Spring 2001

The Search for Vinland: Reconciling Literature and Archaeology

Clifford W. Anderson
Old Dominion University

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THE SEARCH FOR VINLAND:

RECONCILING LITERATURE AND ARCHAEOLOGY

by

Clifford W. Anderson
B.A. May 1997, Virginia Wesleyan College

A Thesis Submitted to the Faculty of Old Dominion University
in Partial Fulfillment of the Requirement for the Degree of

MASTER OF ARTS

HISTORY

OLD DOMINION UNIVERSITY
May 2001

Approved by:

Kathy L. Pearson (Director)

Annette Finley-Croswhite (Member)

Douglas G. Greene (Member)
ABSTRACT

THE SEARCH FOR VINLAND:
RECONCILING LITERATURE AND ARCHAEOLOGY

Clifford W. Anderson
Old Dominion University, 2001
Director: Dr. Kathy L. Pearson

It is now generally accepted that Columbus was not the first white European to have visited or attempted colonization of North America. It is also generally accepted that the only hard evidence available on the subject suggests that Norse settlers made the first attempt around 1000 CE. The term most often associated with the Norse settlement in question is “Vinland.” However, several scholars are unwilling to associate Vinland with the location of the relevant archaeological find at L’Anse aux Meadows, Newfoundland. Utilizing an analysis of the two sagas that refer to the settlement and an authentication of the cartographical evidence, this study will attempt to reconcile literature, archaeology and geography.
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CHAPTER I
INTRODUCTION

In 1992, the five hundredth anniversary of the landing of Columbus was celebrated. This celebration was carried out primarily in Italy and Spain (home and employer of Columbus respectively), but also in Pasadena, California and a host of other U.S. locations. What is it that was being celebrated, exactly? Was it the "discovery" of the New World? Columbus certainly did not do that. What is more, he probably never realized that the area he happened upon was not part of the East Indian Archipelago. Before sailing, Columbus had done a great deal of research on the subject and, while it is difficult to prove, it is now believed that he was aware of the "Vinland" legend. So, it seems that the Norse were the first known European explorers of the New World and certainly the first such colonizers. There is the possibility that the Irish "Brendan the Navigator" may have reached North America first, but this theory has not yet been substantiated by any authentic archaeological finds. It seems that the Norse were part of the motivation for Spain's colonizing attempt (the Vinland story being a substantial plank of Columbus's argument that one could sail west and find land). For many years, school children have been taught that Columbus was the discoverer of America. "In 1492, Columbus sailed the ocean blue." While the statement itself is obviously correct, the claim concerning Columbus's discovery is a falsification that reveals a cultural need to uphold heroes as role models and provide a simple explanation of "America's" origin.

The format for this thesis follows current style requirements of Kate L. Turabian, A Manual for Writers of Term Papers, Theses, and Dissertations, Sixth Edition.
Although Columbus did inaugurate the first major colonization of the Americas by Europeans, he certainly was not the first European to land there or attempt some sort of colonization.

This is not to say that the entirety of American popular culture upholds Columbus as a positive figure. Many groups, especially Native American interest groups, have tried to emphasize the negativity of Columbus’s exploits. They have also downplayed Columbus’s arrival in the New World as mere exploitation in the overall scheme of things. That is, they have portrayed his mission as one of purely imperialist goals. This is somewhat inaccurate, as the Spanish motivation to finance Columbus’s journey was based upon a desire to obtain eastern goods that the expulsion of the occupying Muslim forces and their traders in 1492 denied them. Whatever the motivation, it is impossible to downplay the importance of the beginning of extensive European contact with the New World. The “imperialism” that is now denounced is responsible for the existence of the modern international community. Some historians, such as J.M. Blaut, argue that the rise of the West and Europe were based entirely upon the colonial age that followed Columbus’s “discovery.” His theory postulates that there were many nations of the Old World that might have achieved international dominance in the military and economic spheres, given the first shot at the resources of the Americas.\(^1\) If we accept this as a possibility, then Columbus’s journey does have concrete significance despite criticism of early modern motives. If Columbus’s journey did have a large impact on the development of the modern world, then the Norse journey to North America, which

preceded Columbus's journey by about five hundred years, is as important since it was the basis for Columbus's voyage.

It is the legend of Vinland that carries the most weight. The concept of an earthly paradise where grapevines and wheat grew naturally was a large factor in motivating European expansionism. It is true that at first the Norse would not have been interested in publicizing their find. Rather, they would have kept the existence and location of Vinland to themselves. Despite this, word did get back to mainland Europe of the "Wineland's" supposed existence. The story undoubtedly reached the continent in a different form than the Norse had told it. It is possible that the term Vinland was actually invented by mainland Europeans, as Adam of Bremen was the first to record it. The extra baggage that the story acquired helped to build up the image of a "Wineland" in the minds of European listeners already obsessed with the search for a paradise on earth or land of plenty. Thus it was that when capable navigators finally attained the sponsorship needed to make a venture overseas, the Vinland legend was probably employed to convince sponsors of the Voyage's worth. This theory is supported by Columbus' expected sailing distance, which was approximate to the distance between Europe and North America, and his visit to Iceland in 1477 (ostensibly to obtain such information). In fact, it has been suggested by Vilhjalmur Stefansson that the Spanish government and the Pope appointed in 1492 (who was also of Spanish origin) conspired to obscure any foreknowledge of lands across the Atlantic, possibly so that Spain might lay full claim to

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any such land upon discovery. This cannot be proven by any authenticated document or other reliable means.  

Where is the North American land that was first spotted and colonized, albeit unsuccessfully, by the Norse? Where is the land responsible for the story that inspired European expansionists to find this New World and catalyze the rise of the West to "world dominance?" If the second of these lands was not fantastical, then the two locations are the same. This study reevaluates the so-called Vinland Sagas, and the two most prominent of the several medieval and early modern maps that portray Vinland (the Stefansson Map, the Vinland Map, the Resen Map and the Hungarian Map) and attempts to make the results agree with the archaeological evidence recovered from L'Anse aux Meadows. This will be followed by an assertion of the most likely location of the Norse Vinland. An analysis of the sagas should determine what, if any, valid characteristics they attribute to Vinland. The maps will be analyzed to determine if their origins are genuine and if so, what they contribute to the search for Vinland. Finally, a conclusion will be rendered which places these analyses within the context of the Ingstads' find in Newfoundland.

The Icelandic Sagas are not the oldest recordings of the journeys to Vinland. Several independent sources make mention well before the sagas were ever written. Adam of Bremen made the first recording of the Norse journey to Vinland in the 1070's. Iceland's famous historian Ari Thorgilsson made the next verifiable recording in the 1120's. The two sagas that mention Vinland are the Graenlendinga Saga and Erik's Saga Rauda: the Greenlander's Saga and the Saga of Erik the Red. It seems that the

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former was written in the late twelfth century and the latter during the middle of the thirteenth. For this reason, many have suggested that the Saga of Erik the Red might be based upon the Greenlander’s Saga. Instead, it is now believed that both sagas derive from a common document which is now lost, and that there were probably several versions between the originals and the copies that have survived. The oldest copy of the Greenlander’s Saga still in existence can be found in the Flateyjarbok and was penned in northern Iceland between 1382 and 1395 for a rich Icelandic agriculturalist named Jon Hakonarson. It holds a wide variety of sagas and is the largest of the Icelandic vellum codices. It was also a family heirloom for generations until it was given as a gift to an Icelandic bishop who then entrusted it to the royal family of Denmark in the 1600’s. Four paper copies currently reside in the Royal Library in Copenhagen. The Greenlander’s Saga is generally considered the more reliable of the two Vinland Sagas.

Despite this seemingly straightforward history, the Greenlander’s Saga is no longer available as a whole from any one source. Instead, the existing version has been pulled from the Great Saga of Olaf Tryggvason. This work is actually an extensive compilation of sources treating the reign of King Olaf Tryggvason over Norway from 995 to 1000. It includes a description of his conversion of Norway to Christianity and his foundation of the Scandinavian Church. The Greenlander’s Saga had been combined with this work and the opening sections were lost during the joining. As a result, the opening chapters available from Hakonarson’s version have been borrowed from a late

\footnote{Magnus Magnusson and Hermann Palsson, introduction to The Vinland Sagas: The Norse Discovery of America, trans. and eds. Magnus Magnusson and Hermann Palsson, (London: Penguin Books Ltd, 1965), 30.}

\footnote{Ibid., 24-30.}
version of Iceland’s *Landnamabok*. Interestingly enough, this is itself part of Ari
Thorgilsson’s compilation of the *Islendingabok* around 1127.7

The *Saga of Erik the Red* survives in two variants: the *Hauksbok* and *Skalholtsbok* codices. Hauk Erlendsson and his two secretaries wrote the former in Iceland during the early 1300’s. The latter was compiled in the late 1400’s and both manuscripts now reside in Arnamagnaean Library in Copenhagen. Both versions of *Erik the Red’s Saga* originate from a common document, but although the *Skalholtsbok* codex is less polished, it remains faithful to the original while Erlendsson and his secretaries were inconsistent in their work with each man contributing his own distinctive touches. It seems that Erlendsson and his secretaries were prone to individual flights of fancy or had different interpretative motives. Sven B.F. Jansson has proven this to be the case in his line-by-line comparison of the two versions.8

Much is likely to have been changed even in the more reliable version, because it is obvious that the first two chapters of *Erik the Red’s Saga* have been copied almost verbatim from Iceland’s *Landnamabok* in both versions. They do not directly address the discovery or colonization of Vinland, but the borrowing raises questions about the saga’s origin and hence its reliability. Perhaps more important is the saga’s mention of Leif Eriksson’s christianizing mission. According to the fifth chapter of *Erik the Red’s Saga*, King Olaf Tryggvason sends Leif back to Greenland with the purpose of converting the country and on the way back he discovers Vinland accidentally. Today the academic community accepts that Professor Jon Johannesson of Iceland has proven this to be false.9

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7 Ibid., 24-33.
It appears that this story was invented by an Icelandic monk named Gunnlaug Leifsson who wrote a biography of the aforementioned King Olaf in the late 1100’s. In truth, Olaf converted five “countries” to Christianity: Norway, Iceland, the Orkneys, the Shetlands and the Faeroes. However, Leifsson originated a change in the history to include Greenland. The change was detected because some histories kept the original figure of five while adding the name of Greenland to the list. Johannesson traced the origin of the discrepancy to Leifsson’s work. Although this inaccuracy plagues both versions of *Erik the Red’s Saga*, at least one version must be analyzed, as there are only two sagas that mention Vinland at all. The analysis to follow is based upon a translation of the *Skalholtsbok* rather than the *Hauksbok*, as it is a more consistently reliable source.

The oldest map that includes a potentially genuine rendering of Vinland is called the Vinland Map. Believed to have originated in the mid to late fifteenth century Rhineland, it is thought to be a contemporary of Andrea Bianco’s world map of 1436. The historian Alexander Victor obtained it from an antique book dealer in New Haven in October of 1957. Since that time there has been a great deal of controversy over the map’s status due to the chemical composition of the ink as opposed to the parchment. The difference implies that at least a portion of the map might be a forgery. Currently, the map is in the possession of Yale University, but it remains uncertain as to whether the map is genuine or not. A highly partisan debate regarding the map’s status and chemical composition is ongoing and shall be addressed in chapter three.

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Another surviving early map of Vinland is the *Skalholt Map*. Sigurdur Stefansson of Iceland drew it in approximately 1590. Unfortunately, the original draft has been lost, but the Icelandic Bishop Thordur Thorlaksson made a copy in 1670. Most historians prior to 1965 (among them Gustav Storm) believed that this map was drawn based upon the descriptions of the sagas and therefore had to be of little geographical worth.

In the early 1960's Helge Ingstad discovered a map within Hungary in the possession of an archivist named Geza Szepessy who supposedly rescued it from a Nazi treasure trove at the end of the Second World War. The first print of this map was published in Helge Ingstad's *Westward to Vinland* in 1965. For the most part, the map resembles the *Skalholt Map* and is dated to 1599. Many are of the opinion that the map is a hoax (carried out by the aforementioned archivist), but even if it was not it offers little that the *Skalholt Map* does not.

The latest map to record Vinland's presence is the Resen Map. Drawn by Hans Poulsen Resen in 1605, it is related to the *Skalholt Map*, but cannot be a derivative because it bears a Latin text that claims the Resen Map is based on a map one hundred years its senior. It seems likely then that the Resen Map and the *Skalholt Map* share a common ancestor.

The majority of archaeological evidence related to Vinland was found at L'Anse aux Meadows, Newfoundland in the form of several house-sites and a bog iron forge. These sites represent the only authenticated Norse settlements of North America and were originally excavated by Anne Stine Ingstad between 1961 and 1968. Birgitta

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13 Ibid., 84-85.
Wallace and Parks Canada carried out later excavations. This study will draw primarily upon the volumes of material published by Ingstad on the subject.\(^{14}\) Dr. Thomas E. Lee located the only other North American settlements that might have been Norse on the Ungava Peninsula during the 1960's, but he stands alone as a believer in the site's Norse origin. For the most part, authors have used the available archaeological evidence to support the conclusion that the site at L'Anse aux Meadows is in fact a Norse site or to imply that it could not have been the Vinland described in the sagas. This paper will assert that the finds indicate Newfoundland as Vinland when viewed within the framework of all other evidence.

The secondary literature on the location of "Vinland" is abundant. For the most part, assertions of its location were confined to unrealistic locales, Nova Scotia or the Cape Cod region until 1949. Some placed it as far south as Florida, or as far north as the Hudson Bay, or even in Alaska! There are various fantastical opinions, but most reliable authorities on Viking history place Vinland somewhere in eastern Canada or New England. Gustav Storm put forth one of the earliest theories in 1887. He maintained that Vinland must be Nova Scotia. This conclusion was reached purely through interpretation of the Sagas, as there was no concrete archaeological evidence available at that time.\(^{15}\) Soon after, Storm's theories went out of style due to increasing popular interest and the assertion of fantastical possibilities. The discoveries of artifacts like the "Kensington Runestone" and the "Norse Axe" resulted in all sorts of wild theories that Vinland was in


Minnesota or Ontario. Such theories found acceptance with the public because they stimulated the imagination. After the wave of public sentiment slowed, historians picked up the pieces and started again.

The search for Vinland must be multi-faceted in order to achieve success. Those scholars whose work will be mentioned in the search have been able to rely upon five approaches: literary analysis of the sagas with an intent to follow the courses of the colonizers/discoverers, literary analysis of the sagas with an eye towards using the defining agricultural and geographical characteristics of the land in question to locate it, analysis of other documents that mention Vinland, cartographical analysis of the various maps found to treat the area and the search for archaeological "proof" of Norse settlement. The evidence available in these areas is very limited and often contradictory, meaning that an attempt must be made to reconcile the sources or that some of the information is unreliable and must be labeled so. Therefore, the value of every source must be ascertained.

Despite the controversy surrounding the literary sources treating the subject, scholars have had little choice but to give pride of place to them. Can literature like the Icelandic Sagas be trusted to provide reliable historical evidence? In many cases, these works were inspired by real events. The figures about which the sagas were written were certainly real. It is important to keep in mind that the sagas were written hundreds of years after the events described in them and the accuracy of the recorded version of events is open to question. In addition to being recorded well after the fact, descendants of the participants often recorded the sagas; yet another reason to view them critically.
Is it plausible for us to consider these works realistic portrayals of events occurring during the tenth and eleventh centuries? It is plain that the authors of the sagas took some liberties when recording these accounts. What then is the significance of that fact? Should the details of the sagas be ignored because not all of them can be proven accurate or even useful? Even Helge Ingstad, who must be considered a believer in the historical value of the sagas, discounted large portions of the sagas including the descriptions of grapes that are responsible for the name “Vinland.”¹⁶ Should all second-hand historical sources be disregarded? Those who search for the “land of wine” cannot embrace such a philosophy. Much of what is in the sagas is known to be factual, and virtually all who have joined the hunt have been forced to rely upon the sagas in some respect. No modern approach can exclude them.

The reader must decide what details to pursue. Obviously, many of the biographical details and colorful descriptions of faraway lands have been molded to suit the purposes of the authors or coincide with what they had been led to believe. The sagas must still contain information that can be utilized whether it is truthful or not. There are also several facts within the sagas that cannot have been embellished to the point of uselessness or even fantasy. Given this basic assumption, the sagas will be analyzed for information that cannot be sensationalized or for information that even when sensationalized, remains useful as factual information. This information shall then be used to construct supportable points.

Information of this kind includes key players, known places of habitation, known routes, suspected routes, professed locations, professed characteristics and identifiable

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¹⁶ Helge Ingstad, 70-73.
characteristics. From this information, it should be possible to determine the region to which the majority of sources point and then confirm or deny this assertion through archaeological analysis. This thesis then aims to reconcile the literature and the archaeology.

In addition to ascertaining what information the sagas provide, it must be determined how that information compares with the mentions made of Vinland in other sources. These sources include the *Islendingabok* of Ari Thorgilsson, the chronicle of Adam of Bremen and whichever maps are determined to be legitimate. Clearly, the sagas are more likely to match the information provided by an Icelandic historian than a German one, but the latter claimed that his information was obtained from the “trustworthy” accounts of the Danes. What was behind these accounts if they were not truthful? After all, the accounts that reached Adam of Bremen did so more than a hundred years prior to the writing of the Vinland Sagas. Why so?

It is paramount that the importance of each piece of evidence be evaluated in the context of the find at L’Anse aux Meadows. This discovery demonstrates that the Norse visited North America and probably made the colonization attempt described in the sagas.

In 1921, G.M. Gathorne-Hardy published *The Norse Discoverers of America: The Wineland Sagas* as the first reappraisal and retranslation of the sagas with an eye towards locating Vinland since Gustav Storm’s attempt in the late nineteenth century. Although some work had already been attempted along these lines, this book was the first to break new ground since Storm. Interrupted by Gathorne-Hardy’s service in World War I, this study was completed and published after the war’s completion. It is divided into a
translation of the Vinland Sagas and a discussion of the relevant evidence, including the Stefansson Map and the Kensington Runestone. Gathorne-Hardy champions this latter find as legitimate despite the academic community’s condemnation of it on linguistic grounds during his own time period. The author did not have the advantage of current research regarding such artifacts, but the work was republished in 1970 with a new preface by the author and an introduction by Gwyn Jones.

The preface does mention the Ingstad discovery of 1960, but does not actually address its impact on Gathorne-Hardy’s work. That is to say, the work’s assertion that Vinland (and the Straumsfjord mentioned in the sagas particularly) was Long Island Sound is not changed despite mention that Ingstad’s discovery implies Vinland must be near Newfoundland. Neither is the academic community’s continuing condemnation of the Kensington Runestone mentioned. Therefore, the work’s place remains within the 1920’s regardless of the republishing. The work does revive the academic battle over which saga is more accurate. In this, Gathorne-Hardy upholds the “Flately Book” as untainted due to its supposed Greenland origins. This implies that the “Hauk’s Book” and the “Skalholt’s Book” have become tainted due to their origins in the convoluted arena of Icelandic literature. This is somewhat odd considering the term “Straumsfjord” upon which Gathorne-Hardy bases so much of his work refers to an encampment mentioned in the “Hauk’s Book.” Despite this, it is in taking this stance on translation that Gathorne-Hardy’s work means the most in a current study of Norse colonization in North America.

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Following Gathorne-Hardy’s work, Edward F. Gray published *Leif Eriksson: Discoverer of America A.D. 1003* in 1929. Like Gathorne-Hardy, Gray concentrated on solving the problem of the conflicting saga accounts to locate Vinland. Also like Gathorne-Hardy, Gray came to the conclusion that Vinland was in New England, but he placed *Straumsfjord* in Nantucket Sound instead of Long Island Sound. In addition to translation, Gray utilized horticultural and geological disciplines to determine how the coast of New England matched the descriptions of the sagas. Ultimately, the greatest value that Gray’s work holds today (as with Gathorne-Hardy’s work) lies in his stance on the worth of both the relevant sagas. The second chapter of Gray’s work is a documented mixture of translations from both the Flately Book and the Hauk’s Book, which provides a continuous story regarding Vinland’s location. In this manner, he claims to have solved the discrepancy by obtaining all the valid information each book has to offer on the subject. Despite this claim, in beginning his next chapter, entitled *The Geography of Vinland*, he relies solely on the Flately Book to determine the actual latitude of Vinland.\(^\text{18}\) In doing so, he sides with Gathorne-Hardy concerning the validity of the two sagas.

In 1940, Hjalmar R. Holand changed the focus of the Vinland search by concentrating on the archaeological evidence then available. In doing so, he lent credibility to the Kensington Runestone and Norse Axe finds (which are currently discredited). He spent time analyzing the viability of various other controversial artifacts and sites, most of which were located far inland in such locations as Minnesota. However, his assertions that the Norse may have explored lands that were previously thought to be far beyond their reach had little or no bearing on the probable location of

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Vinland or Leif Eriksson's homestead. In fact, Holand's theory regarding that location appears to have been no different from that of Gathorne-Hardy or Gray. He placed the southern limit of Vinland in the Cape Cod/Nantucket region. The salient difference between Holand's work and that of the prior two authors is his decision to avoid addressing the issue of the sagas' conflicting accounts. Therefore, the enduring value of his work is in his attention to the archaeological finds because there had been no major scholarly works analyzing the importance of these finds in relation to Vinland's location.

In 1949, Edward Reman published *The Norse Discoveries and Explorations in America*. He refuted all previous works that attempted to locate Vinland by evaluating the Sagas in terms of precise distances and sailing times. Instead, he considered the lands mentioned in the Sagas in terms of general regions. This allowed him to make more realistic assertions that Vinland was somewhat closer to Greenland, the origin of colonization attempts. Specifically, he supposed that Leif's houses were on the New England coast and probably in Maine. He argued for more general interpretation of the Sagas for these purposes because he thought it unlikely that the landfalls made by the three Norse expeditions were made at the same locations. Reman also addressed the textual issue more equitably by supporting both the Icelandic (Hauk's Book) and Greenlander versions as useful, but tended to utilize the latter for the purposes of tracing the voyages to Vinland. It should be noted that Reman's equitable treatment of the sagas resulted in an analysis of *Erik the Red's Saga*, which placed Karlsefni's *Hop* on the

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west coast of the Hudson Bay. Due to its climate, this location is not particularly realistic. This implies a division of reliability between the sagas, as Reman relies upon *Erik’s Saga* to trace Karlsefni’s voyage and upon the *Greenlander’s Saga* to trace Leif’s voyage. Reman’s work is most valuable today because it marks a turn towards realism in the line of study directed at the Greenlander’s Saga and Vinland particularly. After the publishing of *The Norse Discoveries and Explorations in America*, scholars looking to find Vinland looked much closer to Greenland for their answers.

In 1956, Hjalmar Holand published a second work dealing with the Norse exploration of America entitled *Explorations In America Before Columbus*. The work is a reinforcement of his earlier assertion that Vinland was Cape Cod. He did not address the text variation issue directly, but again concentrated on archaeological evidence. Holand had further evidence to present in the form of the Newport Tower and the Mooring Stones of Follins Pond in Cape Cod. He claimed that the tower was actually the headquarters for the Royal Norwegian Expedition of 1355. Frederick J. Pohl, who acted on Holand’s suggestion, found the mooring stones and theorized that Norse visitors used them, as evidenced by several drill holes, although Holand admitted that they might have been put there by colonialists centuries later. Further, Holand postulated that Cape Cod is the only viable location of Vinland for topographical and navigational reasons, and took a stand on the mention of grapes in the Sagas. His work states that the southern German that the Vikings had with them could not have mistaken any other sort of berry for a grape. Since Holand believed Cape Cod was the furthest north that wild grapes could be found and the furthest south that salmon could be found, he determined that no other location was viable. Today, neither the mooring stones nor the tower are considered
Norse, but the basis for Holand’s placing Vinland in Cape Cod is logical because he did not demand that the routes described in the Sagas be examined too specifically. Instead, he demanded closer scrutiny of those regions that might qualify.21

An apparent breakthrough occurred in 1960 when Helge Ingstad found a Norse settlement at L’Anse aux Meadows in northern Newfoundland. His wife, Anne Stine Ingstad, excavated the site but this did not settle matters. The presence of a small group of Norse dwellings did not and does not indicate the location of Vinland conclusively. In fact, when others examined the site, they reached different conclusions. Birgitta Linderoth Wallace came to the conclusion that Vinland must be further south, and based this supposition on the presence of butternuts at the L’Anse aux Meadows settlement, which could only have been obtained further south. Wallace maintained that Vinland must be to the southwest on the Gulf of St. Lawrence, perhaps Nova Scotia—a return to Storm’s theory.22

The first major work to be published on the subject of Vinland after the archaeological find at L’Anse aux Meadows was Gwyn Jones’ The Norse Atlantic Saga: Being the Norse Voyages of Discovery and Settlement to Iceland, Greenland, and North America. Logically enough, this work placed Vinland in northern Newfoundland. It also laid out a rationale for this location that takes most of the important factors into account. Not only is the find mentioned, but Jones also points out that many of the works published up to that point had not addressed the issue of changes in horticultural development in eastern Canada over the centuries. Although grapes could not be found

in Newfoundland when this book was published, Jones explains that more than one French explorer during the sixteenth and seventeenth centuries (including Jacques Cartier) did find grapes in the region, along with wild corn that could be mistaken for rye or oats. Jones also points out that since the Sagas mention more than one journey south from Leif’s houses, the lack of grapes in northern Newfoundland would not preclude its identification as Vinland. The textual issue is addressed through the statement that despite the differences between the Flateyjarbók and the Hauksbók, the works are certainly not irreconcilable in terms of finding Leif’s houses. This seeming equitable treatment was briefly discarded as Jones tried to discredit the Hauksbók by pointing out all of its factual errors and fantastical postulations such as Unipeds. This work’s value in the given context is based in its attempt to reconcile archaeology and the Sagas, but the book’s primary focus is on the settlements of Iceland and Greenland.23

In 1965, Helge Ingstad published Westward to Vinland: The Discovery of Pre-Columbian Norse House-sites in North America. An English version followed by 1969, one year after the excavations were finally finished at L’Anse aux Meadows. It includes descriptions of Ingstad’s journeys along the eastern coast of North America in search of Vinland and other places mentioned in the sagas, descriptions of the excavation’s beginnings and a discussion of the various maps of Vinland. These maps are the Hungarian Map that Ingstad himself happened upon and the Stefansson and Resen maps that were already at the core of academic controversy. He did not discuss the Vinland Map as it had been recently discredited at the Vinland Map Conference. He did make

comparisons between the three maps then considered to be authentic, with his conclusion being that they were all drawn from a common origin and that they indicate his find in Newfoundland as Vinland. The work stood alone in this respect, because although other authors had mentioned the maps prior to Ingstad’s discovery, they had not been able to utilize them to prove their theories that Vinland lay further to the south, except to vaguely match the promontory outline with some geographical formation nearby. Given Ingstad’s find and his use of the maps, it only makes sense that his work attempted to reconcile the two sagas by giving each equal weight.\textsuperscript{24}

In 1972, Frederick J. Pohl, the man who had spotted the mooring stones in Cape Cod at Hjalmar Holand’s request, published his own work regarding Vinland’s extent: \textit{The Viking Settlements of North America}. The work utilized Pohl’s translations of both the Iceland and Greenland versions of the journey. Like Ingstad, Pohl saw both versions as valuable and embraced perhaps the most logical approach to distributing that value. He lent greater weight to the Greenland saga when reviewing the voyages of Greenlanders and greater weight to the Icelandic version when reviewing the journey of Thorfinn Karlsefni, the sole Icelandic captain to attempt colonization. It is on Karlsefni’s voyage that Pohl’s work provides its most valuable material. He theorizes that Karlsefni’s camp (\textit{Hope}) was actually on the James River in Virginia. Naturally, Pohl utilized the \textit{Hauksbok} version of \textit{Erik the Red’s Saga} to obtain the descriptions needed to make that determination. The work also includes a comprehensive section on a substantial portion of the available archaeological evidence excepting Helge Ingstad’s find in Newfoundland, which he refers to once in a footnote without naming or exploring

\textsuperscript{24} Helge Ingstad, \textit{Westward to Vinland}. 
the implications thereof. Pohl seems convinced that the find in Newfoundland confirms it as “Greater Ireland,” a haven for traveling monks. Oddly enough, despite the date of the work's publication, Pohl makes no archaeological evaluation of the site at L’Anse aux Meadows.25

The same year, James Robert Enterline published *Viking America: The Norse Crossings and Their Legacy*. Unlike many of his predecessors, Enterline was not linguistically equipped to translate the sagas into English himself and instead drew upon various other translations of both sagas for the details necessary to locate Vinland. Despite this, he strongly advocated the alternate translation of the term “Vinland” meaning Pastureland instead of Wineland because, according to his interpretation, the sagas indicate that Baffin Island must be the Helluland and the Markland mentioned in the sagas. He placed Vinland on the western shore of Ungava Bay and referred to a number of supposedly Norse house sites in the region that were excavated by Thomas E. Lee. As carbon dating indicated that the site was inhabited almost a hundred years after the Vinland era, he then credits these sites to the expedition of Bishop Gnuppsson in 1117. Unlike Pohl, Enterline does make mention of the find at L’Anse aux Meadows and maintains that the site’s existence is not proof that Newfoundland was Vinland. He was not alone in this, but unlike Birgitta Wallace he did not make the case based upon the site itself. Enterline concludes that Newfoundland might have been *Hvitramannalnd*, translated as the “Land of White Men” and alternately known as “Great Ireland.” An Icelander named Ari Marsson supposedly discovered this land in 980. Enterline’s book

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concludes by speculating about the end of the Greenland colony. He wonders whether or not they moved on to North America permanently, perhaps even to Alaska.²⁶

A large part of the debate concerning the location of Vinland is based upon linguistic interpretation. There are some scholars that maintain that the very word Vinland does not hold the meaning that was first assigned to it. Vin (properly expressed in Icelandic with an accent mark above the i) translates as wine, making Vinland the land of wine. James Robert Enterline proposed that Vinland actually meant pastureland (vin without the accent meaning a meadow or place of grass) and argued that Vikings would have had little use for (and would not have paid much attention to) grapevines, as they would not have been familiar with wine. The only alcoholic beverages they would have consumed, according to Enterline, would have been mead and beer. The Vikings would have been very interested in pastureland for their livestock. Despite the presence of viable pastureland in Newfoundland, Enterline does not favor it as Vinland.

The author who has covered the linguistic question most thoroughly is Erik Wahlgren. Published in 1986, his The Vikings and America focused on the available archaeological evidence and the textual issue with a critical eye. In reference to the former, Wahlgren did not focus solely on the find at L’Anse aux Meadows, but catalogued a large number of finds (primarily small artifacts) ranging from Ellesmere Island in the far north, to New England in the south, to Ungava Bay in the west. In addressing the authenticity of the finds, he discredits the Kensington Runestone and every find so far inland unless it is a coin or something similar which Native Americans might have transported there after having acquired it in trade, battle or salvage. Along

with discrediting the Kensington Runestone, he disparages Hjalmar Holand's work and accuses him of manipulating the public in the manner that a politician might, apparently in order to further his own position as an authority on the subject.

His perusal of the archaeological evidence results in little that might determine Vinland's location outside of Newfoundland, but he does not believe that L'Anse aux Meadows qualifies although he thinks it might have been Leifshudir or Karlsefni's Hop. Wahlgren also addresses the Newport Tower, Vinland Map and the long house at Ungava Bay. He says the same things about the former that all of its other detractors have, labeling it as an English colonial product from 1640 at the earliest. Wahlgren also discredits the Vinland map as a forgery by a Yugoslavian Catholic professor in 1922, as demonstrated by the presence of titanium dioxide in the ink that was used to pen in the "Vinland" portion of the map. The find that is not conclusively labeled authentic and is certainly not a forgery is the house at Ungava. It seems that most of the authorities on the subject consider it either a colonial or Eskimo site (Wallace, Schledermann, etc.), while the finder, Thomas Lee, maintained that it is Norse. He desired that others should investigate and confirm his belief.

Perhaps Wahlgren's most important work is on the textual issue. Instead of picking one of the sagas to uphold, he draws upon both and addresses the meaning of the term "Vinland." He points out that the term vin meaning pastureland was no longer used in the Icelandic language by the time of Leif's discovery, and had not been used in that context since 600 CE. The word for meadow in Leif's time was engi. Finally, he explains why a people whose only method of passing on their literature was verbal could
not have confused the pronunciation of the syllables *veen* and *vin*. Having determined that Vinland must indeed be the land of wine, Wahlgren claims that it must be beneath the northernmost reach of grapes on the east coast of America and above the southernmost habitation of salmon on the east coast. This places it latitudinally level with or above the Hudson River and level with or below New Brunswick. Hence, Wahlgren concludes that New England must contain Vinland and awaits an archaeological find to substantiate that conclusion.

In the summer of 1992, Mats G. Larsson revived the discussion of Gustav Storm’s theory that Vinland was somewhere in Nova Scotia. Larsson’s article *The Vinland Sagas and Nova Scotia: A Reappraisal of an Old Theory* attempts to match the characteristics described in the sagas with Nova Scotia as Storm had done. In doing so, Larsson mentions that Storm considered *Erik’s Saga* (the Hauksbok version) more reliable than the *Greenlander’s Saga*. It follows that Storm attempted to match characteristics of that saga with Nova Scotia. While it is almost universally accepted today that the *Greenlander’s Saga* is the more realistic of the two and that *Erik’s Saga* may have been a mere reconstruction, Larsson does not address this point any further in his article.

Larsson does attempt to match up the characteristics of geography, wild grape vines, self-sown wheat, salmon and native traits mentioned in *Erik’s Saga* with Nova Scotia. His arguments are fairly convincing, but some of them do not exclude Newfoundland as Vinland. In reference to the horticulture of the region, Larsson points out that early European explorers in the regions such as Alexander and Cartier observed grapes and vegetation that could have passed for self-sown wheat in Nova Scotia. Gwyn

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27 Erik Wahlgren, *The Vikings and America* (New York: Thames and Hudson Ltd., 1986), 140-143.
Jones had already pointed out that Cartier had the same things to say about Newfoundland. Larsson accepts that the grapes the Norsemen happened upon might have been currants, but these were also available in Newfoundland. His response to the find at L’Anse aux Meadows is that the region does not meet the qualifications of the sagas, but does not address whether or not southern Newfoundland might have done so. Neither does Larsson address the authenticity of the various maps.  

In January 1995, Geraldine Barnes reevaluated the primary literary and cartographical sources. In doing so, Barnes reviewed the Greenlander’s Saga and Erik the Red’s Saga thoroughly and decided that the evidence available can provide no definitive information regarding Vinland’s location. She concluded that the cartographical evidence offers no more insights, but did state that the geographical details in the sagas lead one to believe that the assertions of Reman, Wahlgren and Wallace that Vinland must be in Nova Scotia or New Brunswick are correct. During this review of the sagas, Barnes mentioned the generally accepted greater reliability of the Greenlander’s Saga but does not offer any analysis of the textual debate.

Barnes then pointed out that the characteristics described in the sagas are reminiscent of the Medieval European concept of a paradise on earth. She did not imply that such a literary influence means that Vinland did not exist, but did not offer a location of her own or throw her support wholly behind another scholar. Although Barnes mentioned Ingstad’s discovery at L’Anse aux Meadows, she did not address the possibility of Newfoundland as Vinland except to refer to Wallace’s theory. Neither did she address the importance of archaeological evidence found at L’Anse aux Meadows,

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28 Larsson, 305-335.
but rather used it (the butternuts) to imply a more southerly location. The chief value of Barnes’ work is its examination of the Medieval European search for paradise on earth and the effect that search might have had on the writing of the Vinland sagas.²⁹

Erik Lonnroth chose a different approach in 1996. Instead of following the courses of the voyagers in the Vinland sagas (as so many had done before him), he evaluated all of the primary literary sources available and engaged in a process of elimination. In doing so, Lonnroth demonstrates that Adam of Bremen’s account of Vinland’s location is based (contrary to Adam’s words) on some rather untrustworthy Danish reports. As evidence, he refers to all of the blatant geographical inaccuracies of Adam’s work and infers that they could only have been the result of misreports by the Danes. Lonnroth’s assertion is that some of the members of King Sven Estridsson’s court (the King being Adam’s chief informant) were having fun with the scholar, but he still addresses the placement of Vinland in Adam’s world.

According to Adam of Bremen, Vinland is east of Sweden. Investigating this, Lonnroth refers to the contention of Tatjana N. Jackson in her article “Location of Bjarmaland.”³⁰ She discusses the location of an island (Bjarmaland) in the White Sea at the mouth of the Dvina River. Lonnroth points out that this island would better fit many of the supposed characteristics of Vinland than would any island in the western Atlantic. As Vinland was supposed to have been visited often, this island would be a good candidate, not only because it would explain Adam’s directions, but also because Bjarmaland was the end of an oft-traveled northern trading route that connected Iceland

and Constantinople in the larger picture. The most obvious negative factor is that this island does not fit the horticultural description of Vinland and hardly qualifies as the paradise Adam describes. Lonnroth therefore wonders if the Vinland of Adam’s chronicle might be nothing more than a version of the paradise mentioned in the Navigatio Brendani. To dispel that idea, Lonnroth refers to Ari Thorgilsson’s Islendingabok and its mention of Skraelings in Vinland to demonstrate that the Vinland of the sagas is clearly in the western Atlantic and not necessarily fictional.

Lonnroth does not uphold one of the texts as more valid than the other, but discusses the different foci of each. He states that the saga mentions of Markland match up with mentions elsewhere and seem fairly realistic, but discounts the majority of what the sagas have to say about Vinland except geographical features that allow location. Lonnroth concludes that the search for Vinland need not include the search for grapevines but rather the former presence of Eskimos. The site at L’Anse aux Meadows is viable as Vinland, but he does mention that several of the artifacts excavated there carbon-date to the early tenth century. While some date to the early eleventh (supporting Newfoundland as Vinland), Lonnroth mentions that those dating to the early tenth suggest that the site at L’Anse aux Meadows might qualify as Hvitramannalnd. The research thus far is inconclusive regarding the latter land.

The subsequent chapter shall begin the process of source analysis through a step-by-step evaluation of the Vinland Sagas as they relate to the geography of North America’s east coast. Chapter three will analyze the relevant maps to determine their authenticity and their usefulness. Included in this analysis is a discussion of the extensive

debate surrounding the chemistry of the Vinland Map. Finally, the archaeological finds of Helge and Anne Stine Ingstad will be cited within the context of the prior chapters’ conclusions. A brief summary will recap the argument’s primary points.
CHAPTER II
THE VINLAND SAGAS

In words frothed with blood, he spoke of a village abandoned in the new-found-land.\(^1\)

Ted Benttinen, *Vinland Journeys, Stone and Paper*

In 1076, Adam of Bremen (a Catholic Monk) penned a sentence that has inspired the imaginations of many over the hundreds of years since. Not the least of these may have been the Europeans who "discovered" the New World. He described a land which is called Wineland because vines grow there of themselves and give the noblest wine. And that there is abundance of unsown corn (grain) we have obtained certain knowledge, not by fabulous supposition, but from the trustworthy information of the Danes."\(^2\) The Danes of that time period (between 900 and 1100 AD) are now referred to as Vikings or Norsemen. That is, they were Scandinavian sailors and raiders that mainland Christian Europe considered to be a sort of barbarian threat. The trustworthy Danes may or may not have been responsible for such stories, but Norse relatives of theirs did happen upon the New World and attempt to colonize a portion of North America during the late tenth or early eleventh century. Hjalmar R. Holand dates the colonization attempt to the year 1003 CE,\(^3\) but it now seems unlikely that this date is correct. Ostensibly, this dating is based upon the statement in "Eirik’s Saga" that Leif was sent to Christianize Greenland.

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by King Olaf Tryggvason and happened upon Vinland during the voyage. It is assumed that any such endeavor had to be contemporary to Iceland’s conversion in the year 1000. As it is now agreed that Leif was never sent to convert Greenland, there is little to suggest that Leif’s colonization attempt occurred after the year 1000. Different scholars provide different dates. Magnus Magnusson and Herman Palsson (the editors of the most recent translations of the Vinland Sagas into English), as well as Gwyn Jones date the attempt to 987 based upon the Graenlendinga Saga’s account of Bjarni Herjolfsson’s fateful voyage in the preceding year.

The most likely story, and the one currently accepted by the academic community, is that the Viking leader responsible for this colonization attempt is the now-famous Leif Eriksson (son of Eirik the Red, the original colonizer of Greenland). Although he is given credit for the discovery in Eirik’s Saga, the Graenlendinga Saga tells us that Bjarne Herjolfsson actually sighted the New World first after being blown off his course to Greenland (from Iceland) by a storm. Herjolfsson’s adventure is said to have occurred in the year 985, and upon reaching Greenland he told tales of his sighting. Leif Eriksson heard these tales, obtained directions from Herjolfsson, bought his ship and enlisted some of the original crew for a return journey. Late in the year 986, Leif sailed for the lands that Herjolfsson had visited and ultimately came to a forested place with a mild climate and many other pleasing features. Among these features were grapevines, wild grain and marvelous pastureland. Thus it was that Leif decided to winter in this land (building houses there) and return to Greenland the following year with tales of this “Vinland.” While he was away his father (Eirik the Red) had died, which left him as the

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chief ruler of Greenland. For this reason, Leif never returned to the land he visited so briefly, but he did inform others of the location of his houses in the New World and bade them colonize the land. One of those he informed was his brother-in-law Thorfinn Karlsefni, an Icelandic merchant who went searching for Leif's houses in “Vinland” and attempted colonization. Despite the land’s advantages, the Norse colonists appear to have run afoul of the native inhabitants (alternately Dorset Eskimos or Algonquin Indians depending upon which author one believes) already present and were forced to abandon the colony.\(^5\)

It is likely that the Norse made several return trips to Markland, which was probably Labrador, for the timber that they used to make many of the long houses found in Greenland, but there is no record of any trips to Vinland after those mentioned in the Sagas. A change in global temperature finally drove the Norsemen from Greenland during the fifteenth and sixteenth centuries at the latest. There is no solid record of any ships leaving Greenland after 1367.\(^6\) With the stepping-stone to “Vinland” gone, real knowledge of the land seemed to fade away until only legends and rumors remained.

Where is this land? The archaeological site at L’Anse aux Meadows in northern Newfoundland is the only concretely Norse settlement in the New World, but many scholars believe that Newfoundland does not fit the descriptions in the Sagas. There are now no wild grapes growing in Newfoundland and many believe they never grew there. Where then is the “Wine” land?

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\(^6\) Magnusson and Palsson, *Introduction to the Vinland Sagas*, 22.
THE GREENLANDER’S SAGA

To this point, the narrative of the discovery and colonization of Vinland has been based primarily upon information contained in the Sagas. More specifically, it has been based upon the account of the Graenlendinga Saga. As has already been mentioned, a wealthy Icelandic farmer commissioned the oldest surviving copy of the Greenlander’s Saga during the late fourteenth century. The writer’s agenda included pleasing this employer, and the work’s contents are bound to be laced with half-truths or distorted to uphold the virtues of the heroes who were probably ancestors of the aforementioned agriculturalist. It is also likely that the horticultural descriptions of Vinland in the saga might be attributed to a specific agenda. In fact, it might be argued that if there was an agenda behind the horticultural descriptions of Vinland, it was of the same ilk as the agenda behind the naming of Greenland: to make the land seem more attractive for settling.7 These somewhat inaccurate descriptions of Greenland did not preclude the land’s existence, and it is impossible to discern a particular agenda that would include a similar, detailed description of Vinland (and the surrounding lands) if it did not actually exist. The descriptions therefore remain a useful tool in the effort to locate Vinland. Of course, the saga includes more than just the voyages, but the bulk of that material deals with family lines and other content more relevant to the commissioner’s agenda.

What then does the Greenlander’s Saga tell us of the voyages? Firstly, it tells us of five voyages made to the land of Wine, one an accident and another one an entirely unsuccessful venture. The first voyage to Vinland was accidental and made by Bjarni Herjolfssson. The second journey was led by Leif Eriksson and was a legitimate

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7 Graenlendinga Saga, 50.
colonization attempt. The third trip was made by Leif’s brother Thorvald and resulted in his death at the hands of *Skrælings*. The fourth foray was made by Thorfinn Karlsefni and was the most extensive colonization attempt of the five. Erik the Red’s daughter Freydis and two Icelandic brothers made the final journey.\(^8\)

The *Greenlander’s Saga* tells us that Bjarni, the discoverer of Vinland, was the son of Herjolf Bardarson and Thorgerd, and that he was born in Iceland. He is described as a “man of much promise” in that he was adventurous and a good sailor. Apparently, Bjarni utilized these characteristics to amass wealth and earn himself a good reputation. It was his habit to spend every other winter at home with his father in Iceland (the others he spent in travel). It is said in the *Greenlander’s Saga* that one winter while Bjarni was abroad in Norway, his father sold his farm in Iceland and immigrated to Greenland with Erik the Red’s colonizing force. Herjolf made his home in the Eastern Settlement and named it *Herjolfsness*. The next summer, Bjarni came to Iceland looking for his father and was told what had happened. He determined to follow his father to Greenland, and after obtaining permission from his crew, set out in search of him. At the time, it would have been considered a reckless venture as no one on board had been to Greenland. In fact, Bjarni himself acknowledged this as they set sail.\(^9\)

The saga relays Bjarni’s journey to what might have been Vinland in but a single paragraph! The company sailed for three days before they lost sight of Iceland and subsequently lost the wind they had been using. Then, a fog and northerly winds set in and they drifted for many days with no conception of their course. After the fog broke, they sailed for one more day and sighted land. Naturally, they sailed close to examine the

\(^{8}\) Ibid.  
\(^{9}\) Ibid., 51-52.
land and determine if it might be Greenland. This land is described as well forested with some gentle hills. Deciding that it could not have been Greenland, they sailed on with the land to port.\textsuperscript{10} Unfortunately, that land cannot be identified with any certainty. More, the above description is all that appears in the \textit{Greenlander's Saga}. The only way to theorize about its location is to gauge its relative proximity to other lands described in more detail during Bjarni's voyage.

Sailing north for two more days, Bjarni's men sighted another land that was described as "flat and wooded." Again, Bjarni refused to land despite the wishes of his men to gather wood and water, and set sail before a southwesterly wind. It was his conclusion that this land could not have been Greenland because there were no glaciers visible within the interior.\textsuperscript{11} This second land is also described inadequately and cannot be placed accurately both for that reason and because we don't know his point of origin.

Sailing for three more days, they sighted yet another land. This third land was both mountainous and contained a visible glacier. Bjarni again refused to land, considering the country "worthless," but instead of hoisting sail again, they followed the coastline and determined that this land was an island.\textsuperscript{12} This information is both tantalizing and problematic. While this description is the first to indicate a possible location, it does so in a questionable manner. The description of a mountainous land with a glacier would seem to correspond to Baffin Land, and while it is most certainly an island, it seems unlikely that Bjarni could have circumnavigated it at all (let alone without extensive mention of the journey and its perils). After sailing around this island, the saga tells us

\textsuperscript{10} Ibid., 52-53.
\textsuperscript{11} Ibid., 53.
\textsuperscript{12} Ibid.
that Bjarni puts out again and sails for four days (encountering a gale along the way) before sighting a land that turns out to be Greenland.

This journey seems to be an authentic confirmation that Bjarni was sailing from Baffin Land to Greenland. The typical Viking long ship that would have been used for such a journey could travel approximately 120 nautical miles in a twenty-four hour period or doegr. A four-day journey would equate to a 480-mile trip. This is the approximate distance between Baffin Land and various parts of Greenland. In an incredible coincidence, Bjarni manages to put ashore at Herjolfsness in Greenland without any real searching. Thereafter, Bjarni gave up trading and became a farmer. This sort of reaction on Bjarni’s part might imply that the journey was much more hazardous than it appears in the sagas. Perhaps the circumnavigation was part of that but left out of the saga for another reason.

Bjarni’s journey is heralded in the Greenlander’s Saga as a discovery of the land that would later be visited by Norse colonizers. There are several unresolved problems. The geographical descriptions are so vague as to make it entirely unclear whether any of the lands he encountered were the same as those visited by his successors although it seems likely that at least one of them matches later descriptions. The journey as a whole is called in to question due to the circumnavigation issue. But for this issue, one might attempt to locate the lands based upon the distances between them implied by the sailing times mentioned. More, since only one of these lands is described in enough detail to identify (tentatively), this would avail us little.

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14 *Graenlendinga Saga*, 52-54.
The *Greenlander's Saga* relates that Leif Eriksson led the next journey. Leif was the son of Erik the Red, and as colonization of new lands was a family tradition, his reaction to Bjarni’s story makes sense. The saga tells that after his journey to unknown lands, Bjarni Herjolfsson visited Earl Eirik Hakonarson (who ruled Norway at that time) at his court. There he told the story of his voyage and the lands he had sighted. His lack of initiative in exploring these lands drew criticism from the court and Bjarni returned to Greenland the next summer. The incident was cause for discussion of these new lands and Leif Eriksson visited Bjarni, bought his ship and hired a crew. The saga maintains that Leif asked his father Erik to lead the expedition because he would have more “luck” then anyone else available. However, as the crew rode to the ship, Erik was thrown from his horse and injured his leg. The result was that Leif had to lead the expedition after all.\(^{15}\)

According to the saga, Leif came first to the land that Bjarni had encountered last. Leif landed there and could find nothing his people would have valued. There were great glaciers, much rock and no grass for grazing. They named the land *Helluland* because it seemed to be “one great slab of rock.”\(^{16}\) It is likely that this land was Baffin Land, although there is no guarantee that this was the same land that Bjarni had encountered last. Although the description matches, there is no sailing time mentioned for the journey from Greenland. Neither should it be forgotten that Bjarni was supposed to have circumnavigated the land in question. One must conclude that Baffin Land is the most logical option for Leif’s first landfall, but it must also be noted that there is no evidence to suggest that this land equates to Bjarni’s final landfall outside of the physical

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\(^{15}\) Ibid., 54.

\(^{16}\) Ibid., 54-55.
description. This might be enough if the description could not be applied to the majority of land in the region.

Leif and his crew set out again and happened upon a second land. They again went ashore and found that the land was flat and forested with striking white beaches. Leif chose to name the land *Markland* (Forest Land). Again, there is no sailing time mentioned and we can only guess at the distance between *Helluland* and *Markland*. This time however, the saga does not specify that Leif’s second landfall equates to Bjarni’s second (in reverse order). This land can only have been Labrador because the physical description (forests and endless white beaches) matches the southern portion of Labrador’s east coast in a way that no other land in the region can.

Setting sail again, Leif and his crew sailed southwest for two days (specifically noted in this instance) until they sighted a headland with an island to the north. They came ashore and tasted the dew on the grass, pronouncing it the sweetest thing they had ever tasted. Upon returning to their ship, they sailed westward around the headland and into the sound between the island and the headland where their ship was grounded at high tide in what had been shallows. Impatient to get ashore, they took a small boat, which they used to return to the ship at high tide. When high tide came, Leif ordered the ship brought up a river to an inland lake where his crew anchored it. They decided to winter here, for salmon were plentiful in the river and lake, and were larger than any salmon the men had ever seen. In fact, the country’s virtues were legion. The winters were mild with no frost and the crew did not have to provide for their livestock. It was also said that the nights and days were closer to being of even length than in Greenland or Iceland; on

17 Ibid., 55.
the shortest day of the year, the sun was up by nine in the morning and did not set until after three in the afternoon. Thus it was that Leif had houses built for his crew.\(^{18}\)

During their stay in this land, Leif’s foster father Tyrkir, who was supposedly of German origin, found grape vines inland. The crew then proceeded to gather a large amount of grapes for the return journey, enough to fill the entire towboat. Upon leaving in the spring, Leif named the land *Vinland* after its contents. On the way back to Greenland, Leif rescued a shipwrecked crew from a reef. After returning to the Brattahlid settlement, a disease inflicted this crew and killed most of them. It also claimed Erik the Red’s life.\(^{19}\)

This narrative of Leif’s landing in Vinland contains more details regarding the land’s characteristics than any other landing mentioned to this point. The first characteristic mentioned is the sweet dew. This mention is of little import and when considering location and is likely a metaphor for the land’s mild climate or its horticultural contents. In addition, medieval European sailors often referred to fresh water as “sweet.” The next issue is the mention of plentiful and large salmon. This is very significant as it is accepted that during that period and today, salmon can be found no further south than the Hudson River.\(^{20}\) This leads us to the geographical description given. The definitive characteristics are a headland with an island to the north, a river running from a lake to the sea and the relative length of the days and nights. The first

\(^{18}\) Ibid., 56.

\(^{19}\) Ibid., 55-59.

characteristic matches the northern tip of Newfoundland perfectly. The sound that Leif’s crew sailed into might easily be the Strait of Belle Isle and the island Belle Isle itself.\textsuperscript{21}

The relative length of days and nights would appear to be the characteristic that is most troublesome given the archaeological find at L’Anse aux Meadows. It is said in the \textit{Greenlander’s Saga} of Vinland that “In this country, night and day were of more even length than in either Greenland or Iceland: on the shortest day of the year, the sun was already up by 9 a.m., and did not set until after 3 p.m.”\textsuperscript{22} Of course, as the first relatively reliable chronometers were not invented until the fourteenth century, this must be a general guideline. The medieval Norse would have measured time by observing the sun’s course, or using a sundial. Magnus Magnusson and Herman Palsson indicate that the estimated length of the shortest day places Vinland between latitudes fifty and forty north, which would put Vinland on the Gulf of St. Lawrence, in New Jersey or somewhere in between.\textsuperscript{23} Several other scholars have debated this point. Gwyn Jones points out that G.M. Gathorne-Hardy agreed with this postulation at first but then decided that the detail implied a location south of latitude 37 degrees north. Dr. Almar Naess determined that the information indicated somewhere south of 36 degrees north, which would put the land south of the Chesapeake Bay.\textsuperscript{24} The majority of estimates come within one degree of the estimate of Magnusson and Palsson. There are a number of possible explanations for why this detail of the saga might not be at odds with the find in Newfoundland.

\textsuperscript{22} \textit{Graenlendinga Saga}, 56.
\textsuperscript{23} \textit{The Vinland Sagas}, 56.
\textsuperscript{24} Jones, 124.
Latitude fifty north cuts through the great northern peninsula of Newfoundland. This means that the find at L’Anse aux Meadows is outside of the probable range. If we assume that L’Anse aux Meadows is the location of Leifsbudir, the settlement where Leif first built his houses, then there would appear to be a discrepancy. However, the bulk of Newfoundland is within the probable latitudinal range and it would be reasonable to assume that the Vikings would have explored the new land a great deal. In fact, the mention of Tyrkir’s wanderings and his discovery of grape vines assures us that they did. Thus, the reference to the relative length of days and nights does not preclude Newfoundland as Vinland. Instead, it simply implies that Leifsbudir was only the gateway to Vinland and not Vinland itself. This concept is similar to Birgitta Wallace’s theory regarding the relationship between Vinland and L’Anse aux Meadows except that she still places Vinland somewhere other than Newfoundland, but still on the Gulf of St. Lawrence.

Perhaps the most important aspect of the journey with respect to the modern search is Leif’s choice of the name “Vinland.” While this is not the first recorded mention of the term, if the Sagas are right, it is the coining of the name. Why this name then? If one discounts Helge Ingstad’s out of context interpretation of Vinland as “Pasture Land,” then the literal translation of the word is “Wine Land,” but if the etymology is pursued, the root is revealed as vinber or “wine-berries” instead of an actual reference to grapes. Additionally, although it is normally assumed that the Southerner Tyrkir’s identification of grapes must be definitive as he claims in the saga to

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25 Graenlendinga Saga, 57.
26 Larsson, 305.
27 The Vinland Sagas, 58.
be native to a grape-bearing region, the usage of the term *vinber* in that context might refer to a different sort of berry that could be used to make wine. Currently, Newfoundland wineries make use of several different kinds of berries including strawberries, blueberries, partridgeberries, raspberries, plums and cloudberries. This means that it is possible that Leif Eriksson’s Vinland need not have contained grapes.

The final characteristic of the *Greenlander’s Saga* portrayal of Leif’s journey to be evaluated is the discovery of grapevines by Tyrkir. Many scholars have decided that Newfoundland cannot have been Vinland due to this characteristic as there are now no wild grapes growing there. Today, it is generally accepted that wild grapes grow coastally no further north than New Brunswick. Obviously that does not mean that this was always the case.

As has already been mentioned, European explorers such as Jacques Cartier and Samuel de Champlain claimed to have found wild grapes growing further north. During Jacques Cartier’s second voyage, which took him up the St. Lawrence River, he claimed to have found grape vines both on the north coast of the river at the mouth of the St. Croix and on the Island of Orleans. In fact, the island was so full of these vines that he chose to name it “Bacchus’ Island.”  

Approximately one hundred years later in 1608, Samuel de Champlain verified this claim by visiting the island. Even though this was well into the climactic downturn following the medieval period, the grapes were still present. It should be noted that the southern portion of Newfoundland is the latitudinal

\[\text{\cite{28} Jacques Cartier, *The Voyages of Jacques Cartier*, ed. Henry Percival Biggar, (Toronto: University of Toronto Press, 1993), 51-52.}\]

equivalent of this island, so grapes might have grown there as well. While it is true that the Island of Orleans is no further north than New Brunswick, the salient point is that the island is in northern waters and cut off from the direct effects of the Gulf Stream. It should also be noted that the constant mention by various authors of New Brunswick being the furthest north that coastal wild grapes may grow could be entirely irrelevant. All one needs to do to realize this is look at an atlas carefully. New Brunswick is also latitudinally even with southern Newfoundland.\(^\text{30}\) By implication, if grapes grew no further north than New Brunswick, they could also have grown in Newfoundland. No one seems willing to mention this.

The presence of grapes as far north as the Gulf of St. Lawrence and Newfoundland should not be too difficult to believe given the difference in climate a millennium ago. As H.H. Lamb points out in his *Climate, History and the Modern World*, all of North America experienced a substantial warming of summers (approximately 1 degree Celsius) during the period between 500 and 1250 except in Northern Labrador and the Ungava Peninsula.\(^\text{31}\) This could easily have accounted for the floral differences between the twentieth century and the eleventh. More, this means that grapes may have grown even further north than they did during Cartier’s time. Given this, the presence of grapes anywhere along the Gulf of St. Lawrence might uphold Newfoundland as Vinland. The current lack of grapes on Newfoundland’s northern peninsula means little given the extensive explorations undertaken by the crews of the \(\text{sagas.}\)

\(^{30}\) *World Atlas*, 16.

It is important to note that the grapes which Europeans would have been familiar with, assuming that any on the voyages to Vinland were, would have been a variety of the species *Vitis vinifera*. These European grapes require long dry summers and short cool winters to grow naturally or under cultivation. Such grapes might have survived on Newfoundland’s northern peninsula during the medieval period, but certainly cannot today. It is of little account, for the species of grapes native to North America are hardier. *Vitis labrusca* or *Vitis aestivalis*, better known as the American wild bunch grape, grow under much colder and moister conditions. This variety of grape is the one inhabiting New Brunswick now and would have been the variety surviving on the Gulf of St. Lawrence when the French explorers of the early modern period reached it. By extension, they are likely to have been there when the Norse visited at the turn of the millennium.

It should also be mentioned that it is a distinct possibility that the presence of grapes in Vinland (wherever it might be) is a fabrication. Although the majority of scholars today insist that Vinland is another in a long line of accurate descriptive names, it must be realized that this is only correct to a point. When Erik the Red founded the colony at Greenland, it must be concluded that his title for the land was chosen as a motivational one. It is true that a thin strip of Greenland’s coastline was and is green in comparison to the rest of the island, but it was hardly lush and the term green is for the most part not indicative of the land as a whole. Instead, the name Greenland was intended to attract as many settlers as possible to ensure the colony’s success. It is not too difficult to imagine that Leif’s naming of Vinland was based on the same logic. He

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33 *Graenlendinga Saga*, 50.
was Erik the Red's son, after all, and perhaps the name was little more than a creation to insure further colonizing attempts. It is also important to keep in mind that the first recorded mention of Vinland is not made by the Norse at all, but rather by Adam of Bremen in 1076.\textsuperscript{34} Perhaps mainland Europe's concept of Vinland as a paradise on earth, which wine was often associated with, affected the writing of the sagas hundreds of years later.

Following Leif's voyage, Erik the Red's death necessitated his takeover of the Greenland settlements as ruler. For that reason, Leif's brother Thorvald determined to make the return voyage to Vinland. It must be assumed that his voyage to Leifsbudir was entirely uneventful as not one detail about it is given in the saga. The account notes that they arrived, prepared for winter, and in the spring sailed along the west coast of the headland to explore. There they found attractive wooded country with white beaches and many shallow waters. One manmade structure was discovered: a wood stack cover. They returned to Leifsbudir and next summer they explored to the east. When they were driven ashore by a gale, their keel was shattered and they left it upon a headland that they named Kjalarness. After repairing the ship they continued east along the coast and landed upon a headland between two fjords. Due to the land's beauty, Thorvald desired to make his home there, but the party happened upon a small band of nine natives sleeping under their skin boats. Assuming that such a small band in the wilderness could only have been outlaws, they killed all except one who made his escape towards what appeared to be a larger native settlement. A larger force of natives then attacked the Thorvald's men, but managed to wound only Thorvald himself. Fatally wounded, he

\textsuperscript{34} Adam of Bremen, 88.
asked to be buried on the headland he thought so beautiful. This was done, and the expedition returned to *Leifsbudir* for winter. The following spring they set out for Greenland to relay the story to Leif.  

Three aspects of Thorvald’s voyage are relevant to the theme of Vinland: *Kjalarness*, the skin boats and the native settlement. The location of the headland upon which the keel was abandoned has been a subject of great debate, but there is little in the *Greenlander’s Saga* to assist in identifying the region other than its being east along a coast from *Leifsbudir*. The only way to travel east along a coast from L’Anse aux Meadows for any lengthy period of time would be to travel along the eastern coast of Labrador. This would put *Kjalarness* somewhere near the Hamilton Inlet in Labrador. Ingstad maintains that this could not be the location of the *Kjalarness* of the *Greenlander’s Saga* but rather of the one mentioned in *Erik the Red’s Saga*. It is Ingstad’s contention that the course taken by Thorvald from *Leifsbudir* could not bring him all the way to Hamilton Inlet.  

As just mentioned, there is no evidence in the *Greenlander’s Saga* to support anything else. There is no traveling time mentioned and there is only one way to travel east along a coast from L’Anse aux Meadows for any length of time. *Kjalarness* can only have been in Labrador assuming that *Leifsbudir* is L’Anse aux Meadows. Gwyn Jones comes to this conclusion as well based upon the supposed fate of Thorvald himself. According to the *Greenlander’s Saga*, a Skraeling-fired arrow killed Thorvald. As Jones points out, the North American Eskimo cultures of the time (Dorset) did not utilize

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36 Helge Ingstad, 64. 
37 *Graenlendinga Saga*, 61.
the bow and arrow, but the Algonquin Indians inhabiting the coast of Lake Melville and the Hamilton Inlet did. A quartzite arrowhead found at the Western settlement of Greenland by Aage Roussell in 1930 matches arrowheads found at Lake Melville in 1956.\textsuperscript{38} It is reasonable to assume that Kjalarness is in Labrador and that the fjord that Thorvald entered is Hamilton Inlet. This supports the conclusion that L’Anse aux Meadows is Leifsbudir.

The skin boats of the natives mentioned during Thorvald’s voyage have also been a source of contention among scholars. During Jacques Cartier’s first voyage to Newfoundland and Labrador in 1534, he encountered native people who utilized canoes made of birch bark. These encounters occurred on the coast of the Strait of Belle Isle very near the tip of Newfoundland’s northern peninsula.\textsuperscript{39} This was the primary material that cultures of the area utilized for the construction of boats during the period surrounding the probable colonization attempt. Might the Vikings’ mention of skin boats imply that they were exploring a different region where natives utilized this sort of material instead of birch bark? Most scholars have decided that is not so, but rather that a canoe made from birch bark might look very much like an animal skin canoe to an observer who was not familiar with the process of making one. Considering the Norse maritime experience, involving wooden ships almost exclusively, this seems likely.

More, Magnus Magnusson and Herman Palsson point out that the Indians residing in the area also used moose hides to build canoes on occasion.\textsuperscript{40}

\textsuperscript{38} Jones, 132.
\textsuperscript{39} Cartier, 10.
\textsuperscript{40} Magnusson and Palsson, \textit{Introduction to The Vinland Sagas}, 27.
The Native settlement mentioned during Thorvald's voyage is further verification of the location of both Kjalarness and Leifsbudir. The Hamilton Inlet and surrounding area were well populated by both Eskimo and Indian tribes until well into the eighteenth century. Some of the largest settlements of both could be found on Lake Melville within the Hamilton Inlet. It seems likely that if Thorvald came sailing towards this region he would have encountered the native inhabitants in large numbers.

The next trip to Vinland was a more serious colonizing venture made by the Icelander Thorfinn Karlsefni. He arrived in Greenland from Norway a year after the previous voyage and married Gudrid, the widow of Leif's brother Thorstein. Due to this, much pressure was put upon him to undertake the colonization of Vinland. For this purpose, he gathered a crew of 65 men and 5 women. He asked for Leif's houses, but Leif only agreed to lend them to him. Again, the voyage to Leifsbudir was entirely uneventful and the Greenlander's Saga does not treat it except to say that Karlsefni and company arrived safely. Interestingly, the saga does say that upon arrival a dead whale was driven ashore by the surf. The crew went down to the beach and cut it up. For this reason, food was plentiful for some time. The following summer, the company had its first encounter with Skraelings.

The first encounter with natives was trade-oriented. Upon the arrival of the natives, the bull the Norse had brought with them frightened the Skraelings by bellowing at them. After this small crisis, they attempted to trade pelts for the Vikings' metal weapons. Karlsefni forbade this trade and instead offered the natives milk. Supposedly, upon seeing the milk, the natives wanted nothing else. Later, it is supposed to have made

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41 Helge Ingstad, 167-177.
them ill, possibly as a result of lactose intolerance. After their departure, Karlsefni
ordered a palisade to be built around the settlement. During the following winter, the
Skraelings came to trade again. During this encounter, the saga relates that one of them
tried to steal weapons and was killed by one of Karlsefni’s men. The rest fled, but
returned in greater numbers to attack. The company held them off successfully, but
departed for Greenland the next spring.⁴²

The story of Karlsefni’s colonization attempt provides almost no information with
which to ascertain Vinland’s location. Only the construction of the wooden palisade is of
importance. As it happens, no such structure was found at L’Anse aux Meadows, but it
should be pointed out that it might have been disassembled in order to recycle the timber,
which was in extremely short supply in Greenland.

Erik the Red’s daughter Freydis and two Icelandic brothers named Helgi and
Finnbogi made a final voyage to Vinland, as related by the Greenlander’s Saga. They
arrived in Greenland from Norway during the summer of Karlsefni’s return. Thorfinn
had brought back a very rich cargo and stirred up more talk of attempting to colonize
Vinland. Supposedly, Freydis approached the brothers offering to split the profits of
another attempt at settlement. They agreed, and it was arranged that each party would
bring thirty men. Freydis proceeded to recruit thirty-five and kept this a secret. She also
asked Leif for his houses, but as before he only agreed to lend them. Again the journey
to Leifsbudir is not described except to say that the brothers arrived first and attempted to
move into the houses, but when Freydis arrived she had them moved out. The brothers
proceeded to build their own houses and then tried to initiate some social events between

⁴² Graenlendinga Saga, 64-67.
the groups. Things did not go well and the two parties became estranged from one another. Freydis then badgered her husband and her men into murdering the other party during the night on the premise that they had assaulted her. She threatened death for anyone who revealed what had happened and the party then returned to Greenland.43

Like the previous journey, little about Freydis’ trip is helpful in determining Vinland’s location. The only useful information is that the brothers were supposed to have built their own houses. Only one cluster of houses was found at L’Anse aux Meadows, but it is possible that in an effort to conceal what had occurred, Freydis and her party might have dismantled the second settlement. It is even more probable that the surviving house site is the remnant of an unrecorded journey made well after those mentioned in the sagas.

The final clue that the Grænlendinga Saga contains regarding Vinland is in a section titled “Karlsfjöls descendants.” It relates how Karlsefni sold the gable-head of his ship to a southerner. The gable-head was made out of maple and the wood had come from Vinland. This is rather unremarkable in and of itself as maples are indigenous to the majority of North America’s east coast. More, the actual word used in the saga is Mosurti, which is usually translated as maple, but can be applicable to a number of other trees.44

Thus it is made clear that all of the evidence in the Grænlendinga Saga either supports the find at L’Anse aux Meadows as Vinland or at least fails to contradict it. Some of what the saga contains seems fantastical (such as Bjarni Herjolfsson’s circumnavigation of what appears to be Baffin Land). A great deal of what it contains

43 Ibid., 67-70.
44 The Vinland Sagas, 71.
glorifies the bloodline of Erik the Red and deems the heritage of Native Americans. Despite these factors, much of what the saga portrays is too straightforward to be anything but a relaying of what the authors must have thought to be true.

ERIK THE RED'S SAGA

The focus of *Erik the Red's Saga* is substantially different from that of the *Greenlander's Saga*. Primarily, it upholds the exploits of Icelanders like Erik the Red and Thorfinn Karlsefni. This includes a description of the colonization of Greenland. In doing so, it engages in a kind of hero worship similar to that found in many of the other sagas. The two mentioned above are portrayed as the most popular figures north of Great Britain and everyone else involved in the story is mentioned in relation to them. In addition to this, *Erik the Red's Saga* is replete with fantastical encounters and creatures that are absent from the *Greenlander's Saga*. One might think that this should call the saga's reliability into question, but these fictions are also common literary devices in the majority of Icelandic Sagas. More, the presence of these devices and the emphasis on Icelandic heroes in *Erik the Red's Saga* can have little meaning with regard to Vinland's location. It is clear that the author (as an Icelander) was motivated to uphold Icelandic figures, but outside of this there appears to be no ulterior motive. The saga must still be analyzed for location, and there are a number of other concrete differences between the two sagas that need to be addressed as they arise.

In contrast to the *Greenlander’s Saga*, *Erik the Red’s Saga* tells us of only three attempted voyages to Vinland, one of which was entirely unsuccessful. The first is accidental and made by Leif Eriksson instead of Bjarni Herjolfsson (who is left out of the
story altogether). Leif’s brother Thorstein, who never actually set foot on Vinland, made the second voyage. The final voyage was made by the Icelandic merchant Thorfinn Karlsefni and, as in the Greenlander’s Saga, it is depicted as an extensive exploration of Vinland and the surrounding area.

The saga explains how, after a brief detour to the Hebrides, Leif had sailed from Greenland to Norway. There he became a part of King Olaf Tryggvason’s court for the winter and was honored due to his accomplishments and adventuresome nature. The following summer he sailed for Greenland with a command from the King to convert the populace to Christianity. Upon setting sail, Leif encountered extensive storms, which blew him off course. He discovered “lands whose existence he had never suspected.” Among the characteristics of this land were wild wheat, vines and maple trees. The crew assembled a cargo from these resources and the company set out once more for Greenland. On the way, they encountered a shipwrecked crew and rescued them. Upon returning to Greenland, Leif began preaching Christianity and immediately converted his mother. This caused some domestic friction with his father, Erik the Red.  

The first issue this raises is the matter of Leif’s supposed Christianizing mission to Greenland on behalf of King Olaf. As has already been mentioned, Jon Johannesson has proven that this voyage never occurred. It seems unreasonable to discount the entirety of the saga due to this issue, and there can be no connection between the motives of the authors to uphold Christianity and the supposed location of Vinland. This brings us to the saga’s description of that location.

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45 Ibid., 84-86.
46 Johannesson, “Aldur Graenlendinga Sogu.”
Erik the Red’s Saga does not provide any sailing times for this first journey to Vinland, nor does it provide information to trace any sort of course. The saga does not say that Leif built any houses for following expeditions to find. The only viable method of attempting to ascertain the land’s location is through placement by horticultural characteristics. Wild wheat, vines and maple trees are mentioned. The first is synonymous with wild rice. Jacques Cartier encountered it along the west coast of Newfoundland and on islands west of that coast during his first voyage to the region in 1534, and it might have grown even further north during the warmer periods surrounding the year 1000. The vines mentioned are not specified as grape vines, but later mention of wine in the same saga implies that they must have been. The issue of grapes in the region has already been addressed. The maple trees mentioned can be found anywhere along the Gulf of St. Lawrence, but the Hauksbok translation adds that the trees were described as large enough to utilize in the building of houses. Great portions of Newfoundland contain trees of this size, but today (and during Cartier’s time) few of them can be found on the northern promontory. It is possible that such trees might have grown there during Eriksson’s time due to the climactic difference.

After Leif’s return to Greenland, there was a movement to explore the country he had discovered. This movement was led by Leif’s brother Thorstein who sought to involve Erik the Red as well, but before the expedition could begin, Erik was thrown from his horse. He suffered broken ribs and a shoulder injury that precluded his traveling, leaving Thorstein solely in charge of the company. They set out during the summer, but encountered terrible storms that drove them back and forth across the

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47 Cartier, 14.
48 The Vinland Sagas, 86.
Atlantic Ocean. It is said that at various points they sighted both Iceland and Ireland before returning to Greenland in the fall.\textsuperscript{49} 

The next attempt to visit Vinland was made by Thorfinn Karlsefni, a very popular Icelandic merchant of a noble family. After Thorstein’s mishap, Karlsefni visited Greenland and married Erik the Red’s foster-daughter Gudrid. Following this, a company was assembled with two ships for the trip to Vinland. The group included Thorfinn, Snorri Thorbrandsson, Bjarni Grimolfsson, Thorhall Gamlason, Thorvard (Erik the Red’s son in law) and Thorhall “the Hunter.” The latter was said to be very unpopular, but a good friend of Erik the Red’s and very familiar with wilderness survival.\textsuperscript{50} 

The convoy (said to contain 160 people) first sailed to the Western Settlement and from there to the “Bjarn Isles.” From these isles they caught a wind from the north and sailed for two days before sighting land. The company came ashore and found many great slabs of stone. For this reason the country was named \textit{Helluland}. Again putting to sea before a northerly wind, they sailed for two more days before finding a forested land with many animals. Due to its extensive forests, they named the land \textit{Markland}. Southeast of this land they discovered an island with many bears, which they named \textit{Bjarn Isle} (Bear Island) for this reason. Again they put out to sea, but this time the saga does not specify their course. In another two days, they sighted a promontory with long sandy beaches, which they named \textit{Furdustrands} (Marvel Strands).\textsuperscript{51} Upon coming ashore, they found a ship’s keel on the headland and named the promontory \textit{Kjalarness}.

\textsuperscript{49} \textit{Eirik’s Saga Rauda}, 87-88.  
\textsuperscript{50} Ibid., 93.  
\textsuperscript{51} Ibid., 95.
Sailing for an indeterminable amount of time south of the Furthustrands, Karlsefni landed and made use of pair of fleet Scots (a man and a woman) that had been given to him by Leif Eriksson, who supposedly received them from King Olaf. Said to be faster than deer, the Scots were put ashore and told to run south and return in three days with information about the land. They did so and returned with grapes and wild wheat, claiming to have found good land. The expedition continued south until it reached a fjord with an island at its mouth that was a haven for birds. Due to the fjord’s strong currents, they named it Straumfjord (strong fjord) and the island Straum Island (strong island). The company then sailed into the fjord and unloaded their ships (the saga does not say upon which bank). There was tall grass in plenty for their livestock, and the country was said to be mountainous and beautiful. The expedition wintered here, but found the winter to be exceedingly harsh. Food became scarce and the hunting was poor. For this reason, the group moved out to the island to find game, but it seems that the birds had departed or they visited a different island, because there was no game to be found. Later, a whale washed ashore and they company ate it only to become ill. Thorhall (the Hunter) claimed that the whale was a response to his prayer to Thor. As a result, the company threw the meat away due to their Christian faith. When spring came, they “returned” to Straumfjord and gathered food, including eggs from Straum Island.\footnote{Ibid., 93-96.}

This section of Eirik’s Saga Rauda is replete with occurrences reminiscent of the Old Testament. The fleet Scots mentioned remind the reader of Joshua’s spies sent to scout out the city of Jericho.\footnote{Josh. 2:1-24 KJB (King James Bible).} The latter section in which the entire party meanders
about the unknown lands is similar to the Israelites’ wandering in the desert, and of course there is the more blatant refusal to eat the meat of a whale that appears to be an answer to a prayer to Thor. Perhaps most notable is Leif’s false Christianizing mission to Greenland. *Erik the Red’s Saga* has a substantial Christian overlay that is arguably the most important priority for the authors and the supposed conversion of Greenland demonstrates that fervor. It is as if the authors are in the continual process of converting their own country (Christian since the *Althing* voted for the national adoption of Christianity in 1000 CE) through the modification of their country’s literary tradition, the sagas.

This opening section of Karlsefni’s expedition also provides a great deal of information that is useful for locating Vinland, as the goal is called for the first time in this saga. It is also revealing that the saga fails to mention the word “Vinland” until this point. The origin of *Erik’s Saga* is called into question by this late reference to what is supposed to be the basis for the whole story. The saga also contradicts itself on several occasions and appears to have been pieced together from different sources, but again, this may not invalidate the journey as a whole, and its course must be traced. From the Western Settlement, the convoy sailed to islands that cannot be definitively identified. It is theorized that one of these islands might be Disco Island or that the cluster as a whole might be one of the many groups off the east coast of Baffin Island. It is impossible to know this for sure, but it seems overwhelmingly likely that whether or not the two sagas refer to the same area as *Helluland*, it must in both instances be a part of Baffin Island. As with the *Greenlander’s Saga*, the sailing times mentioned in *Erik the Red’s Saga*

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54 Ex. 15:22-27 KJB (King James Bible).
55 *The Vinland Sagas*, 94.
bears out the theory that Helluland is Baffin Island given that a two-day journey would allow them to cover approximately 240 miles (a viable distance for a journey from the west coast of Greenland to Baffin Island).\textsuperscript{56} Sailing south for another two days would allow the company to make landfall somewhere in Labrador which easily qualifies as Markland for a second time. The Furdusirands mentioned match extensive beaches along Labrador’s east coast near Hamilton Inlet, which is a two-day sail (by Old Norse standards) from the northern tip of Labrador. South of this point, Erik’s Saga fails to mention sailing times and relies solely upon geographical and horticultural descriptions.

The geographical description of Straumfjord matches a description of the Strait of Belle Isle, and there are several islands within that are occupied by hordes of birds during the spring and summer,\textsuperscript{57} but there is a rather notable problem with the saga’s description of the Norse activity in the area. The story thoroughly describes their arrival at and settling of Straumfjord for the winter, but it also says that they returned to Straumfjord in the spring without having mentioned a departure in the mean time. In addition to this discrepancy, the appearance of grapes occurs in an entirely unbelievable context. The two Scots dispatched to run for three days and determine the worth of the land return with the grapes. This obviously fantastical story cannot account for the horticulture of the region and certainly does not assure that Karlsefini’s expedition had reached the same grape-bearing area that Leif Eriksson had discovered.

After the first winter, the company decided to split up and search for Vinland. Although the saga does not specify why they were convinced that Straumfjord was not Vinland, it seems likely that the severity of the winter was responsible. Additionally, the

\textsuperscript{56} Coulton, 191.
\textsuperscript{57} Cartier, 4-13.
saga makes no mention of grapes being found at Straumfjord. Thorhall (the Hunter) decided to sail north of the Furduustrands in search of Vinland. Again, it is not written why, but it seems likely that the Scots’ finding grapes north of Straumfjord was responsible. Karlsefni was convinced that Vinland must lie to the south and that the land would become more hospitable the further south the company traveled, but he believed it wise to examine both regions and split the crew: Thorhall and his crew sailed northward and Karlsefni and the rest sailed south. The saga states that after sailing north of Kjalarness, Thorhall was driven across the Atlantic to Ireland by a storm. There he and his crew were enslaved.\textsuperscript{58} There is no mention made of how this information was obtained.

Karlsefni’s crew sailed south along the coast for an indeterminable amount of time before reaching a river that flowed from the mountains to a lake and from there into the sea. They could sail up the river only at high tide due to sand bars that formed at its mouth. The company sailed into the lake and found a bounty of grape vines and wild wheat, with fish (salmon are not specified this time but halibut are) in the streams and animals in the woods. They named the place Hope for its tidal qualities. They maintained camp at this place for a fortnight, and during that time encountered a small band of natives in skin boats who approached them waving sticks in a circular motion. Karlsefni’s company took this to be a sign of peace and approached the natives with a white shield. Upon meeting, the natives did nothing but look at the Norse with amazement and then depart southward. The description of the natives fits the typical Skraeling depiction as small, dark and evil looking humans. The company wintered there

\textsuperscript{58} Eirik's Saga Rauda, 96-96.
and built houses. It is said that there was no snow and that the livestock could fend for themselves. 

This section of *Erik the Red's Saga* introduces what may be a new settlement, or demonstrates its origin as patchwork literature depending upon one's viewpoint. It names two different settlements that seem to comprise the features of one settlement in the *Greenlander's Saga*. *Straumfjord* and *Hope* both evince characteristics that are reminiscent of *Leifshudir*. However, according to the sailing times given, *Straumfjord* seems likely to equate geographically with the Strait of Belle Isle. If this is so, all that is left (to this point) with which to identify *Hope* is the description of a river and lake with the same horticultural surroundings that have already been described and the mild winter that equates to the one described in the *Greenlander's Saga*. There are no outstanding characteristics that distinguish the natives of the *Greenlander's Saga* from those in *Erik the Red's Saga*. There are no sailing times given for the trip between *Straumfjord* and *Hope*. Since it seems likely that the company passed into the Strait of Belle Isle, additional information is required to identify which coast is being followed. The convoy might be sailing south along the west coast of Newfoundland, or they might be sailing south along the east coast of Labrador. It seems unlikely that they could have made it much further south than the Gulf of St. Lawrence based upon the geographical descriptions and the failure to mention the length of the entire journey.

The following spring, a large fleet of the skin boats approached the settlement at *Hope* and trade was begun. Many of the natives desired weapons, but Karlsefni forbade the trade of them. Instead the Norse traded red cloth (which the natives most wanted to

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[59] Ibid., 96-98.
obtain) for pelts. When the cloth became scarce, the Norse traded smaller portions of it for the same number of pelts they had received for larger sections of cloth, but the trade was interrupted by the arrival of Karlsefni’s bull. It stormed out of the woods and frightened the natives away. Three weeks later the natives returned and attacked the settlement. An eventful battle ensued during which the natives relied upon a sort of catapult. Ultimately, the natives were frightened off by Freydis (Erik the Red’s daughter) who, disgusted by what she claimed was the cowardice of her companions, seized a sword and confronted the natives. In doing so, she slapped one of her bare breasts with the sword. The natives then fled in terror. It now became obvious to Karlsefni that they could not hope to safely settle in this land, so the company returned to their ships and sailed north along the coast. Along the way they encountered five Skraelings asleep and, assuming that they must be outlaws, they killed them. They then happened upon a headland that had many deer upon it. It is said to have looked like a “huge cake of dung” because the animals would winter on it. Shortly after they reached Straumfjord and Karlsefni set out northward with one ship to find Thorhall while the rest of the party remained behind. They sailed north until they had passed Kjalarness, and then followed the coast westward until they found “a river which flowed from east to west into the sea.” The company then entered this estuary and landed.60

This description of conflict between the Norse settlers and the natives is almost exactly the same as the one in the Greenlander’s Saga. All of the battle’s primary elements match. The trade situation, the appearance of the bull and the need to flee due to a lack of manpower are all factors. Freydis is absent from the Greenlander’s version of

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60 Ibid., 99-101.
the battle, but that is of little import. After the battle, the decision to flee is followed by a journey to Straumfjord. On the way there, they happen upon a headland that resembled a “huge cake of dung” due to the animals’ uses of it. It seems likely that this was not the reason for the headland’s appearance. It is more likely that the factor contributing to the headland’s appearance was magnesium. Midway down the west coast of Newfoundland there is a geographical formation called the “Tableland.” It is a magnesium-laced mountain that was pushed up out of the earth’s crust when the North American and European plates collided millions of years ago. The magnesium makes the formation brown and it might well appear to be dung-covered to an uninformed observer. This implies that Hope was south of latitude fifty north and probably on the Gulf of St. Lawrence. By implication, Straumfjord is then likely to have been the entrance to the Strait of Belle Isle. After fleeing to Straumfjord, a brief search for Thorhall followed. The saga’s description of this search is questionable in that it relays a journey north and west along an unknown coast (presumably the east/north coast of Labrador) which culminates in the discovery of a river that somehow runs from east to west and empties into the sea. As this is physically impossible, there is little evidence regarding the search’s course.

During the search up the phantom river, the saga says that a Uniped approached the boat one morning and shot Thorvald Eriksson with an arrow. The men gave chase unsuccessfully and Thorvald died. They set sail for the north and might have glimpsed Uniped-Land, but decided to return to Straumfjord for their third winter of the voyage. At this point their quarrels were frequent, primarily over women. For some reason, the compilers of Erik the Red’s Saga saw fit to mention the birth of Karlsefni’s son Snorri at
this juncture despite the fact that he had been born during the first autumn of the voyage. When spring arrived, the entire company set out northward and reached *Markland*, where they captured two *Skraeling* children (the parents escaped into what were seemingly caves). They taught the *Skraeling* children to speak Norse and baptized them. From these children they learned of two *Skraeling* Kings and of *Hvitramannaland* (White Men’s Land), which was said to be “across” from the land of the *Skraelings* and was often referred to as “Greater Ireland.” Shortly thereafter, the party reached Greenland and wintered there.\(^{61}\)

This return to Greenland reveals nothing regarding Vinland’s location, but the journey does bring up the issues of Thorvald Eriksson’s presence and the mention of *Hvitramannaland*. Although the *Greenlander’s Saga* describes Thorvald’s role in the Vinland voyages in detail, *Erik the Red’s Saga* fails to do so adequately. When it addresses the assembly of colonists (for lack of a better word) who are to make the journey with Karlsefni, Thorvald Eriksson is left out. Yet, the section dealing with his death, which is present in the *Greenlander’s Saga*, is still recorded. It is either a blatant mistake in editing a prior work for the content of *Erik the Red’s Saga*, or the compilers didn’t consider Thorvald Eriksson important enough to mention his name when listing those undertaking the journey. This latter possibility seems entirely unlikely since they saw fit to mention his death, but it is possible that the death was mentioned due to the Uniped’s appearance alone.

The other issue is *Hvitramannaland* or “Greater Ireland.” The *Skraeling* children claimed that it was “across” from their own country, which provides little direction.

Given the region in question, it is possible that this may account for the finds of Thomas Lee in northern Quebec.\(^6\)

It seems that an analysis of *Eirik’s Saga Rauda* supports the idea of Vinland’s being located somewhere in the Strait of Belle Isle. The obvious identification of *Straumfjord* with the mouth of that strait implies that L’Anse aux Meadows could be the first settlement of Karlsefni and company. The tell-tale geological marker of the Table Land implies that *Hope* is beneath latitude fifty north, but other than that it is impossible to know exactly where. The saga says that the expedition followed a coast both on the journey southward and during the return trip. This implies that *Hope* is somewhere on the west coast of Newfoundland as the Table Land is virtually invisible (and certainly unidentifiable) from the Labrador coast across the strait, but the saga is vague enough at that juncture that *Hope* could have been anywhere on the Gulf of St. Lawrence.

A great deal of *Eirik’s Saga Rauda* appears to have been pieced together from different sources. Along with being the younger of the two “Vinland” sagas, it contains a great many contradictions and fantastical encounters. Although both it and the *Graenlendinga Saga* probably shared a common source, they now tell substantially different stories about the journeys to Vinland. More, the authors of these stories seem to have had very different conceptions of what Vinland was. Even so, it is probable that both works still contain useful information from the original source or sources. To even a casual observer, it must seem likely that if any such nuggets of untainted information were to make it through, they would do so within the descriptions of maritime travel, geography and other such hard aspects. This likelihood is reinforced by knowledge of

the literary style of the Sagas as a whole. Although the majority of them engage in hero worship and many of them make reference to fictional or supernatural phenomena, they also are very realistic and concise when describing such things as travel and geography.\(^{63}\)

This follows naturally from the Norse condition as a maritime culture operating on the fringes of the habitable human world.

In summary, the two sagas do not lead to exactly the same conclusion regarding Vinland’s location. The *Graenlendinga Saga* seems to support L’Anse aux Meadows as Leifsbudir. *Eirík’s Saga Rauda* appears to support L’Anse aux Meadows as the settlement at Straumfjord, but depicts Karlsefni’s Hope as the real Vinland. This settlement was further south and seemingly on the western coast of Newfoundland, but more evidence is required to establish that. Of the two sagas, the *Graenlendinga Saga* must be considered more reliable, but both provide useful evidence. Both sagas point towards the same region and Newfoundland would appear to be the basis for their descriptions of Vinland and the location of the recorded settlements whether or not it qualifies as the “Wine Land” of European legend.

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CHAPTER III
THE VINLAND AND STEFANSSON MAPS

As Norse culture was a maritime one, the next logical place to look for evidence of Vinland is in their charts of the region. There are no surviving Norse maps from the period, but there are a few maps from later time periods that are both of Norse origin and from Mainland Europe, and include renderings of Vinland. The existence of such maps is as mixed a blessing as the existence of the sagas. Like the sagas, the maps were recorded well after the known voyages to Vinland, and it follows that those producing them had their own interests, such as competing with other cartographers to produce the most complete world map possible. The purpose of these maps was something other than use as guide to reach the lands portrayed. Unlike the sagas, the maps may be examined much more easily and their geographical worth can be determined with greater ease if not their genuineness.

Four maps have been found that depict Vinland in a reasonable location. As has already been specified, the earliest cartographical recording of Vinland is to be found on the “Vinland Map.” Those who maintain its authenticity place its origins in the mid to late fifteenth century Rhineland. The second oldest map to include Vinland is the Skalholt Map (more commonly known as the Stefansson Map). Its origins can be traced to the late sixteenth century and there is little or no controversy concerning its authenticity, but it is likely that it was produced based upon depictions of the sagas and must be judged accordingly. Helge Ingstad discovered a map within Hungary during his search for Vinland in the 1960’s. The map dates to the late sixteenth century, but the
majority of scholars believe it to be a hoax based upon the Stefansson Map. The final map to include Vinland is the Resen Map. Rendered by Hans Poulsen Resen in the early seventeenth century, it shares a common ancestor with the *Skálholt Map*.

The Hungarian Map was discovered by Helge Ingstad in the city of Esterom within the possession of the local archbishop. The archbishop’s residence had been a nazi stronghold during World War II, and when the war ended the town’s residents discovered several such documents strewn about the courtyard. Apparently the map was among them and the archivist Geza Szepessy took it into his care. The map is supposed to have been copied by Jesuits in the town of Nagyszombat (northern Hungary). It dates to nine years after the rendering of the Stefansson Map, but several features imply a much more modern knowledge of geography. Unlike the Stefansson Map, the Hungarian Map’s rendering of Greenland demonstrates it to be an island. Additionally, someone with a minimal knowledge of Latin, inconsistent with Jesuit education, obviously copied the map.¹ For these reasons, the academic community does not currently accept the map as genuine. More, it provides nothing useful in locating Vinland that the Stefansson Map does not, for the geographical rendering is the same. It appears that the Hungarian Map is a forgery; if it is genuine, it is based upon the Stefansson Map or an ancestor and there is no need to analyze it here.

Hans Poulsen Resen’s Map was also thought to be a copy of the Stefansson Map due to its place of origin and its near replication of contours and measurements, but very close dates of origin (1590 and 1605) and a Latin inscription stating that Resen’s Map was based on an earlier work make it clear that both are based on an earlier version. The

¹ Helge Ingstad, 85-87.
Skalholt Map appears to be the more accurate of the two (regarding distances and coastlines) and is certainly the earlier work. It is also the earliest surviving work of this line of maps. For this reason, the Stefansson Map shall be analyzed for geography rather than the Resen Map.

THE VINLAND MAP

The first map to be analyzed is the oldest. The Vinland Map has been a source of controversy for nearly two decades. As has already been mentioned, its origins are supposedly in the mid to late 1400’s, contemporary with Andrea Bianco’s world map of 1436. Alexander Vietor discovered it in the possession of an antique book dealer in New Haven in 1957. R.A. Skelton, Thomas E. Marston and George D. Painter first published it in 1965 in the The Vinland Map and the Tartar Relation in which it was claimed as part of a larger document that included the Speculum Historiale. This claim was supported by a series of wormholes in each document that matched each other exactly. The map in its entirety includes a text and was supposed to have been copied in 1440. Its appearance was considered significant in that it illuminated the geography of the Vinland voyages and the journey of the Friar Carpini to Mongol lands in the mid thirteenth century.

Since the publishing of the map, there has been a great deal of debate over the map’s authenticity rather than the utility of its rendering. In fact, the debate has become an argument over chemical methodology. This battle was launched in 1971 by the release of the Proceedings of the Vinland Map Conference. Within this work, several factors calling the nature of the map into question were voiced due to the failure of Yale

\footnote{Gathorne-Hardy, 289-293.}

\footnote{Skelton, 3.}
University to release information on its origins\(^4\) and the contents of the map itself. Like the Hungarian Map, the Vinland Map includes a rendering of Greenland as an island. More, the Vinland Map's representation is simply too accurate for the supposed period of origin and such information was not available until the late nineteenth century (see Figure 1).\(^5\)

The major combatants in the battle over the Vinland Map's authenticity since that time have been chemists attempting to determine if the map's chemical composition supports the claims of its proponents. Walter C. McCrone has led the faction attempting to disprove these supporters. McCrone Associates, Inc. was hired by Yale University in 1974 to do the first definitive chemical research on the map by way of small particle analysis. David Baynes-Cope at the British Museum had conducted an earlier session, but he had not been allowed to extract any particles. Instead, his examination involved the use of infrared and ultraviolet light. He discovered that the ink on the Vinland Map did not react to the light in a manner consistent with the other two documents (the *Tartar Relation* and the *Speculum Historiale*).\(^6\) McCrone then analyzed the map and he determined that the map was a twentieth century forgery. T.A. Cahill of the University of California, Davis, has led the map's proponents. Cahill was hired after McCrone's

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Figure 1. The Vinland Map

results were released to determine if a different conclusion might be reached, and he refuted McCrone's earlier work.

McCrone began his experiments in 1972, and submitted a report to Yale University in January of 1974. A paper on the subject was presented at a conference concerning the map in London during February of 1974, but the results were first published in 1976 in the journal *Analytical Chemistry*. Miniscule samples were removed from the map and its two accompanying documents in a sterile environment using a one-micrometer wide tungsten needle. Twenty-nine nanogram samples were taken from the map itself. Eighteen were taken from the Speculum Historiale and seven from the Tartar Relation. The samples taken from the Vinland Map demonstrated that there were actually two inks used to draw the map. At first glance, it appeared that black ink had been used and that an organic vehicle for this ink had resulted in a migration and underlying yellow line (common among medieval documents). However, much of the black ink had flaked off, and it was revealed that there was no association between the yellow line and the black ink. The yellow line was actually the result of separate yellow ink utilized to present an appearance of age. The McCrone team found at least one location where the lines were not in agreement.⁷

This necessitated a reinforcing examination that involved the use of a scanning electron microscope and a transmission electron microscope. With the former (SEM), McCrone was able to identify the presence of anatase in the yellow ink. More commonly known as anatase, this form of titanium was not available for widespread use until 1920. In order to assure that a commercial form of titanium was being used, the shape of the

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⁷ Ibid., 677A-678A.
anatase particles was ascertained. Using the TEM, McCrone was able to discern a rounded shape to these titanium particles that would not have been found in a ground mineral form of ink (which would have been used in medieval Europe). Rather, this sort of particle would have been widely found in commercially distributed anatase.\(^8\)

To assure that the presence of the titanium was not an accident of later tampering, several samples from various portions of the map were tested. The titanium was found in more than twenty such samples of the yellow ink, but none was found in the black ink or the vellum of the map itself. Finally, several inks known to have been used during the medieval period were tested as possible vehicles for the titanium (assuming a fluke might have occurred). These included Indian ink, tea, bearberry, sepia, tannin, celandine, gall and iron gallotannates. None of them checked out. As a result, McCrone’s team determined that the map had to have been a forgery.\(^9\)

In 1987, continuing interest in the Vinland Map renewed the investigation and T.A. Cahill at the Crocker Nuclear Laboratory at the University of California, Davis, conducted a second group of tests. One hundred fifty nine elemental analyses were made of the map’s vellum and ink using the proton milliprobe or proton-induced X-ray emission (a nondestructive light analysis tool that does not involve the extraction of particles; often referred to as PIXE). Forty-five such analyses were made of the parchments and inks of the *Tartar Relation* and *Speculum Historiale*.\(^10\)

The analysis of the map produced results that were supposedly similar to results from other analyses of medieval documents. Titanium was detected in the map (along

\(^8\) Ibid., 678A.

\(^9\) Ibid., 679A.

with iron, zinc, copper, sulfur, chlorine, potassium and calcium), but apparently the same sort of analysis had uncovered titanium in other documents from the same period in Europe. No titanium was found in the Tartar Relation or Speculum Historiale. Of the analyses performed upon the map, 66% demonstrated the presence of titanium, but of those that did, the maximum presence encountered was 10.2 nanograms per square centimeter. Additionally, the amount of titanium present was not linked to the amount of other metals present, indicating a lack of uniformity within the ink. An excess of titanium was found in the ink that made up Vinland, but also in the ink that composed Japan, Spain and other countries. Perhaps most importantly, no section of the map’s ink demonstrated a presence of titanium greater than that which the parchment evinced. One must remember that McCrone did not find titanium in the parchment at all. Cahill’s results regarding the Tartar Relation and Speculum Historiale indicated a greater metallic content in the inks of these documents than was found in the map, but titanium is not mentioned.¹¹

The conclusion of the Cahill experiment was that one third of all inked lines demonstrate the presence of titanium (their detectable limit was 0.2 nanograms per square centimeter) despite the universal presence of the yellow stain to which McCrone referred. As a result, anatase cannot have been the source of the yellow pigment in question (the forger’s primary mark). The reason for this conclusion is that such a color results from anatase only when iron impurities are present. Modern manufacturing of anatase that results in the uniformly round particles of titanium that McCrone witnessed also results in a pure white color for which the substance is best known. Further, Cahill conducted

¹¹ Ibid., 830-831.
several experiments with anatase on parchment to determine the wear-rate. He concluded that no erasure or wear could have resulted in the lessening of the titanium presence below 230000 nanograms per square centimeter (astronomically higher than the presence he encountered). More, Cahill’s team did not encounter greater than 0.1-millimeter variance between the yellow and black lines. For this reason, he concluded that they had to be the result of the same ink. Ultimately, Cahill’s verdict was that there was no definitive chemical evidence that the map is a forgery.\textsuperscript{12}

McCrone’s response to Cahill’s work came in 1988. He released the complete results of his original experiments, which had not been made fully public to that point. This release addressed multiple aspects of the map that the two parties disagreed over. Firstly, McCrone made specific reference to the issue of the black and yellow lines (inks). He reiterated the difference between the two and referenced the west coast of England as an example of their variance. It seems that black line appeared to have been drawn too sparingly and portrayed England as somewhat smaller than the yellow line did.\textsuperscript{13}

Secondly, McCrone pointed out that the absence of the white color for which the substance in question is so famous actually points toward the presence of anatase. The brilliant white that Cahill associates with anatase is associated with titanium white by McCrone. More specifically, the lack of a strong white color under a transmitted light, such as that used by Cahill’s team, is indicative of a low refractive index, which McCrone identifies as an anatase characteristic, as opposed to substance’s response to

\textsuperscript{12} Ibid., 832-833.
\textsuperscript{13} Walter C. McCrone, “The Vinland Map,” \textit{Analytical Chemistry}, 60, no. 10 (May 1988), 1010.
reflected light. Such particles would appear white and match the description of titanium white when subjected to reflected light (as McCrone subjected it to).\textsuperscript{14}

Thirdly, McCrone observed that several of the samples taken demonstrated substantial variety in terms of the amount of black and yellow ink present. It follows that the uniformity of a solution comprised of fine particle substances is minimal at best. For this reason, different analyses of separate portions of the same sample might produce varying results. This would account for the differing conclusions of McCrone's team and Cahill's. Further, McCrone observed the presence of what appeared to be large jagged particles of ground limestone. This would have been an argument for the validity of the map as it was often used to make ink in the middle ages. The confirmed anatase was made up of uniformly small particles with an average diameter of 0.15 micrometers, but the few large particles actually turned out to be the rounded crystalline shapes associated with commercial titanium white. The production of this form of titanium reaches back to 1917 and no earlier. It is worth noting that the color of this pigment was yellow through the first few years of production due to an iron contamination thereof.\textsuperscript{15}

In order to confirm the above, McCrone employed several techniques. These included X-ray diffraction, scanning electron microscopy, transmission electron microscopy, particle size measurements, an electron microprobe analyzer, an ion microprobe analyzer and a comparison of ink samples from the three documents (the Vinland Map, the Tartar Relation and the Speculum Historiale). The XRD showed that the titanium was present in a fairly uniform level and in a form (titanium dioxide) that is not common and has only been available in pigment form since approximately 1920. The

\textsuperscript{14} Ibid., 1010.
\textsuperscript{15} Ibid., 1010-1011.
SEM demonstrated that the further presence of the anatase in the yellow ink and that it was separate from the black ink. The TEM demonstrated the anatase particles present to be uniformly small and rounded as they would be in a commercial anatase pigment (if they had been the results of ground minerals, they would have been larger and jagged). This was confirmed by measurement of these particles’ size. The EMA demonstrated an extensive titanium presence as opposed to the electron microprobe, which found none. This is particularly significant because Cahill’s team utilized the latter, which only detects down to 0.2 nanograms per square centimeter while the EMA detects down to the femtogram level (ten to the negative fifteenth power grams). This difference in microscopic discernment would easily have accounted for the different results of the two experiments. The IMA is a more titanium-sensitive probe that allowed McCrone to determine that anatase was present throughout the samples taken from the map in a fairly uniform manner (again consistent with commercially distributed anatase). A comparison of the results from the tests on the Vinland Map, *Tartar Relation* and *Speculum Historiale* shows that the level of titanium is extremely high in the Vinland Map (over 5% per sample area), while the others demonstrated a very low level (less than 1% per sample area).

In conclusion, McCrone reiterated the closing statements from his first paper on the subject and affirmed that the presence of the yellow ink and the anatase indicate forgery. More, he referred to the overly accurate depiction of Greenland’s northern coast and the use of the title *Hispanorum* in place of Spain (this would not be used until 1475) as further evidence of forgery. Finally, he pointed out that the microprobe utilized by

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16 Ibid., 1011-1013.
Cahill produced measurements of titanium that would have been set against a larger whole. Cahill’s team took larger samples that resulted in smaller percentage readings of anatase. According to McCrone this is the major factor in accounting for the discrepancy between the reports.\textsuperscript{17}

In 1990, Kenneth M. Towe wrote an article supporting McCrone’s position. In it, he re-emphasized all of the relevant evidence that McCrone had presented and set it within the context of other documents studied using Cahill’s techniques (primarily PIXE). While admitting that the Vinland Map matched these other documents at a glance, he upheld McCrone’s research by claiming that the details of the map’s composition do imply forgery. These details center on the presence of anatase and the use of a second ink to simulate age. Towe also claimed that the inability to explain the confirmed microscopic differences between the Vinland Map and other documents of the age results in the addition of Cahill’s evidence to the body that supports McCrone’s conclusions. Towe also points out that if anatase of this quality had been added accidentally to the map, it would not have been found in trace amounts concentrated in the ink, but rather throughout the vellum. He concludes by calling for research regarding the motives of the forger.\textsuperscript{18}

On February 10, 1996, the Yale University Press held a symposium to celebrate the release of “The Vinland Map,” authored by those who had published the original document on the subject: “The Vinland Map and the Tartar Relation.” Only those who believed in the map’s authenticity were invited, and Walter McCrone was excluded

\textsuperscript{17} Ibid., 1014-1017.
\textsuperscript{18} Kenneth M. Towe, “The Vinland Map: Still a Forgery,” \textit{Accounts of Chemical Research}, 23, no. 3 (1990), 84-87.
despite his work on the map. The New York Times published a portion of the meeting’s results and proponent Wilcomb Washburn of the Smithsonian appeared on CBS that evening to champion the map’s authenticity. He revealed what appears to be an ignorance of the debate during the segment by stating that anatase had been found not only on the Vinland Map but also on the accompanying Tartar Relation and Speculum Historiale. Neither McCrone nor Cahill has ever found such a presence. At this point the debate seems to be degenerating into a hotheaded affair, with continually growing support for the map’s authenticity (or growing publicity for the map’s authenticity). Despite this, no one has satisfactorily addressed the issues raised by McCrone, who seems to be the only one maintaining a professional stance.

The final verdict on the Vinland Map, pending further evidence and some sort of breakthrough that includes serious mistakes on the part of all researchers involved, must be that it is a forgery. Cartographical, historical and chemical evidence all point towards this. It seems that work of T.A. Cahill was carried out with too narrow a focus and that McCrone and Towe have placed the microscopic data of the Vinland Map in its proper context. Given that the Vinland Map cannot be called genuine, there is little point in analyzing the maritime utility of its renderings. There can be none. Even if one does analyze it, little is offered. All the lands encountered in the sagas are portrayed as a single landmass with two fjords. The term Vinland is attached to this land, and seemingly refers to the northern most outcropping. If this is so, the reference points of Helluland and Markland are omitted entirely and Vinland is substantially larger than

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Greenland (difficult to swallow). If not, then the land mass is fairly believable as a medieval representation of the region, but it is placed too far away from Greenland and the relative sizes of Greenland and Vinland are still outrageous.\footnote{Skelton, 20.} There is no way to be sure of the creator’s intentions and ultimately, the map can contribute little to the search for Vinland.

**THE STEFANSSON MAP**

The Icelander Sigurdur Stefansson drew (actually copied) the *Skalholt* or Stefansson Map in 1590. The bishop Thordur Thorlaksson made the sole surviving copy in 1670. It currently rests in the royal library of Copenhagen. Originally, the map was incorrectly dated to 1570, which would have been close to Stefansson’s birth.\footnote{Jones, 117.} Although the academic community does not question the map’s authenticity as a medieval/early modern document (because its origins are known and its life can be traced), for some time the utility of this document (and the Resen Map) was questioned because it was believed that the map was based entirely upon the descriptions from the sagas.

Gathorne-Hardy and Helge Ingstad agree that the map demonstrates a greater knowledge of the north Atlantic than this implies. This includes a rendering of two fjords in southwest Greenland that led to the Eastern and Western settlements. In fact, the one thing that the Resen Map has which the Stefansson Map does not is a correct labeling of these fjords. In the centuries following the loss of contact with the Greenland colony, this information was lost and it was believed that the Eastern Settlement was actually on
the east coast of Greenland. The correct portrayal of the settlement indicates that the map’s author did have some legitimate knowledge of the region. Of course, virtually every landmass is depicted as a peninsula, but this was a common misconception of world geography by medieval Europeans. It should be noted that the map is somewhat more accurate when dealing with distances between landmasses, which shall be the basis for this analysis.

The Stefansson map portrays all of the Atlantic lands the Norse would have been familiar with. It also depicts them with great accuracy considering the date of rendering. Most importantly, the Stefansson Map obviously equates Vinland with the northern promontory of Newfoundland. The Norse of the sagas would not have used the latitude system utilized by Stefansson, but the charts that they did produce had to have utilized some such system. The entirety of the map seems to have been drawn in relation to the southern tip of Greenland: Cape Farewell. Modern charts indicate a distance of 1,573 nautical miles between Farewell and Hernar in Norway. The Stefansson Map indicates a distance of 1,360 nautical miles, but this is so because Stefansson places the cape three degrees north of its actual position. If this is taken into account, and all land masses are moved three degrees to the south, the latitudes of Stefansson’s map are almost equivalent to those of a modern chart (to within a degree and half at most, but typically less than a degree). Examining the outcroppings of the lands labeled Helluland and Markland on the Stefansson Map proves this. They are the latitudinal equivalents of the east coast of

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22 Helge Ingstad, 83-84.
23 Coulton, 187-188.
24 Helge Ingstad, 84.
Figure 2. The Stefansson Map

Labrador (see Figure 2). Of course, this would make Helluland a part of Labrador instead of Baffin Island, which is not in agreement with the descriptions of the sagas. This must be temporarily overlooked to determine the map’s value. South of Labrador, the map’s accuracy seems to fail. It portrays Newfoundland’s peninsula as running along a north-south axis instead of the actual southwest-northeast axis. The peninsula is also much too large with its east coast veering southeast as it the map ends. F. Mowat believes that these distortions are the result of a wish to make the map agree with the medieval belief that Africa extended into this region of the world (connecting to Vinland). This seems unlikely given the accuracy of the map north of the peninsula.

Richard L. Coulton suggests that the reason for this may be Stefansson’s compilation of two maps to portray North America. One depicted Labrador and the other Newfoundland. According to F. Mowat, the map is actually a composite of three other charts. One was a common European map of Iceland and the region to the east thereof. Another was an early thirteenth century map of Greenland, and the last map (or maps) has to have been an eleventh century depiction of Newfoundland and Labrador due to the accuracy of the portrayal and its agreement with the Saga’s characteristics.

Coulton also implies that Stefansson may have failed to discern the difference between long and short doegr when reading the source maps. Given the base at L’Anse aux Meadows, it seems likely that the Norse would have explored the locality using rowboats, and recorded their travels in terms of short doegr or the thirty-five nautical

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25 Coulton, 188.
27 Coulton, 190.
28 Mowat, 364-371.
mile distance that could be rowed in a day. Conversely, the travels between Greenland, *Heluland, Markland* and Vinland were measured in long *doegr* or the one hundred twenty mile distance that could be sailed in a day. The discrepancy would result in a Newfoundland peninsula four times the size it should be, which roughly equates to Stefansson’s portrayal.

Coulton has a similar solution to the problem of the peninsula’s axis. Virtually all maps during the sixteenth century were drawn using compasses, but the Norse did not have compasses. As a result, their maps would have indicated true north instead of magnetic north. Sixteenth century magnetic compass variation within Newfoundland would have been twenty-two degrees west. Stefansson might have changed the depiction of Newfoundland accordingly to represent true north. This would account for the north-south axis.29

If Coulton were correct regarding the two maps of the region, it would seem that the Labrador map was drawn with considerably greater accuracy. As it is thought that the Norse continued to make voyages there for timber even after Vinland was lost, this would make sense. Regardless, the Stefansson Map obviously indicates Newfoundland as Vinland and the majority of objections to its content have been accounted for. The best statistic to leave this document with would be the map’s asserted distance between the southern tip of Greenland and the northern tip of Newfoundland: 640 nautical miles. According to modern charts it is 622.30

In summary, it seems that there are two surviving authenticated maps that include Vinland: the Stefansson and Resen Maps. The controversial Vinland Map can contribute

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29 Coulton, 190-191.
30 Helge Ingstad, 84.
little to the search due to the doubts about its origins and the mounting chemical evidence against its authenticity. The Hungarian Map discovered by Helge Ingstad has never really been considered genuine by the academic community and appears to be based upon the Stefansson Map. The Stefansson and Resen Maps are virtually the same with the exception of a few labels and some artistic license. They both indicate Newfoundland’s northern promontory as Vinland.
CHAPTER IV
CONCLUSION

It has been demonstrated how both the Vinland sagas and maps point to Newfoundland as the location of Norse settlement. Helge Ingstad’s discovery at L’Anse aux Meadows confirmed a settlement, and Anne Stine Ingstad’s excavations confirmed that it was Norse and could be dated to near the year 1000 CE.

Anne Stine Ingstad excavated the Norse site at L’Anse aux Meadows over the course of seven expeditions during the years 1961-1968. Nine houses, four boat-sheds, a charcoal kiln and several smaller artifacts were found. Among these artifacts were a soapstone spindle-whorl and a thin bronze pin. The fashion of the longhouses discovered strongly resembles that of longhouses excavated in Greenland and Iceland, but there is nothing distinctive enough about the remains of these houses to prove that they were Norse.1 Rather, the presence of the two aforementioned artifacts (spindle-whorl and pin) confirms the Norse nature of L’Anse aux Meadows.

The soapstone spindle-whorl was discovered during the third expedition in 1964. The device was unknown to the natives of North America during the relevant time period and resembled other such artifacts recovered from confirmed Norse sites, particularly in Greenland, Iceland and Norway. The artifact also resembles one found in the second house-site at Jarlshof in the Shetland Islands. In fact, this sort of spindle whorl was the most common type throughout the Norse dominion during the Viking Age. It was the first indisputable evidence of a Norse presence to be recovered. As this was the only

1 Anne Stine Ingstad, 27.
soapstone artifact recovered, it implies that the settlement can be dated near the year 1000 because the Norse Greenlanders (the most likely candidates for this settlement) would not have discovered the soapstone deposits of Greenland until they had lived there for a substantial period of time.²

In 1968, a thin bronze pin 10 cm long with a ring-head was discovered. This artifact was of primary importance because its style confirmed the time period of the Norse presence: the ninth or tenth centuries. Particularly favored by Viking women, such pins have been found in Iceland, Ireland, Scotland, the Hebrides and the Isle of Man. However, the greatest number of these pins has been found in Norway. Some twenty specimens were recovered from Kaupang, Vestfold and other sites.³ Other reinforcing finds were made as well; the remnants of a bog iron smithy (another technology unknown to the natives of North America), etc. No finds were made that implied a European presence later than the fifteenth century. In addition, nothing was found that proved the settlement at L’Anse aux Meadows was Leifsbudir, Hope or Vinland.⁴

No other archaeological finds offer themselves as potential candidates for Vinland. Dr. Thomas E. Lee discovered several long houses on the west coast of Ungava Bay (northern Quebec) in the 1960’s, but they have not been confirmed as Norse structures.⁵ Part of the reason for this is that the houses contain ember pits that don’t adjoin the hearths. Additionally, the houses contain more than one such pit per room.

² Ibid., 206, 234.
³ Ibid., 159, 160, 234.
⁴ Surprisingly, no refuse deposits were found during the excavations at L’Anse aux Meadows. As a result, there can be no proof or absence of grape ingestion as there is no fecal data to evaluate. Neither did the excavation uncover evidence of uneaten grapes.
Neither of these traits is common amongst Norse long houses. Two other structures were found on Payne Lake (up the Payne River from Ungava Bay) that Lee claimed were a Christian Church and a monument to Thor’s Hammer. Both are questionable in this context and it seems unlikely that the same party of Norsemen would have constructed both. In fact, there is increasing evidence (artifacts, human remains, etc.) that the longhouses were the work of a Stone Age culture, probably Dorset Eskimos. Lee acknowledged the later presence of such Eskimos, but claimed that the stones used to build all of these structures were too heavy to have been moved by anything but a European ship’s hoist during the relevant time period. Ultimately, it seems unlikely that the area would have attracted any Norse settlers. It is too barren and even during the warmth of the medieval period, would have offered few of the natural resources that the Norsemen prized most highly: timber, pastureland, etc. Until some sort of confirmation is obtained, the site cannot be considered Norse and it seems unwise to even court the possibility of the Ungava Peninsula being the verdant Vinland of the sagas.

This leaves the site at L’Anse aux Meadows as the sole surviving archaeological evidence of Norse settlement in North America during the medieval period. The sagas lead us to believe that it was the site of either Leifsbudir or at least a portion of Vinland. The two seemingly authentic medieval maps available also point in this direction. Despite this, many dispute that it was the Vinland of the sagas. These detractors are convinced that the salient point when searching for Vinland is the presence of wild grapevines (those scholars preferring the alternate translation as pastureland are outnumbered), and cannot get past the fact that such grapes do not exist in Newfoundland.

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6 Helge Ingstad, 133-137.
today. It has already been explained that there is nothing to preclude the growing of such vines in Newfoundland during the period of the Viking settlement. However, some evidence has been found that indicates Norse journeys south of L’Anse aux Meadows (Wallace’s butternuts for example). This in and of itself does not invalidate Newfoundland as Vinland, but rather confirms the sagas’ descriptions of the journeys of Thorfinn Karlsefni and suggests a more general definition for Vinland might serve us well. Newfoundland as a whole still meets all of the necessary requirements.

It must be reiterated that continued searching for archaeological evidence is warranted. Although all of the evidence points towards Vinland as Newfoundland and L’Anse aux Meadows as Leifsbudir, this leaves Karlsefni’s Hope yet to be discovered. It seems likely that further evidence would bolster the current argument, but the current evidence does not guarantee that the above assertions are correct. More is needed to assure identification.
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VITA

Clifford W. Anderson received a B.A. in History from Virginia Wesleyan College in May, 1997. He received his M.A. in History from The Department of History, Batten Arts and Letters 800 at Old Dominion University, Norfolk, VA 23509-0091 in May, 2001. Clifford was a graduate teaching assistant for the History Department at Old Dominion University for two years while working on his Master’s degree.