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22. "Conference and Treaty," in *New England Treaties, Southeast, 1524-1761*, ed. Mandell, 67.

23. Jill Lepore, *The Name of War: King Philip's War and the Origins of American Identity,* 4th ed. (New York: Alfred A. Knopf, 1998), 49-51.

24. Increase Mather, *A Brief History of the War with the Indians in New-England: From June 24, 1675 (When the First Englishman Was Murdered by the Indians) to August 12, 1676, When Philip Alias Metacomet, the Principal Author and Beginner of the War, Was Slain: Wherein the Grounds, Beginning and Progress of the War Is Summarily Expressed: Together with a Serious Exhortation to the Inhabitants of That Land* (London: Printed for Richard Chiswell, at the Rose and Crown in St. Pauls Church-Yard, according to the original copy printed in New-England, 1676), http://archive.org/details/bp_1330287

the Indians in New-England.[25] These narratives are rare efforts at formalized historical records of

the war.[26] This means that they are abundant with details and backed by meticulous

documentation that may not be present in other narratives. Also of note is Daniel Gookin's *The*

Doings and Sufferings of the Christian Indians.[27] It is an account by a colonist major who fought

in King Philip's War. He led a group of Praying Indians (indigenous people who converted to

Christianity and generally took the colonists' side during the conflict)[28] who wanted to fight for

the British. This account is notable because Gookin set out to defend the role of Praying Indians

in the war. He believed that other narratives about the war may not convey their role properly. In

doing so, Gookin provides rare insights from the time into Praying Indian villages and paths of

movement.[29] It is important to note, however, that Gookin was still biased towards the colonist

perspective. Although he was a staunch defender of the Praying Indians, his sympathies for

indigenous people end with them. Indeed, he describes the people who took Philip's side as

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25. William Hubbard, *A Narrative of the Troubles with the Indians in New-England, from the First Planting Thereof in the Year 1607, to This Present Year 1677, but Chiefly of the Late Troubles in the Two Last Years, 1675 and 1676.: To Which Is Added a Discourse about the Warre with the Pequods in the Year 1637*, pt. 1, 2 pts. (Boston: John Foster, 1677), https://quod.lib.umich.edu/e/eebo2/A86661.0001.001

26. Lepore, *The Name*, 57.

27. Daniel Gookin, "The Doings and Sufferings of the Christian Indians," in *Archæologia Americana*, vol. 2, (Cambridge, Boston: American Antiquarian Society via University Press, 1677), 433-534, https://en.wikisource.org/wiki/The_Doings_and_Sufferings_of_the_Christian_Indians

28. Paul Brodeur, "The Praying Indians," The Marlborough History Page, Dec. 29, 2020, https://marlhistpage.com/2020/12/29/the-praying-indians/

29. Gookin, "The Doings," 433.

"barbarous heathen[s]."[30] As a result, he does not provide much information about the people who took Philip's side during the war.

Although the information they provide is limited, letters written from colonists to London and to each other are also useful. They contain information corroborating events and giving the colonists' opinions on them. They were often more episodic in form, which makes the information in them more niche. At the same time, many were written during the war itself, which makes them the directest war accounts available.[31] Similarly, several records of negotiations and decisions between colonist and indigenous representatives have survived over the years. They give insight into the thought processes and relations between the major nations involved in the war. They are also relevant in that they are legally binding—or, at least, they are supposed to be legally binding. This means that whether the terms are met held significant influence on future agreements. Finally, Mary Rowlandson's *The Soveraignty & Goodness of God*[32] is about her time spent in the captivity of the Wampanoag, Narragansett, and Nipmuc tribes. Rowlandson's work is notable for being the most widely read work about King Philip's War.[33] As a result, her account has a major influence in shaping modern opinions of the war. She

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30. Gookin, "The Doings," 442.

31. Lepore, *The Name*, 125.

32. Rowlandson, Mary White, *The Soveraignty & Goodness of God: Together, with the Faithfulness of His Promises Displayed: Being a Narrative of the Captivity and Restauration of Mrs. Mary Rowlandson: Commended by Her, to All That Desires to Know the Lords Doings to, and Dealings with Her: Especially to Her Dear Children and Relations*, 2nd ed., (Cambridge, MA: Printed by Samuel Green, 1682).

33. Lepore, *The Name*, 125.

also documents a few things about Philip's allies, which is rare for colonist works. Her account is limited by the fact that, because she was not in anybody's inner circle, she only covers matters relevant to captives. Nevertheless, her writing provides a glimpse of the life of some of Philip's allies. This sort of information might have been completely lost otherwise.

It is important to emphasize that these accounts are from English colonists. They thus tend to portray a skewed version of the war's events. In particular, the English colonist accounts are kind and considerate to Englishmen's choices. Yet, they are cold and condemning to the choices of the "enemy" (e.g. indigenous, Dutch, or French people). For example, Mather and Hubbard wrote about the war from a Puritan perspective. Reflecting their religion's emphasis on righteousness, their publications often included Puritan morals. Teaching these morals often took precedence over recording history accurately. In other cases, works intended for publication in London sensationalized the war. They focused on the violence, destruction, and casualties of the war. Often, the London-oriented accounts also criticized the Puritan colonial leadership.[34]

As there were many agendas across English tales of King Philip's War, published accounts of it often assert their own truthfulness. Many of their titles began with phrases like "A True Account" or "A Brief and True Narration." They also wrote prefaces attesting to their account's accuracy. Sometimes they discredited other author's works as well.[35] For example, in *A Brief History of the War with the Indians in New-England*, Mather expressed disdain for John Easton's "Relacion of the Indyan Warre."[36] According to Mather, it was "another [n]arrative of

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34. Lepore, *The Name*, 58.

35. Lepore, *The Name*, 59.

36. John Easton, "A Relacion of the Indyan Warre, by John Easton, 1675," in *Narratives of the Indian Wars, 1675-1699*, ed. Charles H. Lincoln (New York: Charles Scribner's Sons, 1913).

this war, written by a Quaker in Rhode Island, who pretends to know the truth of things."[37] While the narratives of the time provide the bulk of our knowledge about King Philip's War, these inconsistencies reflect conflicting reports and different understandings of the situation. Therefore, multiple sources need to be combined to fully understand events. Care must also be taken to identify when precise details are simply not determinable at all.

Unfortunately, there are no full accounts from the indigenous people themselves who fought in or otherwise experienced the war. The earliest attempt at an indigenous account of King Philip's War was William Apess's *Eulogy on King Philip*. It sets out to fiercely defend Philip and the other American Indians during the conflict. Apess was a Pequot and Methodist minister who assisted the Mashpees in reclaiming their land from the neighboring colonists in 1833.[38] In 1836, at the Odeon in Boston, Apess succeeds at pointing out many of the colonists' hypocrisies, especially pertaining to their religious beliefs and their actions against the American Indians. For example, "How they could go to work to enslave a free people, and call it religion, is beyond the power of my imagination, and out-strips the revelation of God's word." [39] Apess also appears to directly quote King Philip a few times during his *eulogy*. However, Jill Lepore notes that these quotes are fiction created by Apess, not only because Apess makes mention of buffalo being present in New England in one of these quotes. She notes that little of what Philip actually said was written down anywhere,[40] likely the reason for the fictitious speeches the

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37. Mather, *A Brief History of the War with the Indians in New-England*, 3.

38. Lepore, *The Name*, 215-217.

39. Apess, *Eulogy*, 9.

40. Lepore, *The Name*, 215-217.

eulogy presents. This factual inconsistency is notable to us because it demonstrates how it is to keep in mind the purpose of the work and any biases or skewed perceptions that may be present. It demonstrates that even a reputable and respect source does not hold absolute authority over what truly happened and what is simply a folk tale or fabrication.

2.3. A Synopsis of King Philip's War

With all that in mind, how King Philip's War began is debatable. Most, however, agree that its flashpoint was the January 1675 execution of John Sassamon's alleged killers. Sassamon was an American Indian who was adopted by English colonists at a young age and identified with the Praying Indians. Because he could converse, read, and write in both English and Algonquin languages, he established himself as a central figure in Indian-colonist diplomacy by acting as an interpreter for colonists and a scribe for King Philip and his older brother Alexander.[41] The motivation for killing him remains unclear. Given that his death occurred shortly after he visited Plymouth's then-governor Josiah Winslow, rumors abounded that Sassamon's killing was retaliation for revealing to Winslow a secret plan by King Philip to block colonial expansion.[42] Regardless of the motives for killing Sassamon, many Wampanoag were furious about the execution of his alleged killers. They thought that the evidence against the accused, which rested largely on one Wampanoag's witness testimony and the observation that

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41. Easton, "A Relacion of the Indyan Warre," 26.

42. Saltonstall, Nathanial (N. S.). "A Continuation of the State of New-England, by N. S., 1676," in *Narratives of the Indian Wars, 1675-1699*, ed. Charles H. Lincoln (New York: Charles Scribner's Sons, 1913), 74.

Sassamon's body bled when one of the accused approached it,[43] was insufficient to prove their

guilt.[44] So, on June 24, 1675, a group of young Wampanoags attacked cattle and people in the

colonial town of Swansea, MA. A battle developed from this attack that served as an expression

of frustrations surrounding the mutual distrust and disrespect between colonial and American

Indian people.[45]

Initially, the Wampanoag performed well in the war. They knew the American land well.

Their traditional fighting styles were honed over the course of generations to suit the dense

forests and swamps that covered their homelands. In that sense, the colonists could not compete,

as America was still by-and-large mysterious to them and most of them lacked military

experience altogether.[46] Philip's mere presence as a hostile rather than friendly figure proved

intimidating enough that the colonists immediately attempted to secure deals with neighboring

sachems in Rhode Island to join the colonists' side, or at least deny support to the rebelling

Wampanoags. Those deals by and large failed to enact change. On the American Indian side, the

colonists had worn out their welcome and proven to have a habit of ignoring the terms of their

agreements. Meanwhile, on the colonists' side, the American Indian sachems gave the colonist

negotiators a frigid reception and in no uncertain terms outlined the fragile and conditional

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43. It was a common belief amongst European colonists at the time that, if a person were murdered, their corpse would spontaneously bleed in the presence of their killer(s) in a phenomenon called "cruentation." For those curious about the belief, in January 1965, scholar Robert P. Brittain wrote an article called "Cruentation: In Legal Medicine and in Literature" for the periodical *Medical History* (volume 9, issue 1, pages 82–88) that is worth examining.

44. Easton, "A Relacion of the Indyan Warre," 27.

45. Apess, *Eulogy*, 26; Lepore, *The Name*, 23.

46. Lisa Tanya Brooks. *Our Beloved Kin: A New History of King Philip's War* (New Haven: Yale University Press, 2018), 147; Lepore, *The Name*, 85.

nature of their compliance.[47] Although the sachems agreed to avoid conflict, they asserted that they could not force anybody to refuse to take Philip's side. This was a reminder of an obvious fact to the sachems, but for the colonists, it was taken as a refusal to enforce non-aggression and hence, a sign of dishonesty. As a result of this mutual distrust and disdain between the colonists and American Indians, the Wampanoag led by Philip successfully forged alliances, or at least amicable enough relations to secure shelter, with several neighboring tribes. By fighting well and using the resources provided by allies, Philip and his supporters captured territories that held colonist towns, such as Deerfield, MA,[48] and reclaimed the land for their use by destroying what the colonists built on it.

Unfortunately for Philip and his allies, the colonists were unwilling to surrender or make any deal that did not shift the power dynamics in their favor. The colonists were, however, perfectly willing to inflict severe casualties against those they saw as against them. Their willingness to engage in battle without consulting their elders and use of strategies oriented around decimating their foe rather than inflicting enough damage to send a message demonstrated a lack of restraint that was previously unheard of amongst American Indian people.[49] The colonists also proved to be stubbornly persistent, continuing to engage in battles despite the arrival of the brutal New England winter, the fatalities they experienced, and the damage sustained to their towns as a result of the fighting.

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47. Brooks, *Beloved Kin*, 144.

48. J. F. Breazeale, "Reminiscence of 1875: King Philip and the Great Swamp Fight," *Anderson Intelligencer*, Jun. 6, 1906, 3.

49. Brooks, *Beloved Kin*, 161.

The effects of this persistence and lack of restraint are best demonstrated by the attack on a fortress in the Great Swamp of Rhode Island. This fortress, well-stocked with provisions, was atop a hill that in could only be entered with a bridge. It was difficult to find and reach in the thick, cold snow, and only accessible through the frozen terrain.[50] Unsurprisingly, when the colonists tried to attack it on December 19, 1675, they took heavy casualties trying to cross the bridge. After a few hours, the colonists retreated and contacted their reinforcements to aid them in attempting another assault. This time, the reinforcements found an opening into the fortress through a ditch to its rear, enabling the colonists to attack it on two fronts. This briefly confused and scattered the fortress-bound combatants, something the colonists at the front of the fortress exploited to force their way in. Once in, the colonists created a bloodbath out of anybody who wasn't fighting for them. Despite warnings from their leaders not to destroy potential shelters and rations, the colonists torched several wigwams in the fortress, an act which forced several desperate and terrified Narragansetts out of their shelters.[51]

Eventually, a severe winter storm plus attacks from a desperate foe forced the colonists to retreat, ending the battle. Although the colonists were successfully driven off, the Narragansetts were scattered by this battle and, despite retaining sympathy for Philip, they neither could nor wanted to continue to wage war.[52] Philip and his supporters still achieved some victories,[53] but the retreat of a great ally proved devastating and forced them to go on the run. By August 12,

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50. Breazeale, "Reminiscence of 1875."

51. Brooks, *Beloved Kin*, 243-244; Strock Jr., *Pictorial History*, 128-129.

52. Breazeale, "Reminiscence of 1675;" Brooks, *Beloved Kin*, 321.

53. Breazeale, "Reminiscence of 1675."

1676, the fateful day when he was shot to death on Mt. Hope, months of evading colonists had

demoralized Philip. He had witnessed no end of brutality, his son and wife had been captured

and sold into slavery by colonists, and several traditional Wampanoag homelands had been

seized and parceled up by the colonists. After his death, his various body parts were pinned onto

local trees as a warning to any future American Indian people looking to start an uprising.[54]

At that point, combat in the southern frontier of the war shriveled up, as the indigenous

people there were left to reckon with the massive casualties they took while evading English

capture. The western frontier was not far behind in that regard, as the Indians there retreated and

scattered amongst neutral tribes like the Pennacook in hopes of avoiding the fate of their

southern neighbors.[55] Skirmishes continued on the northern frontier as the Wabinakis, despite

pressure from Mohawks (an old enemy of Algonquin people) seeking to expand their territories

and advance their interests, had not lost their will to fight. Thus, the war ground to a miserable

stalemate and entered a cycle of hostilities flaring up in the spring, quieting down during the

harsh winter, then flaring up once more when the weather proved more favorable.[56] This pattern

resulted in the starvation of countless Wabinakis as they were cut off from vital hunting tools and

forced to flee their fields and vast swathes of English homes were incinerated.[57] The fighting

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54. Christine M. DeLucia, *Memory Lands: King Philip's War and the Place of Violence in the Northeast* (New Haven; London: Yale University Press, 2018), 305-306.

55. Jeremy Belknap, *Comprehending the Events of One Complete Century from the Discovery of the River Pascataqua*, vol. 1, 3 vols., The History of New-Hampshire (Boston: Self-pub., 1792), 140-141, http://name.umdl.umich.edu/N18558.0001.001

56. Belknap, *Comprehending the Events*, 154-155.

57. Maine Historical Society, "1668-1774 Settlement & Strife," Maine History Online, 2010, 3, https://www.mainememory.net/sitebuilder/site/897/page/1308/display?

continued until the signing of the Treaty of Casco in 1678, which did not end any tensions but marked the point where combat was by and large replaced by efforts at negotiation. On paper, the treaty would seem to favor the Wabinaki Confederation, which was allowed to keep all its sovereignty over its lands on the condition of allowing the Englishmen with homes there to resettle peacefully. Also, from each returning English family, the Wabinaki were due at least one peck (roughly 28 ears) of corn as recognition of its authority over the land.[58]

In practice, however, the treaty failed to satisfy everybody. The English colonists did not uphold their end of the bargain, flouting the rules of trade and land use established by the Wabinaki.[59] The misconception that an English king was functionally the same as a sachem proved pervasive and lead to several treaties where the Wabinaki seemed to agree to both subjection to English rule and complete sovereignty over its localities. [60] This is perfectly compatible with sachemship, which involves a person taking responsibility for (but not control of) a group of people in exchange for loyalty. It is, however, unworkable in an English monarchy, which involves a monarch imposing absolute power on and demanding absolute loyalty from other people in exchange for guaranteed land allotment and protection. Finally, the French colonists' relevance grew over time. Playing the French off the English in order to keep both nations' power hunger in check was what enabled the Wabinaki Confederacy to maintain its

58. Belknap, *Comprehending the Events*, 158.

59. Jenny Hale Pulsipher, "'Dark Cloud Rising from the East': Indian Sovereignty and the Coming of King William's War in New England," *The New England Quarterly* 80, no. 4 (2007): 597. https://www.jstor.org/stable/20474581

60. "Pemaquid Agreement, Wabinakis and Massachusetts Bay," Aug. 11, 1693, in *New England Treaties, North and West, 1650-1776*, vol. 20, 20 vols., ed. Daniel R. Mandell, Early American Indian Documents: Treaties and Laws, 1607-1789 (Washington, D.C.: University Publications of America, 1979), http://archive.org/details/earlyamericanind0020unse

sovereignty and lessen the damage inflicted on it as a consequence of King Philip's War.[61] Yet

playing the French off the English also strained relations and eroded trust amongst all three

nations, setting the stage for King William's War and ensuring that relations between indigenous

people and colonists in the New England region would not improve significantly any time soon.

Chapter 3: Methodology

From the project's beginning, we were tasked with researching King Philip's War, as

well as exploring how GeoJSON could be used to create interactive maps. It was necessary to

identify how geographic information systems (GIS) could be best used within the context of the

digital humanities to create insightful maps that illustrate important aspects of the war. From the

beginning of the research through the building of the final deliverables, many options were

explored and possibilities considered as we identified the focus and scale for our mapping

project. As the deliverables of our project, we created an interactive map that captured a breadth

of key locations of King Philip's War from several different categories. In addition, we created a

companion website to go along with the map that provides additional information, media, and

links to resources to learn more about important locations on the map.

3.1. Geographic Information Systems and Critical Cartography

This project aimed to employ geographic information system (GIS) technologies and

strategies to develop new ways of visualizing King Philip's War. GIS is "concerned with the

description, explanation, and prediction of patterns and processes at a geographic scale."[62]

Specifically, this project employed GIS methods in the context of the digital humanities, which is

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61. Pulsipher, "Dark Cloud Rising," 591-592.

62. Weihe W. Guan, Matthew W. Wilson, and Anne K. Knowles, "Evaluating the Geographic in GIS," *Geographical Review* 109, no. 3 (Jul. 2019): 298, https://doi.org/10.1111/gere.12313

the intersection of the humanities and technology. GIS offers the ability to bring insightful and interactive maps to a historical topic that has not seen much in the way of this kind of research. It presents an opportunity to bring an Indian perspective to a conflict which has traditionally seen an overwhelming presence of colonist views and storytelling.

Because our mapping efforts specifically aimed to convey the Indian perspective, it is important to recognize that we, as cartographers, have profound influence over how others will interpret these maps. This idea falls under the realm of "critical cartography," which aims to recognize potential biases towards groups of historical power and influence in map-making.[63] There are multiple opportunities for biases to creep into the research and creation process of cartography as well as the maps themselves. These could manifest in the sources used for geographical data and historical background. They can also manifest in the map itself through its framing, scope, scale, and the general organization and presentation of the features. Allen and Queen point out that mapping is a powerful tool that assists to "organize, synthesize, and interpret the vast amounts of primary and secondary source information that is increasingly accessible within the digital humanities."[64] However, they note that "knowledge, researchers must also consider how maps […] distort the truth (and even lie) by employing their position as a reflection of reality."[65] Heeding their warnings, we have aimed to be sensitive to the Indigenous narrative of King Philip's War in our approach to research and cartography, despite the challenges posed by this. This will be discussed in more detail in Chapter 3.2.

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63. Tania Allen and Sara Queen, "Beyond the Map: Unpacking Critical Cartography in the Digital Humanities," *Visible Language* 49, no. 3 (Dec. 2015): 80.

64. Allen and Queen, "Beyond the Map," 81.

65. Allen and Queen, "Beyond the Map," 86.

Something that was important to us in this project was to use maps from the time period as well as modern maps. This is because the topography of the New England region has changed since 1676, with human contributions like addition of water resources[66] as well as the effects of natural phenomena such as erosion.[67] Cartography has also undergone many changes in terms of processes as well as priorities. In the 1600's, cartography traditionally was the domain of the British Empire, which had an interest in using maps to establish and enforce legal boundaries on its territories.[68] Although King Philip's War occurred near the beginning of maps' emergence in popularity amongst American Indians and colonists for property agreements, they were still not valued as useful compared to written descriptions and visible landmarks,[69] and so were seldom archived. Thus, few maps from that era survive today, of which the majority were created by first generation British immigrants for use by British nobility.

That is not to say that there exists no remaining evidence of maps used by American Indians. There is, for example, a report by Mohegan sachem Uncas which depicts a small portion of land in Connecticut to explain to colonist officials and investors its current occupation status

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66. Beryl Rosenthal, Marcis Kempe, Ray Raposa, Adam Yanulis, Lindsay Toghill, Lauren Kaufmann, and Linda Rosenthal, "Water System Profile: Metropolitan Waterworks Museum and Chestnut Hill Reservoir Boston, Massachusetts," *Journal of the New England Water Works Association* (127, no. 1, Mar. 2013), 67-68.

67. James F. O'Connell and Stephen P. Leatherman, "Coastal Erosion Hazards and Mapping Along the Massachusetts Shore." *Journal of Coastal Research*, (no. 28, Spring 1999), 31.

68. Nathan Braccio, "Thomas Graves, Phillip Wells, and Colonial Mapping in Massachusetts, 1629-1688," *Historical Journal of Massachusetts* 48, no. 1 (2020): 157-158.

69. Braccio, "Thomas Graves," 161-162.

amongst tribes.[70] Several early colonist accounts of America also make frequent mention of

American Indians creating maps on request, for record-keeping purposes, and for other people's

use.[71] This alludes to a high cultural prevalence of cartography across American Indian nations.

Unfortunately, because so few of these Indian maps survive today, they are of limited use to us.

Thus, modern day maps are in some ways necessary to fill in the gaps of information left by

inadequate records, even though the old maps are necessary to understand territory allocation in

the mid-1600's. To help us make our own maps, we decided to take notes from other digital

cartography projects about early American history. One of these projects is "Visualizing Early

American Captivity - Mapping and Graphing Narratives Published Between 1682-1800,"

completed by Matthew Ryan Bennett, Evan Alan Gilgenbach, Cameron Russell Maitland, and

Zachary Joseph Peasha.[72] One obstacle the projects faced was the issue of factuality. Many

captivity narratives, like the one allegedly by Maria Kittle,[73] were invented to profit from of their

trendiness in 18th and 19th century literature. More odiously, these fake narratives acted as

propaganda to justify prejudice, brutality, and other forms of maltreatment against American

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70. Uncas, Uncas' Map of a Portion of the Pequot Territory (New Haven, CT: Yale), Aug. 4, 1662, http://hdl.handle.net/10079/digcoll/3475

71. G. Malcolm Lewis, *Cartography in the Traditional African, American, Arctic, Australian, and Pacific Societies*, ed. David Woodward and G. Malcolm Lewis, vol. 2 (Chicago, IL: University of Chicago Press, 1998), 67.

72. Matthew Ryan Bennett, Evan Alan Gilgenbach, Cameron Russell Maitland, and Zachary Joseph Peasha. "Visualizing Early American Captivity - Mapping and Graphing Narratives Published Between 1682-1800." Interactive Qualifying Project. Worcester, MA: Worcester Polytechnic Institute, May 11, 2017. Worcester Polytechnic Institute Electronic Projects Collection.

73. Bennett et al., "Visualizing Early American Captivity." Maria Kittle is discussed in the project's corresponding report on page 90.

Indian people.[74] As a modern work of digital cartography, the project called for the group to

identify the difference between honest and false narratives, yet the overwhelming prevalence of

surviving colonist sources compared to surviving Indian sources meant that the colonists' biases

drove all the captivity narratives and their perceived truthfulness in some way. Hence,

differentiating truth from fiction proved to be a daunting and complicated task. The group

resolved the matter by deciding to embrace the possibility of fictitious propaganda in the

narratives. It explored reoccurring themes and trends in truthful, ambiguous, and disingenuous

narratives and integrated them in the map's descriptions of various locations and experiences.[75]

3.2. Data Collection, Organization and Research Methodology

Using the resources discussed in the literature review, we identified areas and points of

interest. As we researched King Philip's War, we organized locations into different categories.

Some examples of categories we used were the locations of key battles, Indian praying towns,

and gathering spaces. To store and keep track of points of interest, we created an Excel

spreadsheet to use as a database. The spreadsheet is quick to update, so we can record

information about various points and areas as we find it. Listed with each location is pertinent

dates, relevant people and groups, relevant sources, and its latitude and longitude coordinates.[76]

If a location corresponds to a point, then it will have one coordinate pair. If an event corresponds

to an area, then it will have many coordinate pairs which are connected to form an outline of an

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74. Bennett et al., "Visualizing Early American Captivity." False narratives as a tool for money-making and propaganda are discussed in the project's corresponding report on pages 16-17.

75. Bennett et al., "Visualizing Early American Captivity." Use of the factuality problem in the project are discussed in the project's corresponding report on pages 64-67, 77-79, 81-83.

76. For a snapshot of example points of interest from the Excel spreadsheet, see Appendix B.

area. The outline can later be filled in with a color or pattern if desired. Either way, the pairs of coordinates are the backbone of our use of geographical data. Furthermore, each point or area can include tags with key words. This allows for easy sorting of the geographical data into distinct categories, in turn allowing us to sort the data into distinct structures. The structures are in turn used as the basis of our maps' definition. Each subset of the main database is generated in its own Excel sheet. It uses Excel's Power Query functionality to automatically update itself when a change is made to the main data sheet.

When we began work on this spreadsheet of location data, we kept track of locations by using the major events that they corresponded with. This meant that one location could have multiple rows in the table if multiple events took place there. This reflected the nature of our initial research, as many of the sources consulted (especially secondary sources) were narrative driven. Most of our early notes associated events with locations, not the other way around. However, as we began the mapping process and more location-oriented research, this form of recordkeeping proved cumbersome. We consolidated the information for each specific location into one data point, to better accommodate the inclusion of information about those events within the information pop-up bubble for any given point or area.

We identified the coordinate pairs for each event using various sources. It can be difficult to find the precise location of a historical event or building with modern tools like Google Maps or OpenStreetMap. This is especially true as many historical sources describe locations vaguely. Thus, many of our key locations early in the project were important towns. We did not place emphasis on any historical landmark or location. Yet, as we discovered resources, we found we could associate key locations with more precise coordinates. This led to the map pivoting to a greater emphasis on specific points rather than general areas. In assigning precise coordinates to

events, we found many helpful resources buried in media from New England historical societies. We also found that websites like the Historical Marker Database (HMdb) offer precise geographic information about a wide variety of landmarks. Resources like these list exact coordinate pairs for each event and landmark and provide opportunities for us to become aware of other relevant historical landmarks.

Through the course of our research and mapping effort, we also learned that different approaches to data collection are necessary for different types of locations. For locations such as colonist and Praying Towns, creating a solid list of distinct points of interest is simple. Indian lands, however, are a different story. While the locations of some Indian villages and territories are known, along with the locations of key battles, Indian tribes conceived of and used land very differently from the colonists. This was to their advantage during the war, as the colonists struggled to find their adversaries. At the same time, it makes Indian territories difficult to map. We found that many Indian territories were defined using bodies of water as loose borders, which simplified matters but did not necessarily provide the precision that GIS demands. Eventually, we decided to approximate, as that was the only option left when we reached the limits of our ability to pin down precise points.

Because of the varying nature of our geographical data, we have made use of a combination of both single points and geographic polygons (areas) within our GeoJSON data. Sometimes we used both types of markers for the same town or region. For both colonial and Indian towns included on the map, points are used to mark key locations within these towns. Points can also indicate historical markers or approximate locations of important events. Polygon-bounded areas, meanwhile, designate boundaries of a particular town or territory or indicate the boundaries of a larger area that was home to a native tribe.

4.3. Map Building with GeoJSON

Our mapping efforts in this project utilized technologies based on JavaScript. GeoJSON, as described by its Internet Standards Track Document, "is a geospatial data interchange format based on JavaScript Object Notation (JSON)."[77] In other words, it facilitates the conveyance of locations relative to a place on Earth using a form of the programming language JavaScript that prioritizes ease of use and human-friendly code. GeoJSON is a completely open-source data storage format that is widely recognized and accepting as a method of storing and sending geographical data. It can store geographic points and polygons (areas) based on latitude/longitude coordinates along with associated data such as names, descriptions, and dates. A GeoJSON file takes the form of a JSON (JavaScript Object Notation) object definition, which is easily parsed by any JavaScript-compatible web browser.[78]

A GeoJSON file, however, only covers data storage. To be able to generate accessible, interactive maps, a GeoJSON viewer must be used. Many options are available to do this, but we chose Leaflet. Leaflet is described on its website as "an open-source JavaScript library for mobile-friendly interactive maps."[79] Using Leaflet, interactive maps can be embedded within any web page, so the user may explore different points and areas and learn more about them through

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77. Howard Butler, Martin Daly, Allan Doyle, Sean Gillies, Stefan Hagen, and Tim Schaub, "The GeoJSON Format," IETF Tools, last modified 2016, accessed May 8, 2021, https://tools.ietf.org/html/rfc7946

78. For a sample of GeoJSON code, see Appendix C.1.

79. Vladimir Agafonkin, "Leaflet," Leaflet, 2020. https://leafletjs.com/

pop-up information boxes. In addition, map layers can be customized, and chronological/

timeline-based features can be implemented.[80]

In comparison to other GIS solutions, GeoJSON and Leaflet have the advantages of being

completely open-source and easily portable. The project sponsor expressed the need for the

project deliverables such as maps and geographic datasets to be easily accessible without

requiring costly licenses and proprietary software. The open-source license means that, as long

as we share the source code of Leaflet and place the same open-source license on our own work

and modifications to Leaflet, we are permitted to use GeoJSON and Leaflet to their fullest

extent. Although open source and free are not one and the same, in this case both GeoJSON and

Leaflet do not require users to purchase a product or subscription before they are allowed to use

the software.[81] Anne Knowles, an expert in the Digital Humanities and Historical GIS, has

described "[t]he technical difficulty and expense of the hegemonic software ArcGIS" as

significant obstacles for adoption of GIS methods within the historical research community.[82]

The use of Leaflet to build interactive maps allows the maps to be accessible in any web browser

on a wide variety of devices, without the need for extra software. Leaflet maps may be stored

and conveyed within simple HTML web pages and may additionally be embedded within any

preexisting website. In addition, the use of GeoJSON as the data storage format for geographical

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80. For an example of a map rendered in Leaflet, see Appendix B.2.

81. Vladimir Agafonkin (@mourner), CloudMade, Simon Legner (@simon04), Baku (@BakuCity), Prayag Verma (@prayagverma), and Miguel Magalhães (@magamig), license, *GitHub* (Jan. 14, 2021), https://github.com/Leaflet/Leaflet/blob/master/LICENSE; Butler et al., last modified 2016, accessed May 8, 2021; "Legal Provisions Relating to IETF Documents," The IETF Trust (Mar. 25, 2015), https://trustee.ietf.org/documents/trust-legal-provisions/tlp-5/

82. Anne Kelly Knowles, "Historical Geographic Information Systems and Social Science History," *Social Science History* 40, no. 4 (Winter 2016): 744.

data allows for any GeoJSON reader to be able to interpret the data, not just the Leaflet-based maps created as part of this project.

As past IQPs involving GIS mapping (sponsored by the AAS as well as others) have used proprietary tools such as ArcGIS to build their maps, we have used other projects available online which use GeoJSON and Leaflet as examples. One noteworthy and well-documented example of GeoJSON and Leaflet being used as an application for digital humanities is an interactive web map by Tymoteusz Horbiński and Dariusz Lorek depicting the pre-industrial state of an area in southern Poland.[83] This project used topographic maps created in the nineteenth century as a foundation for a GeoJSON data set rendered using Leaflet. The results of this project show the versatility of building a map in this fashion with a custom base layer made with GeoJSON features. The GeoJSON data sets used for this project were not as intricate as the sets used in this project, as we instead used a combination of modern base layers provided by free and open sources such as the Mapbox API. However, the Horbiński and Lorek's documentation of the effort to translate geographic data from nineteenth century maps, plus their use of different geographic feature types offered by GeoJSON, served as a valuable resource as we constructed maps based on this technology.

Although not required to accomplish our map's goals, we thought icons corresponding to different locations and events would help our viewers engage with the map. This is because this

83. Tymoteusz Horbiński and Dariusz Lorek. "The Use of Leaflet and GeoJSON Files for Creating the Interactive Web Map of the Preindustrial State of the Natural Environment." *Journal of Spatial Science*, 2020. https://doi.org/10.1080/14498596.2020.1713237

map's concept is embedded in both scientific, or precise, neutral, and clear,[84] cartography and persuasive, or message-prioritizing, agenda-driven and attention-getting,[85] cartography. History, especially pertaining to wars, prizes evidencing and accuracy as the keys to achieving legitimacy in much the same ways scientists do, yet it also renders perfect accuracy impossible. As mentioned earlier, important statistics and various perspectives on the events of King Philip's War may be fabricated, inaccurate, or even not recorded at all. Therefore, it is inevitable that information will be missing or too vague to provide the sort of precision that most computer programs demand from cartographical design, making most errors or misplacements of geometry immediately obvious to viewers. By engaging the viewer with icons, however, the map integrates elements more common to persuasive than scientific maps.[86] This means that the map is less likely to be discredited for mathematical inaccuracies because viewers do not identify precision as a primary goal in the first place. It also helps to denote the significance of different locations by giving a basic symbol of their function before, during, and after the war. The icons created for the map are depicted on the next page. They are also displayed in large images with more detailed citation information in Appendix B.

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84. Ian Muehlenhaus, "The Design and Composition of Persuasive Maps," *Cartography and Geographic Information Science* 40, no. 5 (Nov. 1, 2013): 405, https://doi.org/10.1080/15230406.2013.783450

85. Muehlenhaus, "The Design and Composition," 413.

86. Muehlenhaus, "The Design and Composition," 408.

Color Legend
- Colonist Town
- Praying Town (Old)
- Praying Town (New)
- Indian Internment or Slavery Location
- Nipmuc Village
- Narragansett Village
- Wampanoag Village

Symbol Legend
- Colonist Town
- Indian Village
- Praying Town
- Location of Violence
- Indian Planting Field
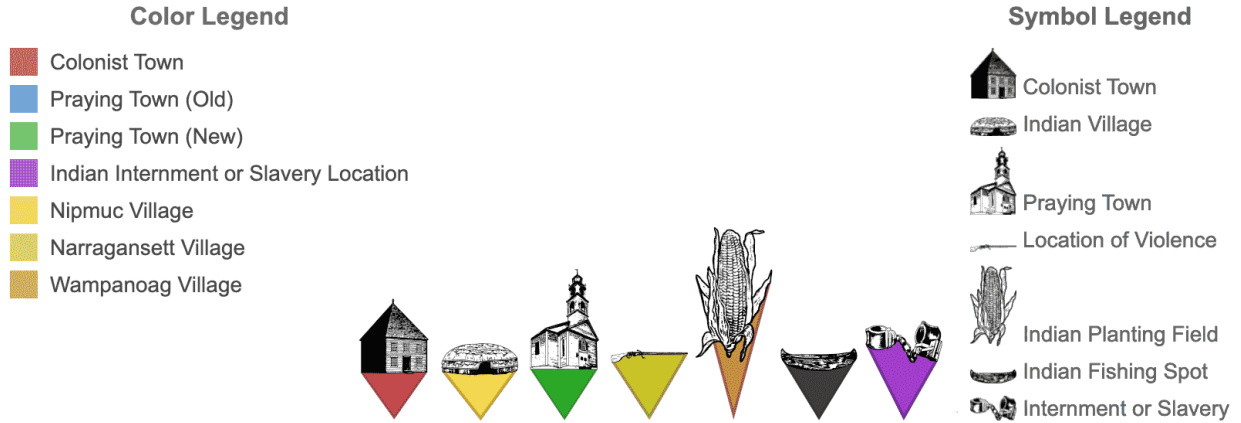- Indian Fishing Spot
- Internment or Slavery

Figure 3.2.1. These are the icons with legends demonstrating what they represent. They were created to improving audience engagement by making the persuasive goals of the map more clear and de-genericizing its labelling system. See Appendix B for a closer view of the images and detailed citations of their sources.

3.3. Deliverables

The deliverables for this project consist of a web-based, interactive map featuring

different points of interest in King Philip's War, as well as a companion website surrounding the

map which contains additional information about key locations. On the interactive map, users

may click and drag, as well as zoom in and out to navigate. Clicking on any point or area on the

map will present the user with a pop-up bubble giving more information about that location. In
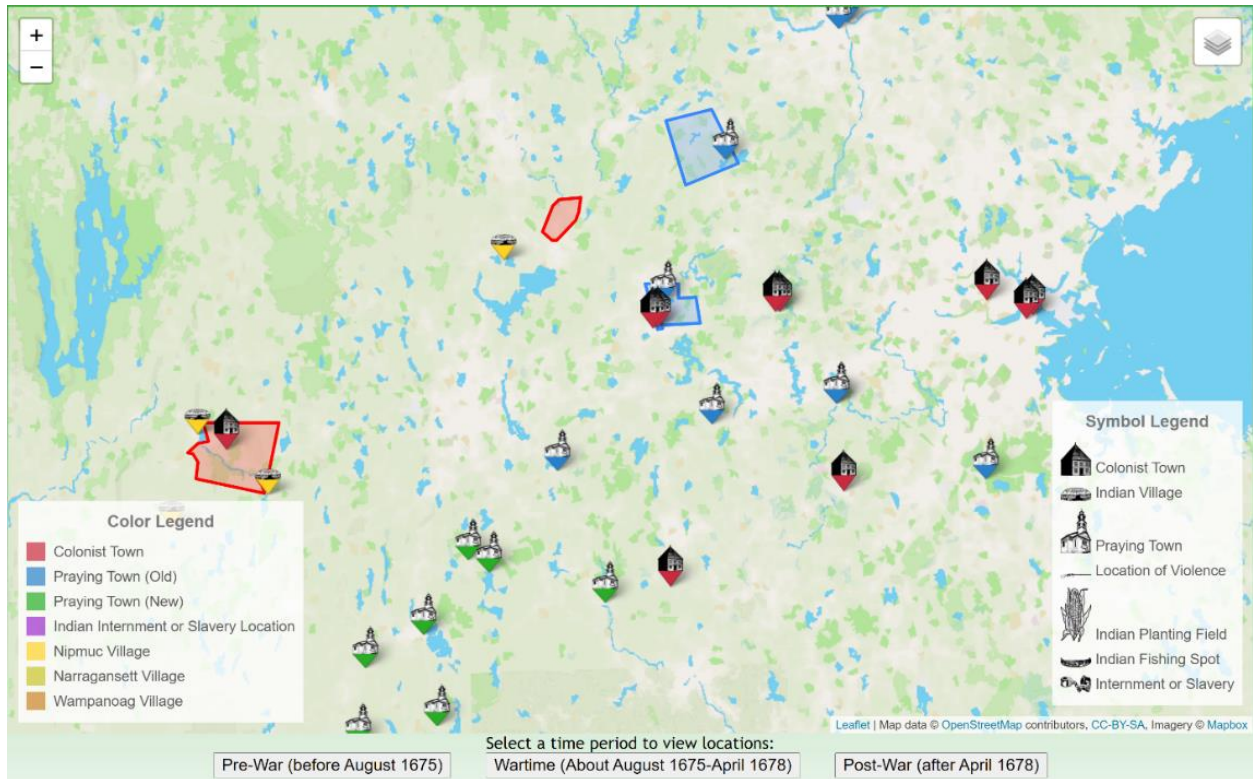

Figure 3.3.1. An overview of the interactive map and its features, showing points, areas, layer and time period control, and legends.

addition, there may be a link from the pop-up bubble to another page on the website with

additional information. An example of the information provided when clicking on a location is
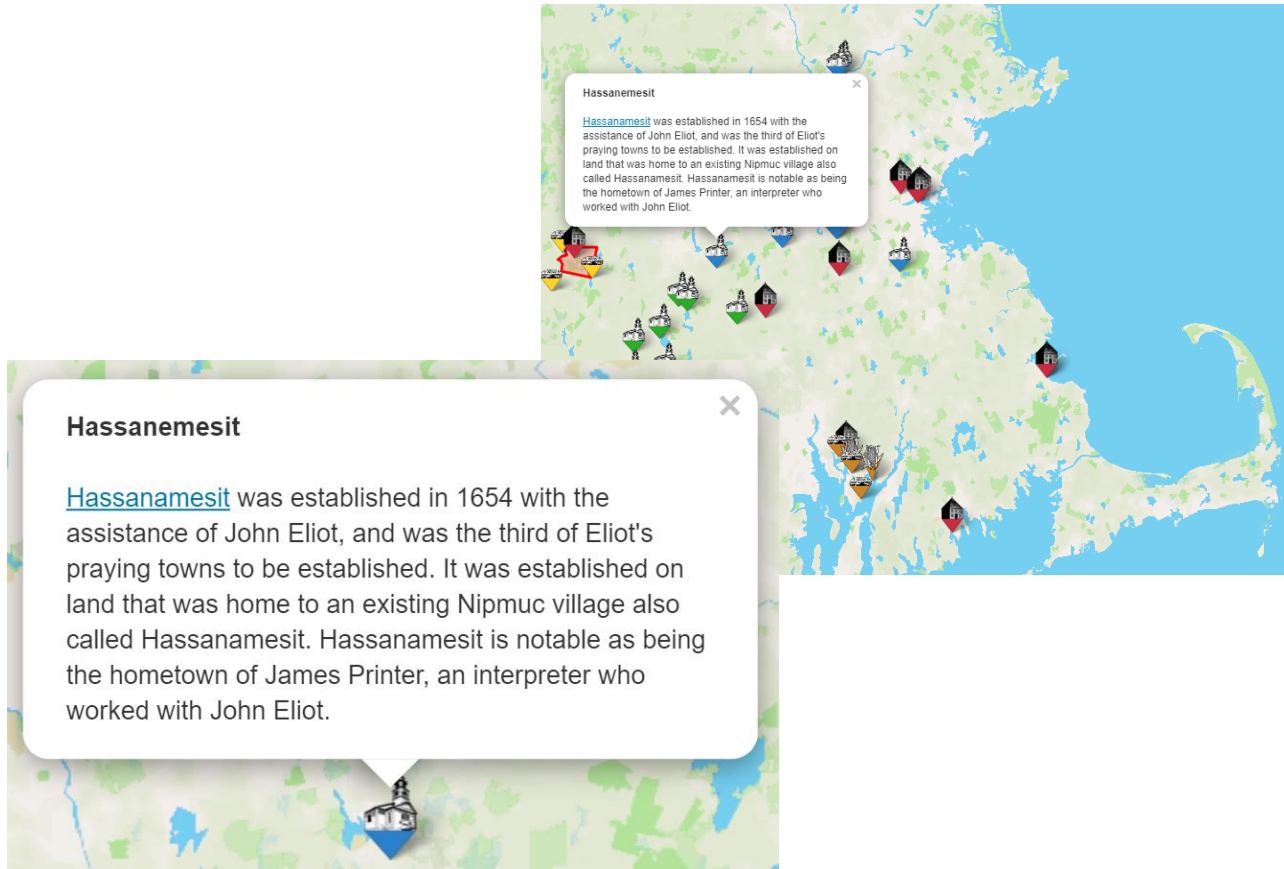
provided in Figure 3.3.2. on the next page:

Figure 3.3.2. An example of a clickable map point displayed on the map. Note that the Hassanamesit link will direct the user to an information page on the companion website. On the right is the Hassanamesit point in relation to the surrounding geography to give perspective. (Hassanamesit point: 42.2068, -71.68515)

In the top right corner of the map is a layer control which allows the user to change the map's displayed base layer or control the visibility of groups of points on the map. The website defaults to showing the map using a topographical base layer, which is ideal for showing natural features such as bodies of water, hills, and mountains. The user may switch the base layer to a view showing satellite imagery or satellite imagery with modern roads names. This is useful for comparing the locations of these historic points of interest to modern-day features. Groups of points may also be filtered and toggled to show and hide their visibility, in case any
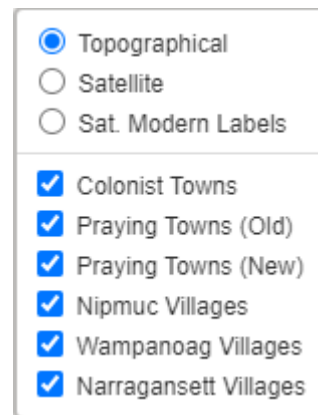

Figure 3.3.3 View of the layer control options in the "pre-war" period. Only one of the base layer options may be selected at a time, while any number of the information layers may be selected at once.
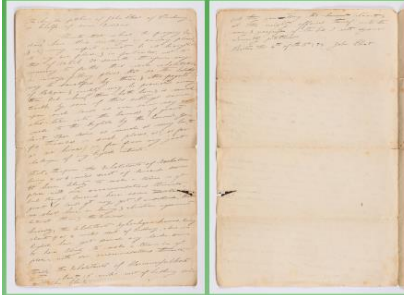
user wants to focus only on a certain group of points at any one time. Unlike the base layer controls, the controls to show and hide groups of points are not exclusive choices, so the user may stack groups of points on the map however they would like. The layer control can be accessed by hovering the mouse cursor over the layer icon in the top right of the map.

Another map feature that the user may control is the time period which the points on the map reflect. There are three choices for time period: pre-war (before August 1675), wartime (August 1675-April 1678), and post-war (after April 1678). Clicking any one of these three buttons will update the points on the map. Some points might vanish or appear, and the information given in the popup bubbles changes too. The purpose of this feature is to illustrate the effects of the war on particular locations, as well as depict the movement of populations as a result of the war. For example, many Praying Towns were essentially abandoned early in the war as a result of the forced relocation of many of their inhabitants to islands in the Boston Harbor. Switching from the "Pre-war" to "Wartime" time period show the abandonment by removing several Praying Town markers. As another example, some colonist towns were abandoned during the war as a result of attacks from Wampanoag, Narragansett, and Nipmuc warriors, and were not resettled until well after the war's conclusion. These towns are not shown in the "Postwar" time period. Colonist towns reestablished shortly after the war's conclusion are visible in the "Postwar" time period, and the popup information indicates when they were resettled.

Figure 3.3.4 An example of a webpage on the companion website providing additional information about the Praying Town of Hassanamesit as well as the Hassanamisco Reservation that still exists today. The images on the page are a scanned version of a petition written by John Eliot to the Massachusetts government petitioning for the establishment of Hassanamesit.

An important consideration while designing our deliverables was building them in such a way that supports future work and expansion. Because of this, we chose open-source technologies and have sought to document our code well so others can understand it. One aspect of helping other people understand how to use and modify the code is the creation of a simple guide that documents how we have used GeoJSON and Leaflet within our project. It gives an overview of how the GeoJSON dataset is constructed, as well as how to use Leaflet to import the GeoJSON and construct the interactive map.[87] All the associated code for the project is also stored on GitHub, which is a popular repository for open-source projects. In order to avoid

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87. GeoJSON and Leaflet guides and resources may be found in Appendix A.

vandalism, the code cannot be edited within GitHub. It can, however, be copied from and downloaded for unrestricted use.[88]

Chapter 4: Results and Analysis

As we gathered information and plotted points on our maps, we noticed that patterns emerged and narratives became clearer. We found that translating narratives into cartography illuminated different sides of them. For example, we noticed that John Eliot's original Praying Towns appeared in a line between colonist and Indian villages. This gave their construction a new angle as a buffer between colonists and non-Christian Indians. Another pattern we noticed was the presence of colonist encroachment in contested territories, as encroachments frequently become naked when put on a map. In terms of separations, one thing we noticed was the locations of Nipmuc wartime villages. They are placed far from colonist influences and in areas the colonists had yet to try to grab. This points to the villages existing as a place of refuge from war. Separation was also employed by colonists when relocating captive Indians. For example, many Praying Indians were interned on forbidding and stark Boston Harbor islands, which were completely isolated from all the Indian villages present at the time. As a result of the lack of resources on the island, most of the interned Praying Indians died before they could ever be released. A more extreme case of separation occurred to enslaved Indian captives. They were frequently shipped abroad to places like Barbados, which was an ocean away from New England. This meant that even if a captive managed to return home, the odds that they ever reunited with their loved ones were slim. In both cases, the separation shows how colonists severed captives' ties to their homeland and cut off their communication with their family.

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88. The code is available via https://github.com/Jmckeen8/IQPRemappingKingPhilipsWar

These, however, are not the only narratives that the interactive map can shed light on.

Viewers will be able to use the geographic information provided on our maps to gain their own

insights about the war.

4.1. Conversion and Protection: Strategic Placement of Praying Towns

Using GIS in conjunction with the digital humanities enables the identification and representation of geographic patterns. One of the earliest patterns we observed was the "ring" or "wall" the Praying Towns seemed to be forming between settler colonist towns in the east and Nipmuc territories to the west. Wamesit, Nashoba, Okkokonimesit, Hassanamesit, Makunkokoag, Natick, and Punkapog in particular were placed at almost regular intervals along this line. We began to wonder whether or not this was intentional. Upon further research, it appears that this may have been the case.
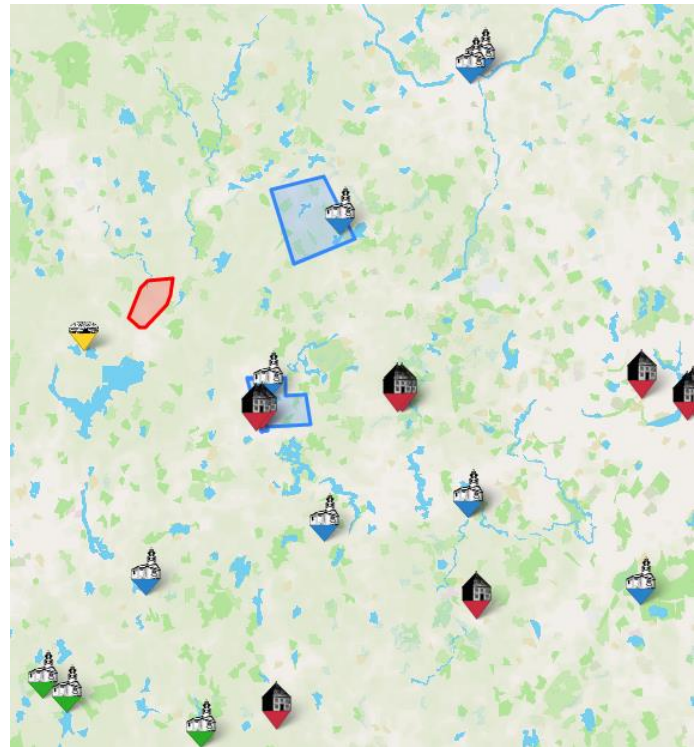
Figure 4.1.1. A screenshot of the map showing the "ring" of Praying Towns established (blue points) separating many of the colonial settlements in the east from the Nipmuc lands in the west.

It has been suggested by some historians that the old Praying Towns, being placed right

along the frontier between the colonists and the Nipmucs, would have served as a possible line of

defense against hostilities by providing a buffer. The idea here was that the Praying Indians

would be allied with the colonists, and so they would report any suspicious travelers and feel

obligated to assist the colonists should any issues arise.[89] This idea aligns Daniel Gookin's

suggestion that "the Indians in them might have been improved as a wall of defence about the

greatest part of the colony of Massachusetts… for most of the praying towns, in the beginning of

the war, had put themselves into a posture of defence, and had made forts for their security

against the common enemy."[90]

The irony of the situation is that the colonists did not recognize the tactical resource they

had in the Praying Indians. Instead, the colonists confiscated Praying Indian weapons, confined

them to certain towns, and then finally interned them on Deer Island in the Boston Harbor.

Praying Indians were, according to many accounts, loyal to the colonists and likely would have

been willing to fight on their side given the chance. They could have acted as guides for the

colonist military as well, but only a lucky few were removed from the Boston Harbor islands to

take on such a role. Had all but a few Praying Indians not been interned, the war's aftermath may

have looked less disastrous for the colonists. Instead, many of the colonists let their fear and rage

at all Indians get in the way of recognizing a potential ally.

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89. James Truslow Adams, *The Founding of New England* (Boston: Atlantic Monthly Press, 1921), https://en.wikisource.org/wiki/The_Founding_of_New_England.

90. Gookin, "The Doings," 436.

4.2. Encroachment and Rising Tensions: Okkokonemesit, Quaboag, and Waushacum

One pattern that our research and mapping efforts illuminated was the slow build-up of local land tensions in various areas where colonists and Indian groups were close to each other. In multiple locations, we came across evidence of colonists slowly yet systematically acquiring land that they had no claim to through dishonest and unfair methods.

Figure 4.2.1. Region of Marlborough and Okkokonemsit as depicted on the interactive map. The smaller of the two blue polygons depicts the area used for the Okkokonemsit Indians' planting field. The red marker indicates the spot where the Marlborough Colonists built their meeting house. (Marlborough meeting house point: 42.34724, -71.552322)

One example of this situation occurred involving the settler colonists of Marlborough and the Praying Indians of Okkokonimesit. The land grant that was given to establish Marlborough conflicted with the land grant that was already given to the Praying Indians. A contested area that arose from the conflicting grants was the Indians' planting field. A deal was eventually struck which allowed the Indians to keep the planting field. The colonists in Marlborough, however, would get the first rights to purchase these lands if the Praying Indians abandoned the property. Clauses like this created incentive for the colonists to pressure Indians off of their own land.[91]

While the deed conflict occurred in 1656, Marlborough was not incorporated as a town until 1660. Puritan towns were required to build meetinghouses, so in 1663 the Marlborough finally constructed their meetinghouse. They placed the meetinghouse right in a portion of the Okkokonimesit's planting field, despite the fact that a deal had supposedly granted the Indians'

91. Brodeur, "The Praying Indians.n"

legal rights to that land. Adding insult to injury, the meetinghouse was not even within the boundaries of Marlborough. This was almost certainly an effort from the colonists to extort more land from the Praying Indian inhabitants and put pressure on the borders between colonial and American Indian holdings.[92]

Another example of this scenario occurred in the establishment of the town of Brookfield in the middle of a swath of Nipmuc land called the Quaboag. The colonists established themselves in an area now known as Foster's Hill, located between Quaboag Pond and Wickaboag Pond, two known sites of Nipmuc villages. Connole describes that "[i]t is not certain whether Warner and the other settlers sought permission to settle the area and secure a title from the local Indians before taking possession of the land," however it is known that it wasn't until after colonial settlement had begun that the colonists approached the Nipmuc living in Quaboag to negotiate purchase of the land.[93] It is not difficult to imagine the negotiating advantage that the colonists gained from having already settled the land by the time the negotiation was happening. While the final land purchase did not include the locations of the Quaboag villages, it included a sizable amount of land right up to their borders.

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92. Brodeur, "The Praying Indians."

93. Dennis A. Connole, *Indians of the Nipmuck Country in Southern New England, 1630-1750: An Historical Geography* (McFarland, 2007), 147.
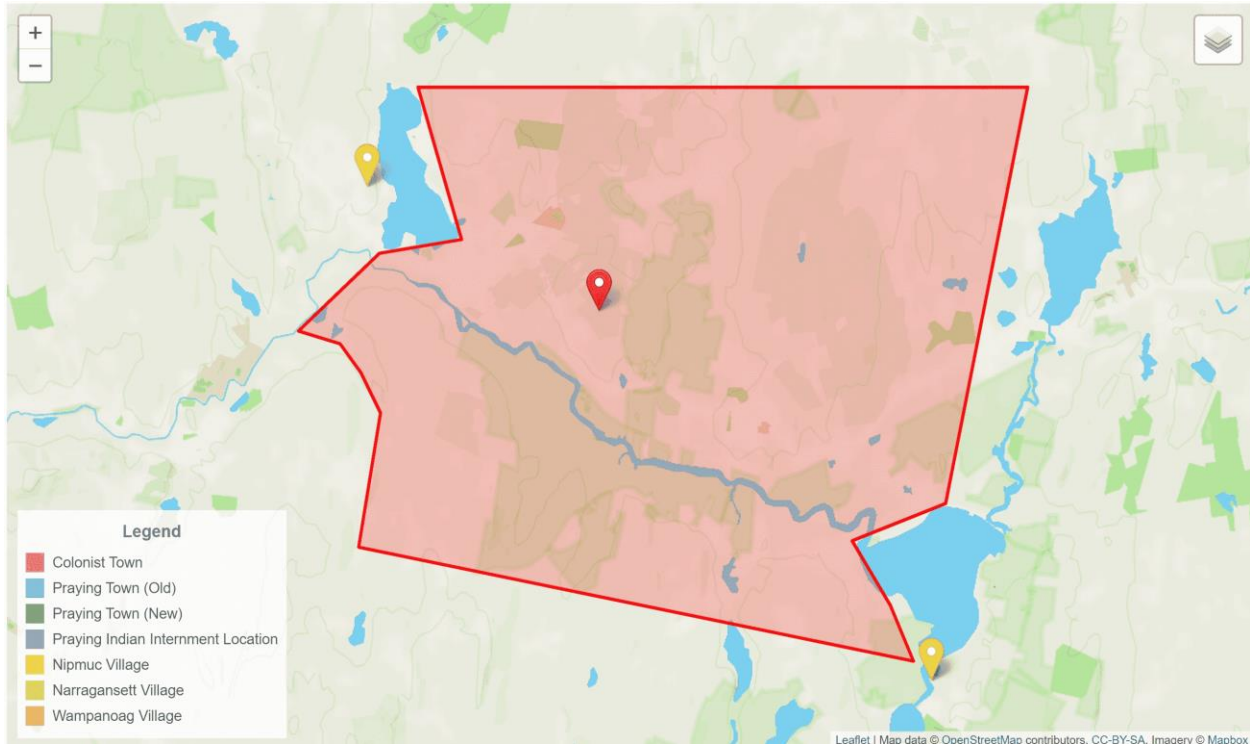
Figure 4.2.2. The interactive map showing the land purchase for the town of Brookfield (in red) and the Quaboag villages by the ponds (gold points). (Foster Hill, Brookfield: 42.227873, -72.124519, Wekabaug Village, Quaboag: 42.242768, -72.162853, Village, Quaboag: 42.183806, -72.069551)

A final example of encroachment involves the town of Lancaster and the village of

Waushacum. Waushacum was the Nashaways' primary village, located between two ponds of

the same name (now referred to as the West and East Waushacum ponds).[94] The primary

settlement of Lancaster was located northeast of the Waushacum area. Most lots owned by

colonists were located there, which the *Our Beloved Kin* companion website offers great insight

into their location.[95] We have used this information to plot a Lancaster polygon and the location

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94. "The Nashua Indians," AAANativeArts.com, accessed May 4, 2021, https://www.aaanativearts.com/nashua-indians

95. Lisa Tanya Brooks, "The Town of Lancaster, the Territory of Nashaway," in Our Beloved Kin: Remapping a New History, https://ourbelovedkin.com/awikhigan/lancaster

of the Waushacum village on the map, as shown below:
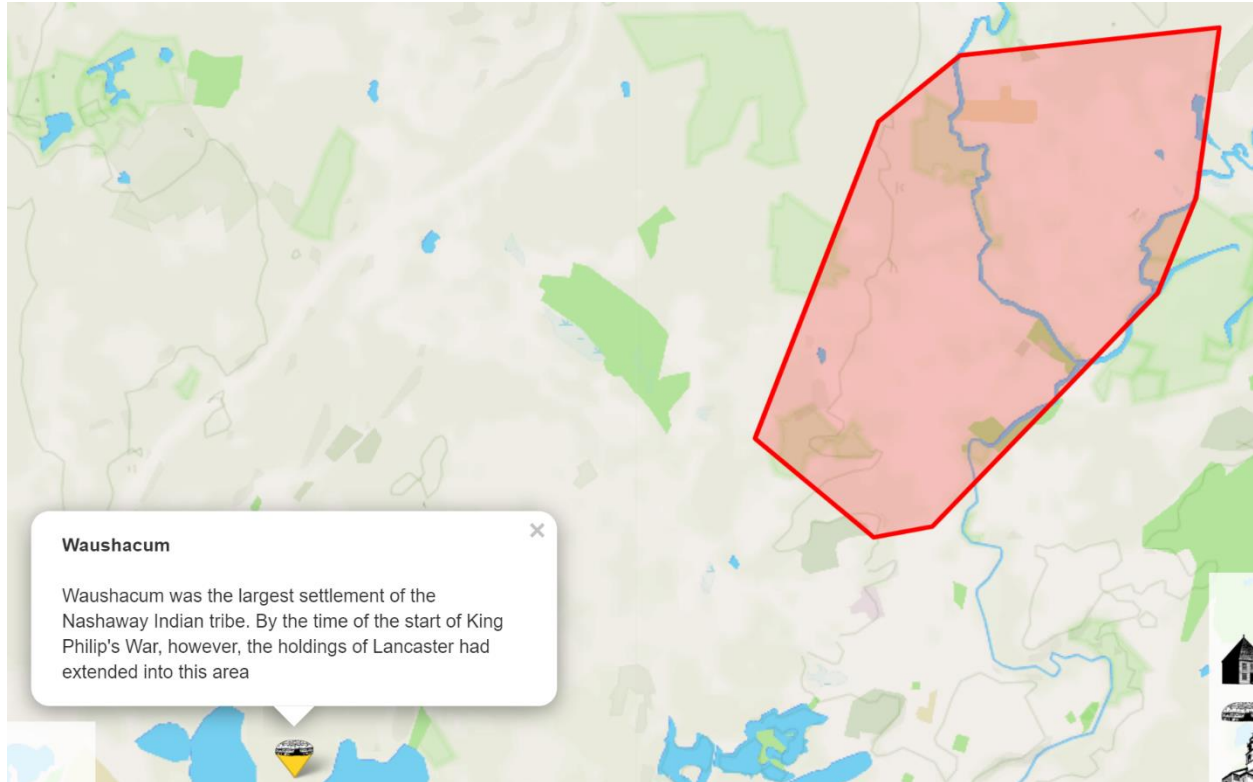
Figure 4.2.3. Interactive map showing the outline of the primary settlement of Lancaster (in red) alongside the general location of the Nashaway Waushacum village. (Waushacum point: 42.41327, -71.756792)

Even though the presence of this perceived distance might allude to minimal tensions between the Lancaster colonists and the Nashaways, records show that by the time the war started in 1675, wealthy settlers such as John Prescott had been slowly acquiring land from the Nashaway. These included holdings totaling "three hundred acres of land in the vicinity of Waushacum Ponds… 'probably in settlement of debts.'" Connole describes in his book how members of the Nashaway tribe found themselves in deep debt to a few wealthy colonists, and this was not an aberration in the local area. Members of tribes in the New England area often found themselves in debt as a result of colonists overcharging for goods in trading, or as a result

of being falsely accused of alleged crimes and other wrongdoings.[96] Despite the fact that

colonists were only primarily inhabiting the area shaded in red in Figure 4.2.3, the Nashaways

found themselves slowly losing their land through no fault or choice of their own.

While it might be easy to assume that the Nipmucs lived peacefully alongside the

colonists until King Philip and the Wampanoags entered the region and convinced them to join

their cause, when presented with information about minor but rising local tensions between the

colonists and the Nipmucs, it becomes clear that there was more to the Nipmuc's choice to join

the fight against the colonists. Systematic land acquisition and local conflicts likely caused rising

tensions within the Wampanoag, Narragansett, and Nipmuc communities that primed them to act

against the colonists when the opportunity presented itself.

4.3. Relocation and Preparation: the Nipmuc Villages of Menimesit

One of our key goals for structuring the interactive map was devising a way to depict

movement of populations that was caused by the war. One example of movement that the map

shows a perspective of was the establishment of Menimesit by the Nipmuc Indians at the start of

the war.[97] Menimesit consisted of three villages located along what is today considered to be the

Ware River. It was home for many Nipmuc during the course of the war and located much

further away from colonial settlements than some previous Nipmuc villages like Quaboag.

Menimesit, as described by Lisa Brooks, is "an island place among marshes" which "provided an

ideal location for Nipmuc leaders and their families to gather when war erupted in the summer of

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96. Connole, *Indians of the Nipmuck Countryuc*, 52-53; David J. Silverman, "The Impact of Indentured Servitude on the Society and Culture of Southern New England Indians, 1680-1810," *The New England Quarterly* 74, no. 4 (2001): 636-638, https://doi.org/10.2307/3185443

97 On the map website, viewers can observe the appearance of Menimesit by switching to the "wartime" period on the map controls.

1675, a place where they could safely deliberate outside the scope of colonial surveillance." [98]

Towards the beginning of the hostilities in early August of 1675, colonist military leaders demanded a meeting with the Nipmuc sachems to negotiate for their continued neutrality and prevent them from joining Philip's cause. The Nipmuc sachems, however, did not show up at Quaboag where the meeting was supposed to take place, requiring an expedition to attempt to locate Menimesit. Even with guidance from some Praying Indians, the party of colonists were ambushed on their quest for Menimesit, and forced to retreat back to the Quaboag area. Afterwards, a siege occurred at the Quaboag Plantation in Brookfield, trapping the colonists over a period of four days, and destroying many of the homes in the town. This allowed

Figure 4.3.1 A view of the three Menimesit villages (top) as well as the Wekabaug Village of Quaboag as well as the town of Brookfeld.

Wampanoags traveling northward into Nipmuc homeland to pass by and make their way towards Menimesit. From that point onward, Menimesit would serve as an important place of safety and a major "base camp" for Nipmuc, Wampanoag and Narragansett forces throughout the war.[99]
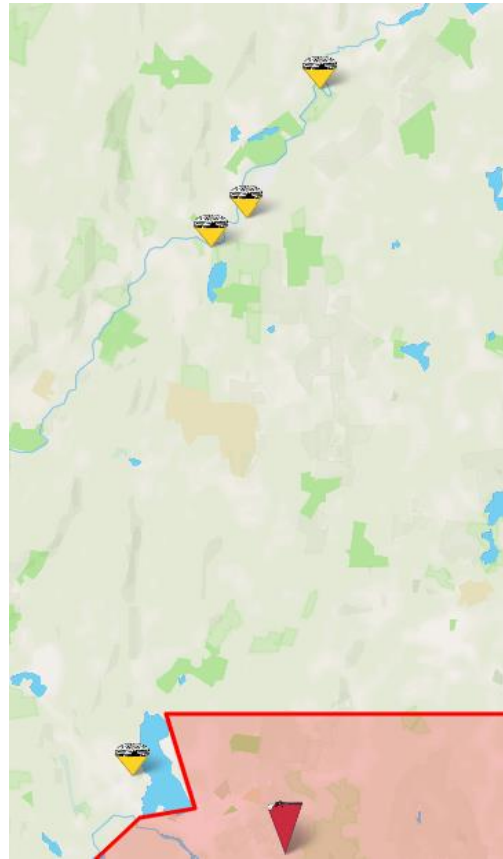
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98. Lisa Tanya Brooks, "Menimesit and Quaboag, 1675," in Our Beloved Kin: Remapping a New History, https://ourbelovedkin.com/awikhigan/menimesit_quaboag.

99. Brooks, "Menimesit and Quaboag, 1675."

The Menimesit villages are notable from a mapping standpoint because we were unable to locate any detailed maps online showing where these villages were. We had to place the points based on written descriptions of where the villages were, which fortunately were provided by Schultz's and Tougias's book about King Philip's War. Working with descriptions such as "[t]he northernmost camp…of Menameset is today a sand pit, located in the town of Barre just west of Airport Road… [t]here, the Ware River forms a double oxbow, and it was in the lower bend…that the camp probably sat."[100] Using a combination of written descriptions like these, along with various online mapping services, we were able to place pins on our map to reflect where these Menimesit villages were located. Again, the selective visibility of these points enabled by the ability to switch between time periods helps to give perspective to the movement of these populations as a result of the start of hostilities.

4.4. Internment on the Boston Harbor Islands

One of the most important shifts in location during the war was the forced relocation of many Nipmuc, especially Praying Indians, to islands in the Boston Harbor for internment. This was a result of rising distrust of the local Indians from the colonists in Massachusetts, despite the fact that most of the people interned were Praying Indians allied with the colonists. Despite protests from supporters and advocates of the Praying Indians, and despite any advantages the colonists may have gained from having allies strategically placed between their towns and Nipmuc territory out west, enough colonists were contemptuous and fearful of the Praying Indians to successfully enact this policy. In October of 1675, the General Court of the Massachusetts Bay Colony passed an order for the forced relocation of the Praying Indians to the

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100. Eric B Schultz and Mike Tougias, *King Philip's War: The History and Legacy of America's Forgotten Conflict* (Woodstock, VT: The Countryman Press, 2000), 144.

Boston Harbor islands.[101] While the most well-known internment location was Deer Island in the

Boston Harbor, some groups were sent to Long Island and Great Brewster Island as well. There

is a curious note in the Massachusetts Records Archives from a court order that allowed wives to

stay with their husbands for internment. It is strange in that it notes that some of the women

chose not to go with their husbands, and they were sent to Great Brewster Island instead.[102] This

could perhaps be a testament to the conditions on the islands during the winter of 1675-1676.

The islands were brutally difficult to live on. Gookin describes the Indian settlements on Deer

Island in particular as "bleak and cold, their wigwams poor and mean, their clothes few and thin;

some little corn they had of their own, which the Council ordered to be fetched from their

plantations and conveyed to them by little and little."[103]
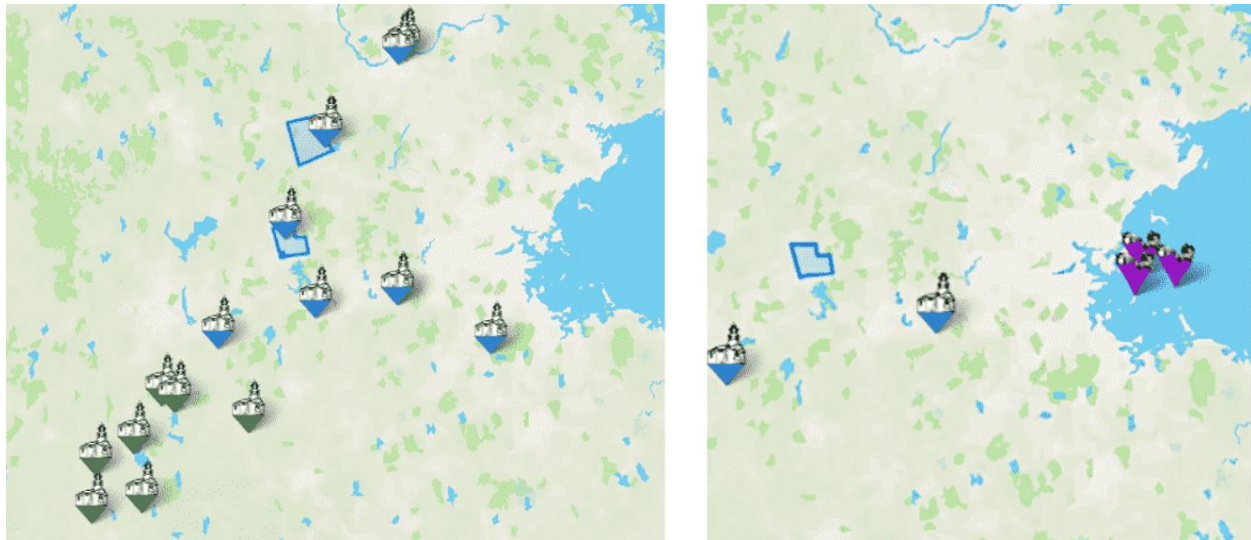
Figure 4.4.1. A comparison of the interactive map showing Praying Indian and interment locations pre-war (left) and during the war (right). Note the disappearance of most of the Praying Town markers as internment markers appear in the Boston Harbor.

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101. Gookin, "The Doings," 468, 473.

102. General court order permitting Indian women to join their husbands in prison or exile if they wished, 5 Nov. 1675, vol. 030, p. 184A, 2043: Records: General Court, Archives Collection (1629 - 1799), the Massachusetts Archives, Boston, MA.

103. Gookin, "The Doings," 486.

When the relocation order was proclaimed, all the Praying Towns were forcibly abandoned. Their inhabitants were either escorted to the Boston Harbor islands or escaped back to their homelands before they were forced to relocate. On the interactive map, switching between the "pre-war" time period and the "wartime" time periods shows a striking difference in the Praying Town points visible on the map. Some points remain on the map as there were a handful of Praying Towns where Praying Indians were forced to relocate to (under the supervision of colonists) in August of 1675, prior to the final relocation order in October. Internment locations also appear out in the Boston Harbor. Comparing the geographic locations where these groups lived to where they were relocated on the map visualizes the injustices of the situation. The map clearly shows all of the towns and villages that these Nipmucs called home vanishing as they are taken away from them, as well as the sheer difference of land area dedicated to these populations before and after the relocation. It is not difficult to come to the conclusion that not only were conditions brutal on the islands in terms of available resources, but also were likely cramped.

Unfortunately, aside from the written reports of those such as Gookin or Eliot, little else is known about the specifics of internment on these islands. Details such as how exactly the Indian camps on the islands were set up and how groups originating from different Praying Towns were arranged are unfortunately not available. The few reports that do exist regarding the conditions on these islands tell the story of a brutal experience with devastating impacts on the interned populations. To add insult to injury, when the survivors were finally released in the spring of 1676, many of these Praying Indians could not resettle on the land which they had called home for years because colonists had already claimed them. Clauses such as the one in the deed for the Okkokonemesit plantation allowed colonists to seize the land if it was abandoned

for any reason, leaving the Praying Indians with an ever-shrinking proportion of land to call home.[104] Only a couple of Praying Towns would be reinhabited after the war, such as the Hassanamesit plantation, a section of which to this day continues to be the only piece of Nipmuc land that has been held continuously by American Indians.[105]

<div align="center">4.5. Captivity and Enslavement in Barbados</div>

Most surprising of our findings was the distance of some of the relevant locales to King Philip's War from the New England region where the conflict began. For example, a major threat looming over those who took Philip's side in the conflict was that of being captured and sent away to Barbados to be sold as slaves.[106] Although indigenous peoples were sent all around the colonized world, Barbados in particular came to represent offshore lands due to its unique position as an anchor of power and affluence in British colonial relationships.[107] The implications of being forcibly sent away as a slave were twofold. For one, slavery represented a lifetime of being completely subordinate to another person's will at the threat of being subject to brutality for any reason. This was not only depressing, but it was also in some ways alien to the

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104. Brodeur, "The Praying Indians."

105. "National Register of Historic Places Program: National American Indian and Alaska Native Heritage Month Hassanamisco Reservation, Worcester County, Massachusetts," National Park Service, June 13, 2011, https://www.nps.gov/nr/feature/indian/2011/hassanamisco_reservation.htm.

106. Linford D. Fisher, "'Why Shall Wee Have Peace to Bee Made Slaves': Indian Surrenderers During and After King Philip's War," *Ethnohistory* 64, no. 1 (Jan. 2017): 93-94, https://doi.org/10.1215/00141801-3688391

107. Ministry of Family, Culture, Sports and Youth (MFCSY) and the Barbados National Commission for UNESCO (BNCU), "The Historic Bridgetown and Its Garrison: Nomination as a World Heritage Site Nomination Document," ed. Andy Taitt (MFCSY, 2011), 1376, UNESCO World Heritage Centre, http://whc.unesco.org/en/list/1376/

indigenous people impacted by the colonial slave trade, as it ran counter to the sociopolitical structures, centered around persuasion and respect for individuality, which Algonquin people were accustomed to.[108] Also, slavery threatened the integrity of the indigenous family unit by physically distancing parents from their children beyond the point where they could reunite in a timely manner. Often, this was intentional on the end of the English settler-colonists, as a loyalty test for surrenderers and to weaken the American Indians' ability to form resistances against colonial rule.[109]

As a result of the threat of enslavement mentioned above, Barbados proved to be relevant to King Philip's War even amongst those who never left New England. American Indians based their decision to fight to secure their freedom or surrender to attempt to elicit English mercy on the idea that, if they misstepped, they would be bound to a one-way trip to Barbados for a lifetime of forced and brutal labor. Indeed, Philip and his men, in recruiting Christian and other English-sympathizing Indians, invoked this fear by privately warning them that if the English prevailed, they would all be sold into slavery and shipped overseas.[110] Englishmen were disinclined to act in a way that disproved those warnings. They jumped at the opportunities they received to separate prisoners of war and potential agitators from the New England land the English coveted. In particular, exporting their Indians captives to a colony distant from their own enabled the English settler-colonists to clear out existing residents on the lands they wanted, as the residents would not be able to defend their occupied territories legally or extralegally from a

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108. Barsh, "The Nature and Spirit," 184.

109. Fisher, "Why Shall Wee," 98-99.

110. Fisher, "Why Shall Wee," 93-94.

distance of over two-thousand miles (or over three-thousand kilometers) in Barbados.[111] The

scale of a distance over two-thousand is difficult to imagine. Fortunately, the distance can be

observed without large numbers on our map by zooming far out, as shown on the next page:
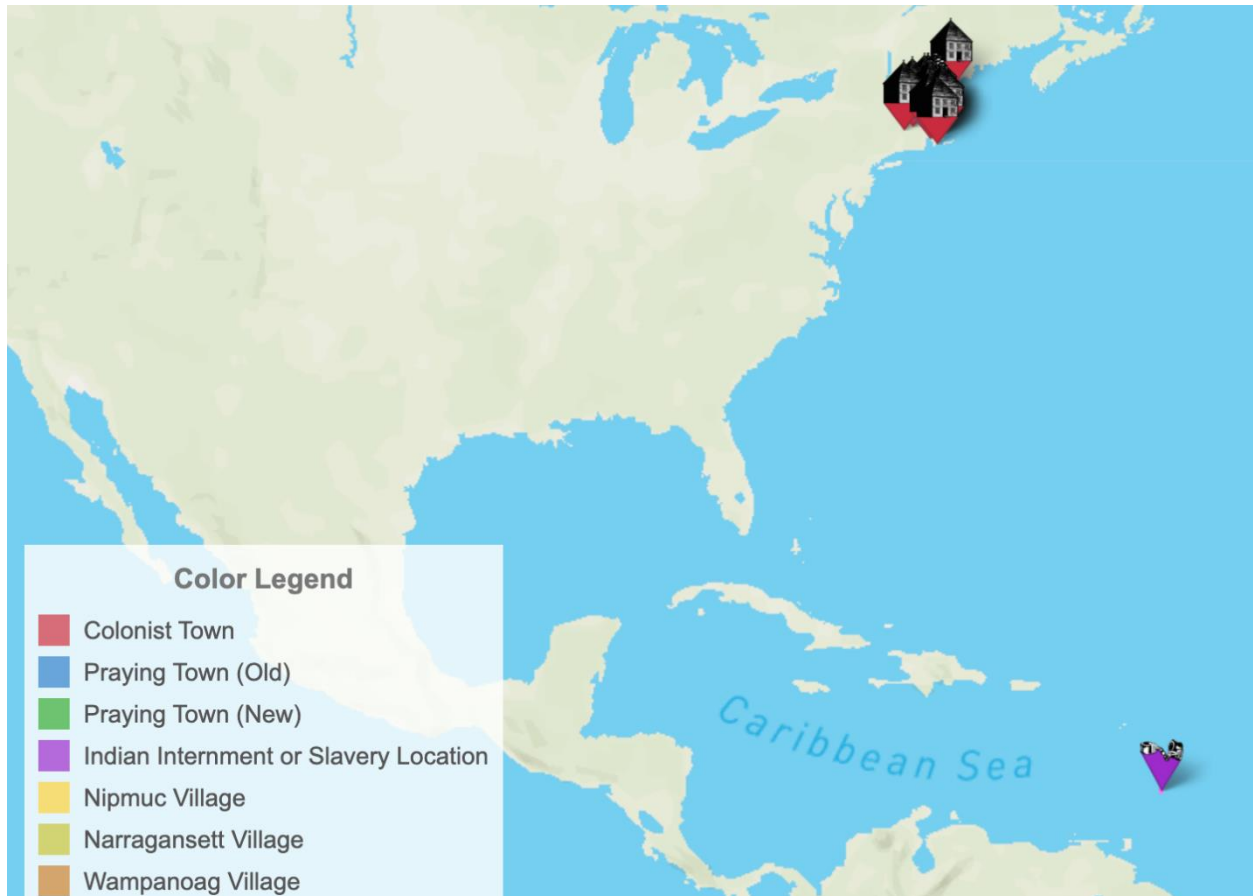
Figure 4.5.1. A screenshot of the map at a high zoom level so as to depict the distance between Barbados, the archetypal destination for indigenous captives, and several of the colonists' settlements after King Philip's War.

  Seeing the distance on the map makes it clear why so little, if anything at all, of the New

England Indians' culture survived in Barbados. Barbados's location makes it a fundamentally

different place from New England, with radical differences in work conditions, weather,

environment, and demographics. Combined with the deliberate breaking of families, this left

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111. Fisher, "Why Shall Wee," 98.

indigenous captives without any sort of close connection to or use for aspects of their home culture. Compounding matters were very strict laws governing how slaves could interact with other people and what activities they could participate in.[112] This stymied any remaining efforts from all captives to maintain their homelands' traditions. Notably, those same laws attempted to outlaw the import of prisoners of King Philip's War to Barbados. The laws came from a position of fear that the prisoners of war would rebel once more and have higher odds of success than the failed 1676 African slave revolt that inspired the crackdown on slave activities in the first place. The laws' influence was significant enough that the colonies of Jamaica and New York adopted them, but they ultimately only succeeded in slowing down the import of indigenous captives to Barbados. The laws were also never intended to free the slaves who had already been relocated to Barbados.

Chapter 5: Conclusion

5.1. Reflection

Throughout this project, we have used GIS technologies to depict King Philip's War. We are happy to have used those technologies because examining the glut of information about the war without visual aids is tricky. After all, statistics and the jargon used to describe them can obscure the meaning of data. Complicated numbers and academic words can be overwhelming and not relatable. For example, the latitude and longitude coordinates [42.348522, -70.955224] represent a point on our map (specifically, Deer Island). Yet they do not convey anything about that point. The numbers do not tell casual readers the distance which Deer Island was from the homelands of the detained Praying Indians. The numbers cannot say how ill-suited the land on

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112. Fisher, "'Dangerous Designes,'" 110-113.

Deer Island was for agriculture and hunting, nor can they show how many died of starvation and malnutrition as a result.[113]

The final product of this cartography project is an interactive map and companion website detailing multiple narratives of King Philip's War. Beyond the product itself, what we hope to do is provide a new way of understanding King Philip's War through charting the lands where events happened, people settled, and an amicable alliance between American Indians and English colonists came to a brutal, tragic end. We also hope that these maps will encourage people to reconsider the war from the perspective of Nipmuc, Wampanoag, and Narragansett Indians. Throughout our research, we have found that popular narratives of the war and popular conceptions of King Philip and American Indian life come only from the side of the European colonists. Although they certainly have a place in seventeenth century American history, they are not the only involved party whose interests and ideas matter here. Pretending otherwise, whether through the creation of slanderous narratives painting the Indians as deserving of abuse, hatred, and subjugation or dodging discussion of colonist brutality, has proven disastrous to Indians' lives in the sense of both their quality of life and the records documenting them. Now there is a greater recognition that the colonists committed many evils in America, but that recognition will not be allowed to grow or change anything if, like many colonial atrocities, it is left undiscussed and swept back under the rug it came out of.

The people who fought, suffered, and died in King Philip's War matter as much as the people who triumphed. History may be written by the winners, but that does not mean that only the winners deserve recognition. We hope that our project will help preserve American Indian

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113. Connole, *Indians of the Nipmuck Country*, 175-176.

and colonist narratives alike, encourage people to examine sources of information about American Indians more carefully and inspire similar projects for other major events in the history of American Indian-European relations.

5.2. Future Goals and Recommendations

We see plenty of opportunity for future projects or other work using our deliverables as a starting point, including both further works studying King Philip's War specifically, and other work utilizing GeoJSON and Leaflet as a foundation for GIS in the Digital Humanities. The working implementation of the deliverables, as well as all of the source code, is freely available for others to build upon. As the project utilizes free and open source technologies, it should be possible to do this without obtaining any costly licenses. Here we will go through some specific recommendations and ideas for future work based on this project.

When first beginning work on this project, one of the earliest issues we encountered was defining the scale and scope of our map. There are many possible approaches to take here. One end of this spectrum is focusing on having a wide breadth of geographic locations shown on the map. This is useful for recognizing large-scale geographic patterns, but it only provides limited detail about local-level geographic details like information about specific buildings and landmarks. The other end of this spectrum is taking a much deeper dive into points of interest in a smaller geographic region, such as a particular village or town, and providing information about how those landmarks fit together and tie into the history of that region as a whole. We recommend that future groups who either intend to expand upon this project or use it as inspiration define their scale early in order to keep expectations for what can be completed realistic and achievable within time constraints.

We ended up taking a "hybrid" approach while defining the scope of our mapping efforts along this spectrum. On the map, there's some breadth and some depth. We've defined a lot of points across a wider geographic area, spanning Massachusetts Bay, Plymouth, and Rhode Island colonies, as well as Wampanoag, Narragansett, and Nipmuc lands. We have also taken the opportunity to take a deeper dive while researching a few locations, including Marlborough/Okkokonemesit, Lancaster/Nashaway, and Quaboag/Brookfield, because we felt that the narratives that could be conveyed by providing additional geographic information in these locations were important to understanding broader historical patterns which likely contributed to the start of hostilities between the colonists and Wampanoag, Narragansett and Nipmuc peoples. In retrospect, this strategy was difficult to manage and establish realistic expectations for at times, and we might recommend that groups taking on future work align themselves closer with one end of the "depth/breadth" spectrum or the other.

Many opportunities exist to expand upon the breadth of this project, as we were only able to focus on so much. Most notably, there is lots of work that could still be done mapping the northern theater of the war, involving the settler colonists in the area that is currently part of Maine as well as the Wabanaki Confederation. While much of the hostilities in the southern theater had run their course by the fall of 1676, fighting continued in the northern theater through 1678. The 1678 Treaty of Casco was the final effort to put an end to the hostilities which are generally considered to be a part of King Philip's War. We included a marker indicating where the Treaty of Casco was signed as one of the points on our map, as we felt it was important to understanding the overall chronology of the war. At the same time, plenty of other information from this region could be added to the map.

Other opportunities to expand the breadth of the map include the incorporation of additional landmarks within Nipmuc, Wampanoag, and Narragansett territories. While we have endeavored to include a variety of points from these areas, there is certainly room for improvement, especially within Wampanoag and Narragansett homelands. We found that mapping specific locations within these regions was often more challenging and/or time-consuming in comparison to the areas inhabited by settler colonists and Praying Indians because of a combination of comparatively less information available about these regions as well as the tendency for colonial society to form towns that were very established and well defined in comparison to the local Indian tribes. Additional features that have potential to be added could explore the connections the war had with other area tribes, such as the Mohegans and the Mohawks, who were instrumental in the turn of events that lead to the surrender of King Philip in 1676.

The other primary direction that future projects could take is exploring additional breadth in particular locations. This would involve undertaking research with a much more localized lens. This would be similar to what we have added to the current rendition of our map in places like Okkokonimesit, where the town's boundaries are shown along with multiple landmarks such as forts, planting fields, and fishing spots. For a colonist town, one could explore features such as meeting houses, private homes, and garrison homes that played important roles in battles during the war. One excellent example of a mapping effort like this is freely available for viewing online, entitled "King Philip's War: Burning of Medfield." Built using ArcGIS, the map focuses specifically on the Medfield raid that occurred on February 21st, 1676. It contains locations of specific sites of violence and garrison houses which were involved in the Medfield raid, as well as the locations where certain people were injured or killed. It also shows other key landmarks,

such as the Great Bridge that the Nipmuc, Wampanoag, and Narragansett forces used to depart after the raid, and subsequently burned after they crossed it.[114] Similar efforts could be undertaken for other towns or villages as well as other battle sites of King Philip's War. We would recommend, however, that the scale of effort here be set appropriately, as it takes much more effort to map a particular town with additional detail like this. It simply would not have been feasible for our project to explore every single town in this level of detail. Choosing a few areas to explore in this level of depth, however, would likely be a manageable scope for a future project.

One additional area which could benefit from additional work involves the technical side of this project in relation to certain map details. Our interactive map contains several points that are located quite a distance away from the central concentration of points in the southern New England region. Most notably, a mapping effort was undertaken in Barbados as it related to captivity for many Nipmuc, Wampanoag and Narragansett Indians following the war. On the primary interactive map, however, a viewer must adjust the zoom level to be very broad compared to the default setting to even discover that these additional points exist. We have included a modified version of the interactive map which starts centered and zoomed on these points on the information page dedicated to post-war captivity. Yet a more cohesive way of allowing a user to navigate to these points from the main interactive map could be valuable. The idea of having the interactive map center itself on these points when the user adjusts the time period to post-war and the focus layer on internment/captivity locations was discussed.

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114. "King Philip's War: Burning of Medfield," ArcGIS, Mar. 2, 2017, https://www.arcgis.com/home/item.html?id=8c2b5508cff8452b8b2282f6cce6f42c

Unfortunately, the current setup using Leaflet's built-in layer control does not allow automatic-recentering when certain layers are selected.

Finally, we would recommend that future individuals or groups expanding this project or developing a new project make an effort to visit some of the important landmarks and other sites of importance in person. Unfortunately, we were not able to do because of the COVID-19 pandemic and its resulting restrictions. However, as we have discovered through our research efforts, many of the locations we have mapped are currently the sites of historic markers or monuments, and many others are identifiable through natural landmarks and local geography. For future researchers, this could provide opportunities to reflect on the importance of many of these landmarks as well as provide additional insights that further enhance additional perspectives and narratives.

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Appendix A

A.1: GeoJSON and Leaflet Resources

General documentation and guides:

Leaflet home page: https://leafletjs.com/

Leaflet docs: https://leafletjs.com/reference-1.7.1.html

Quick Start Guide: https://leafletjs.com/examples/quick-start/

GeoJSON specification: https://tools.ietf.org/html/rfc7946

JavaScript reference: https://www.w3schools.com/js/DEFAULT.asp

HTML reference: https://www.w3schools.com/html/

Additional guides for achieving specific maps features will be linked throughout this reference section.

A.2: GeoJSON Reference

Here's an example of GeoJSON points as part of a feature collection:

```
{
     "type": "FeatureCollection",
     "features": [
          {
               "type": "Feature",
               "geometry": {
                    "type": "Point",
                    "coordinates": [
                         -71.67542,
                         42.44988
                    ]
               },
               "properties": {
                    "name": "Rowlandson Residence",
                    "date": "February 10, 1676",
                    "popupContent": "The Rowlandson residence in
Lancaster where Mary Rowlandson was captured."
               }
          }
          {
               "type": "Feature",
               "geometry": {
                    "type": "Point",
                    "coordinates": [
                         -71.68683,
                         42.44163
```

```
                    ]
            },
            "properties":{
                    "name": "Rowlandson Rock",
                    "date": "February 11, 1676",
                    "popupContent": "Rock Mary Rowlandson and other
captives passed by on their first night in captivity - historical marker"
            }
        }
    ]
}
```
 Figure A.2.1: Code sample from our demo of GeoJSON.

This code creates a very simple GeoJSON dataset with two points, one as the

Rowlandson Residence and one at the Rowlandson Rock. Both features are points, but lines and

polygons are also possible. Each feature has a name, date, and popupContect (description) value

associated with it, and GeoJSON allows for additional properties to be added to features as
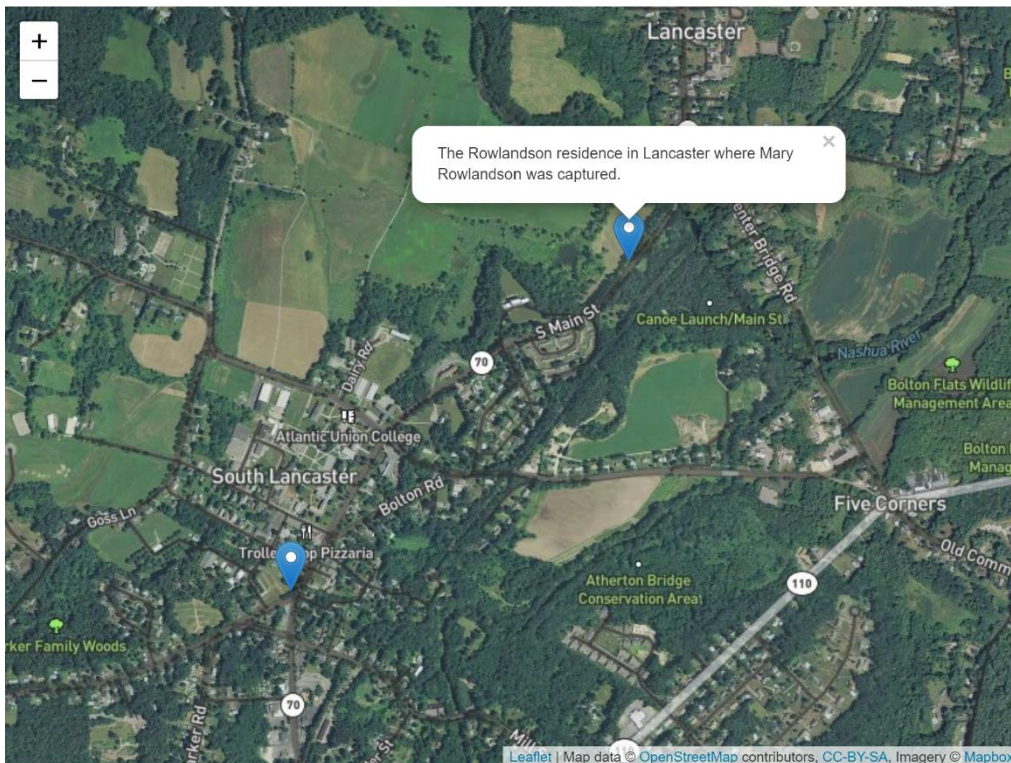
needed.

Figure A.2.2: *A screenshot showing a Leaflet map generated from the GeoJSON data set shown in Figure A.2.1.*

This is a map generated using Leaflet and the GeoJSON dataset shown in Appendix A.2. Shown is the popup text that appears when the upper point is selected by the user. The user may also pan around the map and zoom in and out. The baselayer in this example is set to modern satellite imagery, and this may be customized to other layers (street map, topography, etc.) or custom layers defined using .svg files.

Every feature has a "properties" section and a "geometry" section. Anything contained within the "properties" section is arbitrarily defined by the user (us) so we can assign leaflet features to particular properties. The "geometry" section must be a proper GeoJSON definition. There are multiple types of geometries we can use:

- "Point": The most simplistic, a single point on a map. Defined using one set of coordinates.

- "LineString:" A line on a map, connected using two or more sets of coordinates.

- "Polygon": A shape on a map, with the outer border defined by three or more sets of coordinates. Additional arrays of coordinates may be specified to represent interior rings/holes

- "MultiPoint": Simply an array (or list) of multiple points, defined as one feature for ease of control.

- "MultiLineString": An array (or list) of multiple lines, defined as one feature for ease of control.

- "MultiPolygon": An array (or list) of multiple polygons, defined as one feature for ease of control.

"GeometryCollection": has a single member "geometries" instead of "coordinates" where "geometries" is an array of other "geometry" objects. A "GeometryCollection" has a single set of "properties"

A.2.1: Our GeoJSON Dataset

Specifically for the data we've collected, we're using Points, Polygons, and LineStrings. In addition, we're using the following defined properties:

- name: name of the location, shows up at top of popup content in bold

- prewar: written description of the location for the prewar time period, which will show up in the popup content. If left blank, the icon will not show up in the prewar time period.

- wartime: written description of the location for the prewar time period, which will show up in the popup content. If left blank, the icon will not show up in the wartime time period.

- postwar: written description of the location for the prewar time period, which will show up in the popup content. If left blank, the icon will not show up in the postwar time period.

- type: used differently depending on the dataset

  o PrayingTowns: type can be set to "old", "new", or "internment"

  o IndianVillages: type can be set to "Wampanoag", "Narragansett", or "Nipmuc"

- planting: if present and set to "true", will show a planting icon instead of the regular praying town or Indian village icon

- violence: (*only to be used with Indian villages*) if present and set to true, the violence icon will show up instead of the regular Indian village icon (Wetu)

o   Note that the violence icon for colonist towns shows up automatically during the wartime time period, violence property not necessary

Note that popup content may also include links to other pages. These may be defined within the "prewar", "wartime", or "postwar" string using the regular html <a> tag.

A.3: Leaflet Map Code Structure

A.3.1: Initial Map Setup

The map is placed within an HTML <div> element on the page. It's given an id, as well as a width and a height:

```
<div id="mapid" style="width: 1200px; height: 700px;"></div>
```

We must also load in our GeoJSON datasets:

```
<script src="ColonistTownsGeoJSON.js" type="text/javascript"></script>
<script src="PrayingTownsGeoJSON.js" type="text/javascript"></script>
<script src="IndianVillagesGeoJSON.js" type="text/javascript"></script>
```

Note that these datasets are set up as JS scripts which establish a variable for the JS object that represents the GeoJSON dataset, such as `var colonistTowns = { ...`

A.3.2: Establishing Baselayers

From there we establish our map tile baselayers. We are currently utilizing custom Mapbox baselayers which require an API key (*subject to change*). Here is an example for the topographic baselayer

```
var SAT = L.tileLayer('https://api.mapbox.com/styles/v1/jmckeen/cklr9kiqp0acf17ql
1krryp9a/tiles/256/{z}/{x}/{y}@2x?access_token=pk.eyJ1Ijoiam1ja2VlbiIsImEiOiJja2h
tOG5hOGYwa3V5Mndua2wxNmk0b3IwIn0.mrxqcVZ9RgN7TMVLIOvOzg', {
        attribution: 'Map data &copy; <a href="https://www.openstreetmap.org/">Op
enStreetMap</a> contributors, <a href="https://creativecommons.org/licenses/by-
sa/2.0/">CC-BY-SA</a>, Imagery © <a href="https://www.mapbox.com/">Mapbox</a>',
        maxZoom: 18,
        tileSize: 512,
        zoomOffset: -1,
    });
```

For more information about loading tileLayers, see Leaflet documentation:
https://leafletjs.com/reference-1.7.1.html#tilelayer

A.3.3: Loading Icons

The last necessary set of resources that require loading are the custom icons. The icons we've used are based on the leaflet-color-markers library (https://github.com/pointhi/leaflet-color-markers) and have been modified to include symbols reflective of our map's content.

Here's an example of loading one of our icons, which makes it available as a JS variable to use later:

```js
var redColTown = new L.Icon({
        iconUrl: 'icons/colonist/colonistmeetinghouse-red.png',
        shadowUrl: 'https://cdnjs.cloudflare.com/ajax/libs/leaflet/0.7.7/images/marker-shadow.png',
        iconSize: [25, 41],
        iconAnchor: [12, 41],
        popupAnchor: [1, -34],
        shadowSize: [41, 41]
    });
```

Note that there is a variable wetuIconHeight defined to use in place of the iconSize, iconAnchor, and shadowSize height fields (set to 41 by default). This was defined as our wetu icon ended up having much more "square" dimensions and the default icon size of [25, 41] was distorting these icons.

For more information about adding custom icons, see Leaflet documentation: https://leafletjs.com/examples/custom-icons/

A.3.4: Establishing Map Layers from GeoJSON Data

A new variable is established for each layer we use. The naming convention indicates the time period and the category for the points. For example, PRECOLTOWNS refers to "prewar colonist towns". Here's the corresponding code which makes a call to L.geoJSON to import the geoJSON and establish the layer:

```js
var PRECOLTOWNS = L.geoJSON(colonistTowns, {
        onEachFeature: onEachPreColonistTown,
        filter: function(feature, layer){
            return feature.properties.prewar != "";
        }
    });
```

Notice that two parameters are used in the call to L.geoJSON: onEachFeature defines the function to be run for every single feature in the geoJSON dataset, and filter defines a function that filters the features we'd like to show up in this particular layer. In this example, we're checking to make sure that the feature's "prewar" property *is not* empty in order for it to be

added to this layer. The onEachFeature function defines exactly how the feature gets added to the map

A.3.5: OnEachFeature Functions

These functions get called by the L.geoJSON calls which add features to the map. It tells L.geoJSON exactly how we'd like to add this feature to the map: which icon we'd like to use, which popup content we'd like to display, etc.

Here's an example showing onEachPreColonistTown (which gets called for every prewar colonist town)

```
function onEachPreColonistTown(feature, layer) {
        var popupContent = "";

        if (feature.properties && feature.properties.name && feature.properties.p
rewar) {   //filter here for features that have a "prewar" properties value
            popupContent += ("<b>" + feature.properties.name + "</b>" + "<br><br>
");
            popupContent += feature.properties.prewar;
        }

        layer.bindPopup(popupContent);

        if (layer instanceof L.Marker){   //set red colonist town marker
            layer.setIcon(redColTown);
        }

        if (layer instanceof L.Path && feature.properties.prewar){   //set red pol
ygon
            layer.setStyle({fillColor:'red', color:'red'});
        }
    }
```

We start the function by establishing a string to place the popupContent text into. Then, we check to make sure that this feature has a valid properties area, has a name, and has a prewar field. If it does, then we use the prewar field as our popup content.

Next, we check if this is an instance of L.Marker, which is true if our feature is a GeoJSON point. If it is, we set the icon to our redColTown icon that we imported earlier.

Finally, we check if this feature is an instance of L.Path, which in our case means it's a LineString or Polygon. If it is we set the fill color and color (border color) to our desired color of red.

A.3.6: Creating Map

Once we have our layers established, we can establish our map object using L.map:

```
var mymap = L.map('mapid', {
        center: [42.445, -71.68],
        zoom: 8,
        layers: [MAP, PRECOLTOWNS, PREOLDPRAYTOWNS, PRENEWPRAYTOWNS, PRENIPMUCVIL
LAGES, PREWAMPANOAGVILLAGES, PRENARRAGANSETTVILLAGES]
    });
```

Notice that it's here that we set our desired starting position for the map ([42.445, -71.68]). This is where the center of the map will be set when the user first loads it. We also set the starting zoom level as well as the layers we'd like the map to initially load with.

A.3.7: Creating Layer Controls

To add the layer controls so that the user can toggle map layers, we first established a series of JavaScript objects which list the layer variable name with its corresponding "friendly name" (the name the user sees). We do this for both the base maps as well as the content layers. Here's an example for the pre-war content layers:

```
var preOverlayMaps = {
        "Colonist Towns": PRECOLTOWNS,
        "Praying Towns (Old)": PREOLDPRAYTOWNS,
        "Praying Towns (New)": PRENEWPRAYTOWNS,
        "Nipmuc Villages": PRENIPMUCVILLAGES,
        "Wampanoag Villages": PREWAMPANOAGVILLAGES,
        "Narragansett Villages": PRENARRAGANSETTVILLAGES
    };
```

Then, to add the layer control to the map, we use L.control.layers like so:

```
var layersControl = L.control.layers(baseMaps, preOverlayMaps).addTo(mymap);
```

For more information on Leaflet layer controls, see https://leafletjs.com/examples/layers-control/

A.3.8: Adding Legends

For the legends on our map, we're using the very helpful example code located at https://codepen.io/haakseth/pen/KQbjdO. This code requires some additional CSS to be added to the page, which may be viewed at that link.

To then actually add our legend, we first establish a JS variable for the legend using L.control and establish its position:

```
var legend = L.control({position: "bottomleft"});  //legend for colors
```

From there, we use Leaflet's onAdd function to create a div on the map itself and set the div's innerHTML attribute. This div will use the styling from the provided CSS from the code example:

```
legend.onAdd = function(map) {
        var div = L.DomUtil.create("div", "legend");
        div.innerHTML += "<h4>Color Legend</h4>";
        div.innerHTML += '<i style="background: #CB2B3E"></i> <span>Colonist Town
</span><br>';
        div.innerHTML += '<i style="background: #2A81CB"></i> <span>Praying Town
(Old)</span><br>';
        div.innerHTML += '<i style="background: #2AAD27"></i> <span>Praying Town
(New)</span><br>';
        div.innerHTML += '<i style="background: #9C2BCB"></i> <span>Indian Intern
ment or Slavery Location</span><br>';
        div.innerHTML += '<i style="background: #FFD326"></i> <span>Nipmuc Villag
e</span><br>';
        div.innerHTML += '<i style="background: #CAC428"></i> <span>Narragansett
Village</span><br>';
        div.innerHTML += '<i style="background: #CB8427"></i> <span>Wampanoag Vil
lage</span><br>';

        return div;
    };
```

Notice that for the legend showing colors, we're using the HTML <i> tag, which is set to be the small colored square that we want in the provided CSS. Then, the corresponding text gets placed within a <span>.

Finally we call .addTo to add the legend to the map:

```
legend.addTo(mymap);
```

A.3.9: Chronology/Time Period Switching

To set up the ability to switch between three distinct sets of geographic data for time periods, buttons are first established within the page's HTML using <div> elements placed underneath the map:

```
<div id="buttons" style="width:1200px; text-align:center">
    Select a time period to view locations: <br>
    <button type="button" style="display:inline-block; font-
size:16px;" onclick="prewar()">Pre-War (before August 1675)</button>
         
    <button type="button" style="display:inline-block; font-
size:16px;" onclick="wartime()">Wartime (About August 1675-April 1678)</button>
         
    <button type="button" style="display:inline-block; font-
size:16px;" onclick="postwar()">Post-War (after April 1678)</button>
</div>
```

Notice that the "onclick" attribute for each button calls a corresponding JavaScript function which actually performs the switching process.

Here's an example of one of the functions which perform the actual switch, with this function switching to the "prewar" time period:

```
function prewar(){
        mymap.eachLayer(function (layer){   //remove all current layers from the m
ap
            mymap.removeLayer(layer);
        });

        mymap.addLayer(MAP);    //add topographic baselayer
        mymap.addLayer(preLayerGroup);  //add the layer group with appropriate pr
ewar layers

        mymap.removeControl(layersControl);   //remove current layer control

        layersControl = L.control.layers(baseMaps, preOverlayMaps).addTo(mymap);
 //add new appropriate layer control
    }
```

This function essentially removes all current layers and layer controls, then adds the correct layers (in this example, MAP is the baselayers and preLayerGroup is a variable that represents a group of layers, we will get back to this) as well as a new LayerControl with the correct set of options (baseMaps and preOverlayMaps).

Notice how preLayerGroup was used here. Groups of layers have been established so that the individual names of all the appropriate layers for a time period don't need to show up in this call to L.control.layers. Here's the code for establishing preLayerGroup:

```
var preLayerGroup = L.layerGroup([PRECOLTOWNS, PREOLDPRAYTOWNS, PRENEWPRAYTOWNS,
PRENIPMUCVILLAGES, PREWAMPANOAGVILLAGES, PRENARRAGANSETTVILLAGES]);
```

Appendix B

B.1: Color-Coding for Icons

Color	Hex Code (Outline)	Hex Code (Fill)
Blue	#3274A3	#2A81CB
Yellow (Gold)	#C1A32D	#FFD326
Red	#982E40	#CB2B3E
Green	#31882A	#2AAD27
Orange	#98652E	#CB8427
Dark Yellow (Yellow)	#988F2E	#CAC428
Violet	#742E98	#9C2BCB
Gray	#6B6B6B	#7B7B7B
Black	#313131	#3D3D3D

Table B.1.1. The color-coding scheme adapted for use in this map. (From Vladimir Agafonkin (@mourner), CloudMade, and Thomas Pointhuber (@pointhi), "leaflet-color-markers," Sept. 21, 2020, *GitHub*, https://github.com/pointhi/leaflet-color-markers)

B.2: Icons Up Close

B.2.1. Praying Indian town. Adapted from Swampyank, *Eliot_Church_and_John_Eliot_plaque_in_South _Natick_MA_USA_Site_of_First_Indian_meetinghouse_built_by_John_Eliot_and_Natick_Indians_His_disciple _Daniel_Takawambait_succeeded_to_the_pastoral_office_in_1698.jpg* and *Eliot_Church_Unitarian_ Universalist_in_South_Natick_MA_USA.jpg*, Oct. 25, 2020, Photographs. From Wikimedia Commons. CC-BY-SA-4.0, Swampyank is not affiliated with this project or its creators.
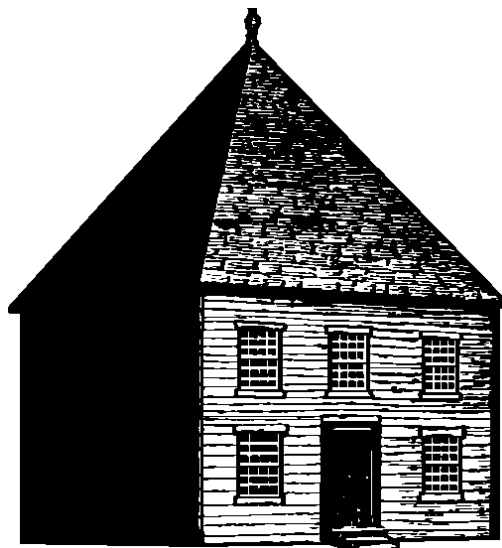
B

.2.2. Colonist towns. Adapted from *First Meeting-House in Hartford* (Illustration in *Our Country's Story: An Elementary History of the United States.* By Eva March Tappan. Boston: Houghton, Mifflin and Company,
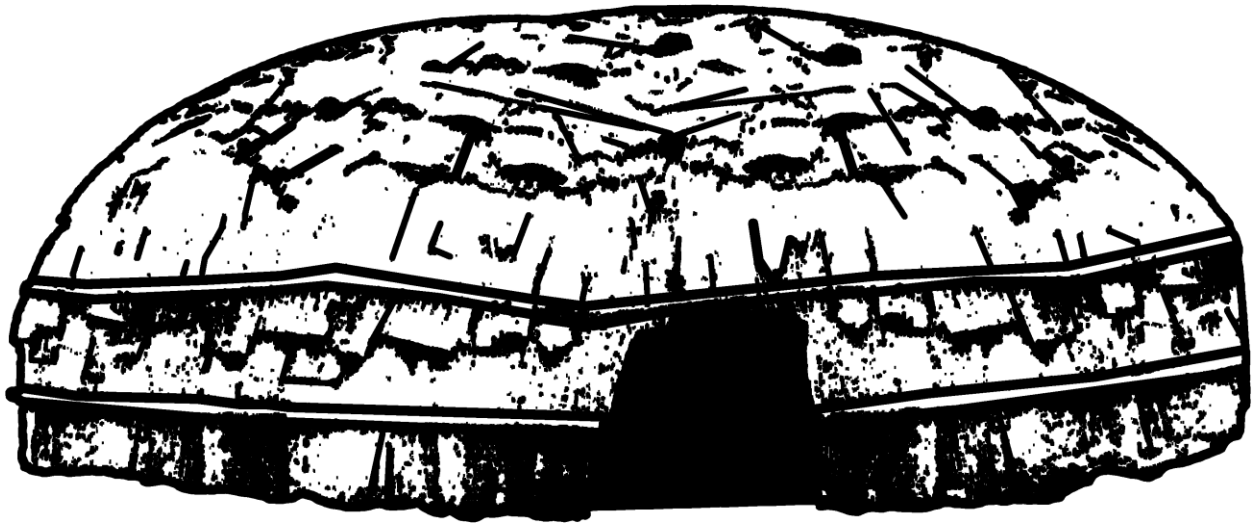
Figure B.2.3. Indian villages. Adapted from Nicolás Boullosa. *this communal wetu would shelter 3 families,* Aug. 16, 2014. From Flickr. CC-BY-2.0, Boullosa is not affiliated with this project or its creators. https://flic.kr/p/piXqkf
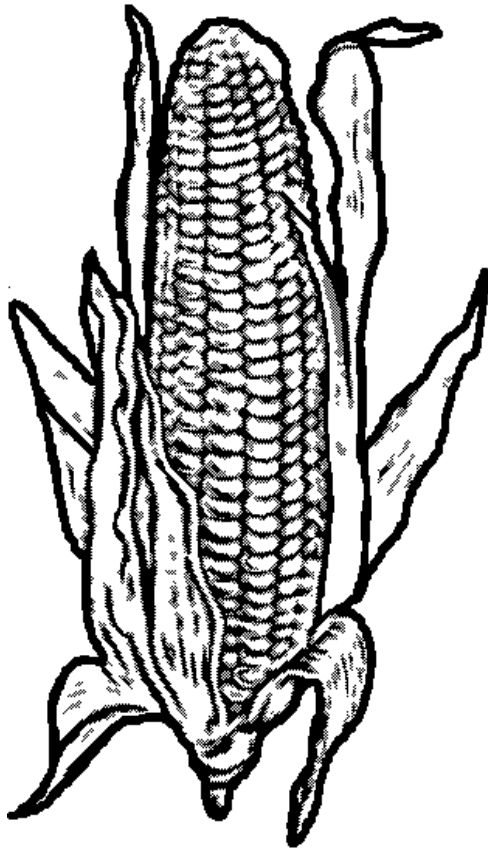

Figure B.2.4. Planting grounds. Adapted from *Public domain color vintage thanksgiving greeting 3*, Elissa Capelle Vaughn, Nov. 8, 2015. From Free Vintage Illustrations. Public Domain. https://freevintageillustrations.com/public-domain-color-vintage-thanksgiving-greeting-3/
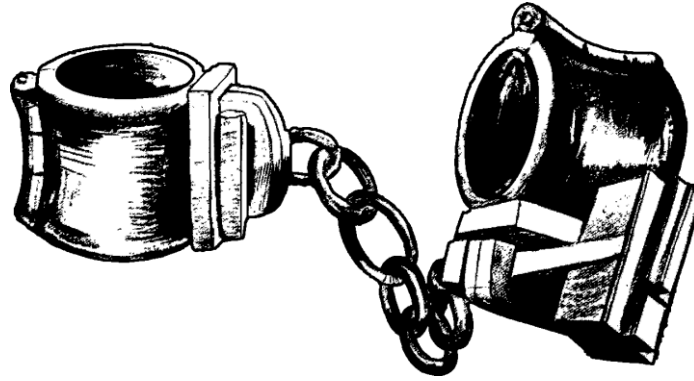
Figure B.2.5. Location of captivity. Adapted from *My Handcuffs* (Illustration in *In the Forbidden Land: An Account of the Journey in Tibet, Capture by the Tibetan Authorities, Imprisonment, Torture, and Ultimate Release*, 2nd impression, vol. II. By Arnold Henry Savage Landor. London: William Heinemann, 1898, 128). From Flickr. Public Domain. https://flic.kr/p/icSNK4
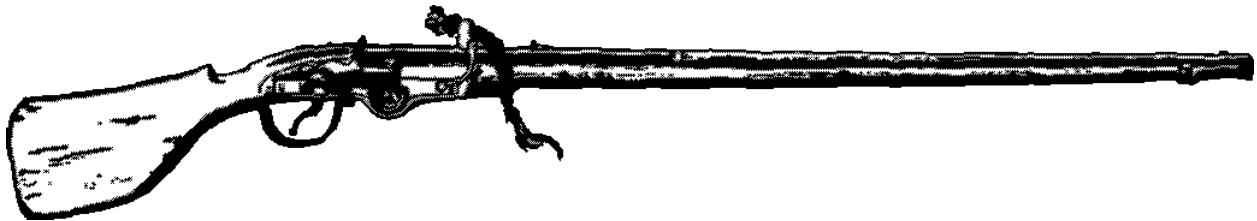

Figure B.2.6. Sites of violence. Adapted from *Matchlock-Gun* (Illustration in *The Household History of the United States and Its People*. By Edward Eggleston. London: Macmillan & Co., 1889, 112). From Flickr. Public domain. https://flic.kr/p/hVYgGj

Figure B.2.7. Fishing spot. Adapted from *Portage*, by johnny_automatic (*A Portage*, an illustration in *An Old Wolf's Favourites: Animals I Have Known*. By Sir Robert Baden-Powell. Philadelphia: J. B. Lippincott Company, 1922, 97). From Open Clip Art. CC0-1.0. https://openclipart.org/detail/19242/portage. Also adapted from *Wood Burned 012*, by TexturesForFree, Dec. 24, 2020. From TexturesForFree.com. CC0-1.0. https://texturesforfree.com/picture/3112-wood_burned_012/tags/201-wood_paneling