

Inscribing Environmental Memory in the Icelandic Sagas and the *Icelandic Saga Map*

EMILY LETHBRIDGE AND
STEVEN HARTMAN

THIS ESSAY DISCUSSES STRATEGIC EFFORTS TO DEVELOP NEW DIGITAL RESEARCH TOOLS AND APPROACHES AS KEY ELEMENTS OF AN INTERDISCIPLINARY research initiative in progress, Inscribing Environmental Memory in the Icelandic Sagas (IEM),¹ which aims to study aspects of Icelandic literature, history, archaeology, environment, and geography in order to better understand societal responses to environmental change over the *longue durée*. The essay showcases a particular digital humanities project, *Icelandic Saga Map (ISM)*,² which not only provides an extremely useful tool for helping achieve many of the identified aims and methodological needs of an integrated environmental humanities initiative such as IEM but also is a valuable example of how innovative digital humanities tools can foster new research trajectories and open up new horizons for interdisciplinary engagement and synthesis of knowledge and diverse data.

A Brief History of the Initiative Inscribing Environmental Memory in the Icelandic Sagas

The IEM initiative was set in motion by the Nordic Network for Interdisciplinary Environmental Studies (NIES) following exploratory discussions among landscape researchers, ecocritics, archaeologists, anthropologists, and environmental historians at NIES V, the international research symposium on environmental humanities that took place in Sigtuna, Sweden, on 14–19 October 2011. The initial proposal was to examine environmental representation in the medieval Icelandic sagas, which had not been attempted before, by applying various approaches and theoretical frames from ecocriticism. The idea quickly developed into a more ambitious undertaking when it was realized that a wider research collaboration across many disciplines and scientific domains might be more rewarding, if also considerably more difficult. The ideal collaboration would examine not only environmental representation in the sagas but also environmental information in other medieval Icelandic documentary

EMILY LETHBRIDGE holds a PhD in Old Norse literature from the University of Cambridge and is currently working as a researcher and lecturer at the Centre for Medieval Research, University of Iceland, and the Árni Magnússon Institute for Icelandic Studies, Reykjavík. In addition to developing the *Icelandic Saga Map* online resource, she is completing research projects on the transmission of medieval Icelandic literature in its medieval and postmedieval manuscript contexts and in the context of its Icelandic landscapes and place-names.

STEVEN HARTMAN is professor of English at Mid Sweden University, where he leads the Eco-Humanities Hub and chairs the Nordic Network for Interdisciplinary Environmental Studies. His recent work addresses environmental consciousness and environmental memory in place-based and historiographic literature. He leads the initiative Inscribing Environmental Memory in the Icelandic Sagas and serves as coeditor for the Brill series Studies in Environmental Humanities.

sources (early censuses, stock records, official reports, church records, tax records, legal codes, annals, and early historiographic writings). The environmental content of such sources would be analyzed comparatively, both augmenting completed archaeological research and drawing on findings from field studies in historical ecology, physical geography, paleoenvironmental studies, environmental science, and archaeology (see fig. 1).

In the initiative's earliest developmental stages the use of new digital tools and cyberinfrastructural platforms to facilitate cross-disciplinary collaboration, data sharing, and dissemination of findings was explored at length. These exploratory discussions intensified when NIES entered into a partnership with the North Atlantic Biocultural Organization (NABO) in 2012. Over the following two years workshops organized jointly by NIES and NABO expanded the scope of the IEM initiative both temporally and geographically, but the priority remained the consideration of local Icelandic knowledge from literary and historical sources and the application of humanities-driven analysis in novel research collaborations linking cultural and historical studies with environmental science and archaeology.

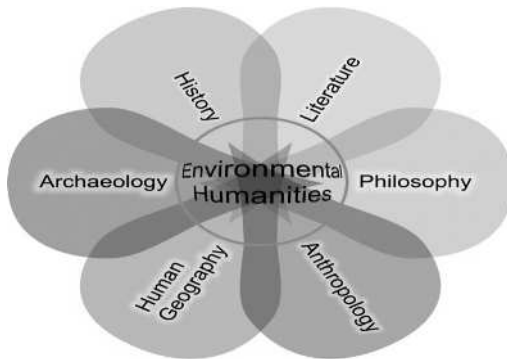
The question of what can lead us to a sustainable future is ultimately far too complex to be understood, much less resolved, within the boundaries of single disciplines. Understanding the human dimensions of environmental change (e.g., human activities and

their consequences at wide-ranging scales of impact) requires contributions from many specialized fields of knowledge. The collaborations that have begun to unfold in the IEM initiative are self-organized in distinct but overlapping subproject teams defined by a radical openness to disciplinary border crossing and by an ambition "to align physical environmental studies with aesthetic, ethical, historical and cultural modes of inquiry" (Hartman, "Climate Change"). This kind of approach allows for multidisciplinary crowdsourcing of data and expertise. The relevance and respective balance of disciplinary inputs from social sciences, humanities, and natural sciences disciplines will inevitably vary, depending on what research questions are addressed and on what knowledge and methods need to be marshaled in response to these questions. The guiding principles of interdisciplinarity (of codesign and coexecution of research and, when possible, codissemination of results) are not so much programmatic as practical in the context of IEM.

The IEM initiative is now a NIES-NABO collaboration anchoring the Circumpolar Networks program of IHOPE (Integrated History and Future of People of Earth), a core project of Future Earth (<http://ihopenet.org/circumpolarnetworks/>). As a program complement to the international project Comparative Island Ecodynamics,³ IEM draws on participating research groups from Scandinavia, Iceland, Greenland, the United Kingdom, and North America.⁴ The initiative has the potential to make unprecedented transdisciplinary connections across a wide spectrum of research communities and academic domains, from so-called hard environmental science to education for sustainability, in which environmental social sciences and environmental humanities together play a central role. Bridging of the present and the deep past are also defining aspects of these investigations. As the IHOPE Circumpolar Networks program investigates different aspects of environmental

FIG. 1

Integrated environmental humanities flower diagram, by Phil Buckland and Steven Hartman.



change on a millennial scale, new connections are opening up among scholars in environmental studies, medieval studies, ecocriticism, and digital humanities, to name only some of the scholarly communities collaborating, in some cases for the first time. The *longue durée* is understood to offer knowledge and lessons from “completed experiments of the past” that are applicable to our experiences of present-day and future environmental change and can help inform our responses to new challenges (Dugmore et al. 436).

In 2015 the first of many multidisciplinary and interdisciplinary publications from the IHOPE Circumpolar Networks program began to appear on case studies that integrate the environmental humanities and social sciences as salutary complements to environmental science in a flexible structure for problem-driven research (Brewington et al.; Frei et al.; Hartman et al., “Integrated Environmental Humanities” and “‘Viking’ Ecologies”). As one study states:

In this context the term *Humanities* is not meant to call to mind a bounded liberal arts scholarly domain separate from the natural sciences. Rather it is meant to signal the entanglement, even the centrality, of *the human* in the present age of accelerated global change. Humanities, in this sense, can extend to any field of inquiry foregrounding human agency in relation to environmental challenges—causes, influences, effects and solutions.

(Hartman, “Unpacking”)

In the workshops that have helped drive these integrated studies forward, participants in IEM and its sister initiative, Comparative Island Ecodynamics, have recognized the critical importance of map-based visualization and geographic information system (GIS)-aided data management. Energy and resources in the IHOPE Circumpolar Networks program have been directed toward enabling the integration of previously isolated and relatively inaccessible data sets, as well as toward pro-

viding common reference points and common focalizing tools for communicating across the theoretical, methodological, and sometimes even epistemological divides that separate different academic knowledge communities.

Maps have become increasingly useful tools for displaying diverse data sets and promoting the cross-disciplinary recognition of patterns in social and environmental factors that play out in both space and time. Maps are powerful tools for visualization in general, but their power increases exponentially with the application of GIS technology backed by highly detailed spatially referenced data sets (e.g., historical routes, past human and animal censuses, shifting power centers, areas of different vulnerability to climate change on different scales), as a number of studies demonstrate (e.g., Gregory and Ell). Maps also have tremendous potential as points of cross-disciplinary interface enabling the creative overlaying and stimulation of interdisciplinary conversation and understanding.⁵

The Icelandic Saga Map Project

The development of a new digital resource for the study of the medieval Icelandic sagas—the *Icelandic Saga Map (ISM)*—was conceived partly as a tool to formulate and consider research questions concerning the sagas, their textual transmission, and their representation of historic Icelandic environments (geography, physical topography, weather, seasonal conditions, and landscape features both natural and cultural). The project came into being precisely as momentum began to build in the emerging scholarly community of practice that coalesced in IEM and affiliated IHOPE Circumpolar Networks subprojects. That IEM and *ISM* found each other is not surprising, given the interests they share in geography and narrative means of mapping and memorializing environments, places, and communities. It is fortunate that these projects have connected, not least for the innovative ways

in which ISM is building digital humanities synergies with other cyberinfrastructural elements identified as necessary to the success of IEM and kindred projects now unfolding in the IHOPE Circumpolar Networks program.⁶

The *Íslendingasögur* as a Corpus

From the late twelfth century onward, Icelanders began to write, in the vernacular, accounts of their ancestors' late-ninth-century settlement of Iceland and the events in which the descendants of these first settlers were involved. These texts are the *Íslendingasögur* ("Sagas of Icelanders"), sometimes also called the Icelandic Family Sagas. Medieval and postmedieval manuscripts (the oldest manuscript dates to the mid-thirteenth century) preserve texts of some forty *Íslendingasögur* narratives (Lethbridge, "*Hvorki glansar*"). Some of these texts are prosimetric in form: the prose is studded with verses uttered by characters to mark certain occasions or to serve as commentary on events. The *Íslendingasögur* range in length from around twenty to three hundred pages in printed editions or paperback translation. The sources that the anonymous authors drew on belonged to the sphere of oral culture (genealogical material, anecdotes associated with specific places, etc.), on the one hand, and intellectual, learned book culture, on the other (see Clover 241–45, 250–53, 272–94).

The *Íslendingasögur* are not the only accounts of the settlement of Iceland. Other, more historical works include *Íslendingabók* ("The Book of Icelanders"), written by Ari fróði ("the learned") Þorgilsson (d. 1148) in the 1120s, and *Landnámabók* ("The Book of Settlements"), also thought to have been first composed in the early twelfth century but now extant only in several later medieval versions. It is worth noting that the *Íslendingasögur* are one of several types or genres of saga narrative produced in the early medieval period in Iceland. Other saga genres are the so-called

contemporary sagas (*samtíðarsögur*), bishops' sagas (*biskupasögur*), kings' sagas (*konungasögur*), legendary-heroic sagas (*fornaldarsögur*), and chivalric sagas (*ridðarasögur*),⁷ but only the *Íslendingasögur* concern us in this essay.

Rooted in the landscapes of Iceland, the *Íslendingasögur* describe the claiming of specific tracts of land and the building of farms on specific sites. They also describe movement around local areas and further afield in connection with agricultural practices (e.g., livestock management), politically and legally motivated travel (to local assemblies or to the Alþingi, the annual national assembly held each June at Þingvellir in the southwest of Iceland), or in the unfolding of local disputes (ambushes, raids).

Icelandic landscapes have undergone great change from the time when the *Íslendingasögur* are set to the time when they were written down in the thirteenth, fourteenth, and fifteenth centuries, and from that period up until the present day. The first few centuries after the Norse settlement of Iceland witnessed not only climatic changes but also significant anthropogenic transformations of the land and ecosystems—deforestation and erosion caused by agricultural practices imported to the island by the settling culture, for example. Climatic changes that played out in the North Atlantic from the Viking age through the end of the medieval period make Iceland a particularly interesting focus of research on environmental change, cultural adaptation, and social-ecological resilience (see Harrison and Maher; Hartman et al., "'Viking' Ecologies" and "Integrated Environmental Humanities"). The story of human ecodynamics in the first five to six hundred years of Icelandic history is made up of losses and gains for the environment, successes and failures for the human communities that adapted to and adapted with that environment, and this dappled history raises many interesting questions about the interdependency of social and ecological factors.

Yet despite change, there has also been great continuity with respect to Icelandic landscapes and human settlement in them over a period of 1200 years. Many farms have stood on the same site for a millennium and may even bear their original name, making it possible, in many cases, to connect them with places named in the sagas. All kinds of insights with regard to understanding the saga narratives, as well as the manner in which they were transmitted over many centuries, can result from the direct matching of physical place and textual place. However, while this one-to-one mapping may seem transparent and straightforward, it is not without methodological complications and caveats, to which *ISM* draws attention.

History, Fiction, and Topographic Detail in the *Íslendingasögur*

Chapter 128 of *Njáls saga* (“The Saga of Njáll”) describes how just before the infamous arson attack on Njáll’s farm at Bergþórshvöll (and the burning alive of all those inside the building), Flosi Þórðarson and the burners (who number about one hundred men with up to two hundred horses) stop in a hollow or small valley not far from Bergþórshvöll, tie up their horses, and wait as the evening draws on before proceeding to the farm.⁸ After the burning, the party rides off to Þríhyrningur, the distinctive triple-horned mountain twenty-two kilometers northeast across the flat Landeyjar plains on which Bergþórshvöll is located. Flosi proposes that they remain there in hiding for three days in order to watch movement in the area.⁹ A variant reading in one medieval manuscript adds that a certain valley or bowl on the mountain where Flosi and his men hide themselves subsequently became known as Flosadalur (“Flosi’s valley”).¹⁰

The burning of the farm was a historical event—it is mentioned in the Icelandic annals for 1009–10. But neither *Njáls saga*

(probably written around 1280, almost three hundred years after the events it describes) nor other *Íslendingasögur* are now used as sources for Iceland’s early history, though they were read as such up until as late as the mid-twentieth century. Bergþórshvöll, as many other saga sites, was excavated on several occasions by antiquarians and archaeologists looking to connect the material record with the literary one (Friðriksson). The sagas’ seemingly objective and realistic style contributed to a general faith in their reliability as records of events, and topographic details were used to support (or question) their historicity. Topography was drawn on in scholarly discussion about the *Íslendingasögur*’s authorship, audience, circumstances of composition, and transmission (Lethbridge, “Authors” and “Dating”).

Commentary in editions of *Njáls saga* and elsewhere has focused on the fit between topographic detail mentioned in the saga and the physical appearance and contours of Bergþórshvöll and the surrounding area (see Sveinsson, *Brennu-Njáls saga* lxxxiv–c, 325n3, 332n5, 332–33n6, and “Journey”; Bjarnason 16–18). The location of the valley near Bergþórshvöll where Flosi and his men are said to have hidden before attacking, has been much discussed. Identifying this spot in today’s landscape seems to have been a pressing need for some critics. A certain hollow or depression not far from the farm site at Bergþórshvöll measuring fifteen by twenty meters is noted by a number of critics, who argue that originally it must have been bigger, in order to accommodate a hundred men and two hundred horses (Sveinsson, *Brennu-Njáls saga* 325n3). It is not only literary historians who are involved in this debate; geologists too have speculated on the fit between landscape and text and ways in which the landscape may have changed over time. One has proposed that the hollow could have been the channel of a dried-up river (Einarsson).

"This Is the Place . . ."¹¹

Because the sagas sit on the boundary between history and fiction, it is no surprise that local topographic detail should give rise to such extensive discussion. At stake is often something more than the veracity of the narrative: the place of the sagas in Icelandic history and culture over time, on local and national levels. These debates—typically published in local journals and magazines, and constituting lengthy sections in the introductions to the standard Old Norse–Icelandic Íslenzk fornrit text editions—are part of the historiography of scholarship on the sagas. That scholars and interested local parties still revisit questions of where events in *Njáls saga* took place demonstrates the sagas' importance as social documents, aside from their international fame as literature.

It is not necessarily the answers to these questions that are the most significant. Often a location cannot be determined: more than one place may have the same name, and names can change and even move around over time. Yet a geographic approach remains possible, because the sagas are so deeply tied to and rooted in the Icelandic landscapes. Without an integrated and informed appreciation of this rootedness, it can be hard to understand certain aspects of the sagas on a narrative level. It can also be harder to contextualize the sagas as cultural artifacts both locally and nationally over the course of many centuries and to grasp the implications of the uses to which they have been put.¹²

Memories inscribed in *Íslendingasögur* and other medieval Icelandic sagas, including environmental memories, are linked to the real world in complex ways. Saga narratives tend to present recognizable places and plausible social situations, as well as historically grounded events and figures that would have been known to native audiences as part of their society's shared past. But the de-

scriptions of the past do not merely preserve memories; they also shape and transform them for use in the present and future. The *Íslendingasögur* must therefore be read both with an eye to the environments, actors, and events they memorialize and with regard to the political and socioenvironmental contexts in which they were composed in their now-received (preserved) forms—that is, as cultural artifacts from the thirteenth, fourteenth, and fifteenth centuries.

Digital Mapping and the *Icelandic Saga Map* Project

The comprehensive and far-reaching ways that the sagas are rooted in the local landscapes make them a perfect body of texts to use to explore the possibilities that digital mapping offers. The process of mapping the sagas is interesting in itself, because the mapping stands methodologically somewhere between what has been called literary cartography, on the one hand (i.e., the mapping of imaginary literary realms or spaces—see Piatti et al.), and historical GIS cartographic practices, on the other, since places with the same names as those mentioned in the sagas can be found in Iceland today. If the sagas are best described as a kind of historical fiction, what happens when their narratives are superimposed on actual Icelandic landscapes? What kind of technical, methodological, and theoretical challenges arise? What new literary-historical insights or critical perspectives are gained?

The *Icelandic Saga Map* (<http://sagamap.hi.is>; see fig. 2) is an open-access, online digital resource being developed as a tool to enable specialists and nonspecialists alike to read the *Íslendingasögur* from a spatial perspective and to visualize how and where around Iceland the events described in the sagas unfold. Linking the saga narratives to the landscapes in which their action is set,

and in which they have been read and retold over many centuries, is a simple but highly effective way to bring the sagas to life for modern readers. Maps of saga locations are found as appendices in printed editions and translations of the sagas, but the possibilities for utilizing advances in digital humanities technologies (in particular GIS mapping) have barely been explored in the study of Old Norse–Icelandic literature.

The *ISM* user interface consists of a map on the left-hand part of the screen and, on the right-hand part of the screen, the text of the

saga that is selected by the user, from a drop-down menu at the top. Every place named in the saga text is geotagged and hyperlinked to its location on the map. When the user selects a saga, all the places named in it appear as points on the map (see fig. 3). A white border around a point on the map indicates that that place occurs in other sagas. As many sagas as the user wishes can be loaded onto the map interface, once a base saga has been chosen (see fig. 4). A place-name appears when the user holds a mouse over the point. A pop-up information box appears at a click, and



Fig. 2

Icelandic Saga Map home page (<http://sagamap.hi.is>).

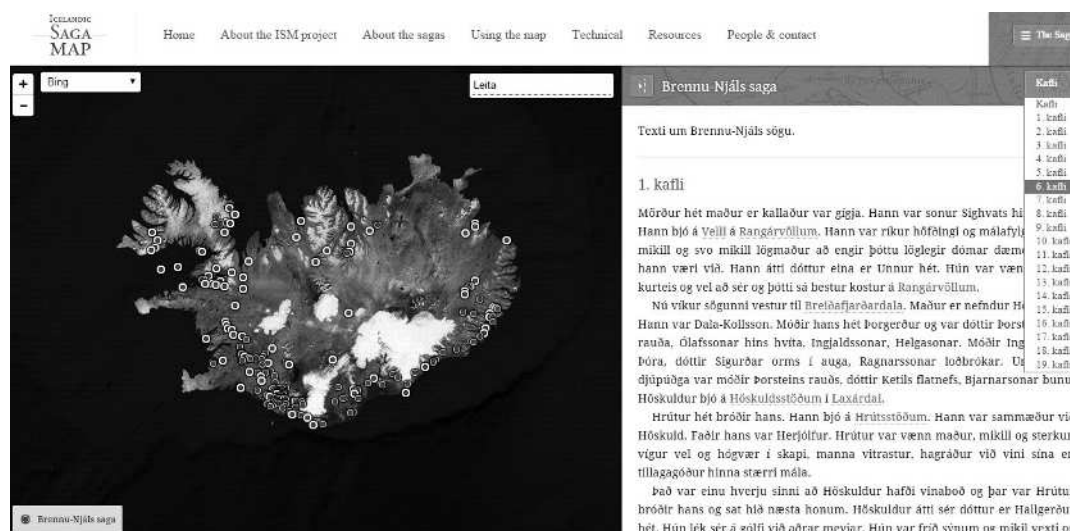


Fig. 3

Njáls saga; red dots indicate places named in the saga text. The text is navigable by a drop-down chapter list that appears on the top right of the page. A white border around a dot indicates that the place is mentioned in at least one other saga.

the box also appears if the place-name in the text is clicked (see fig. 5). The type of place is specified (farm, river, cliff, estuary, etc.), and the county is given, along with latitude and longitude coordinates. A list of hyperlinked chapter references of where the place-name occurs elsewhere in the saga, or in other sagas, is also provided in the information box.

If online resources (e.g., archaeological excavation reports) or images of the place are available, a hyperlink to them is given. If there has been debate or uncertainty about the location of the place, or if the place-name

was changed or lost, such information and bibliographic references from the Íslensk fornrit edition footnotes are included in the information box. There is also a search function that enables users to look for and locate specific places, as well as zoom capabilities and alternative views of the base map (i.e., satellite, topographical). Elsewhere on the Web site, the user can find information about the project, about the sagas, and about the text editions used for the interface. There are notes on the technical specifications and coding programs used, and a list of bibliographic

FIG. 4

Njáls saga (red dots) and two other sagas whose geography overlaps with that of *Njáls saga*, *Egils saga Skallagrímssonar* (green dots) and *Flóamanna saga* (orange dots).

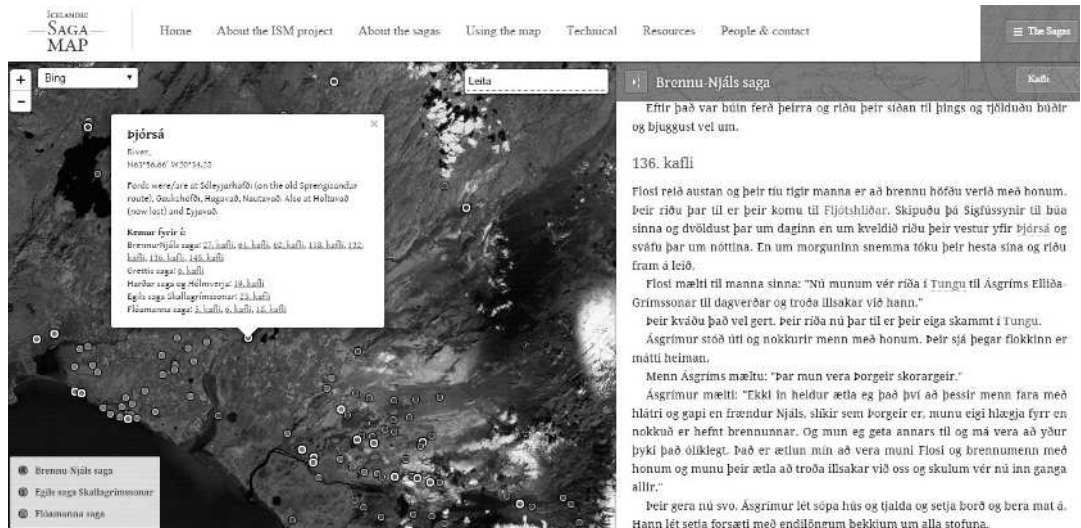
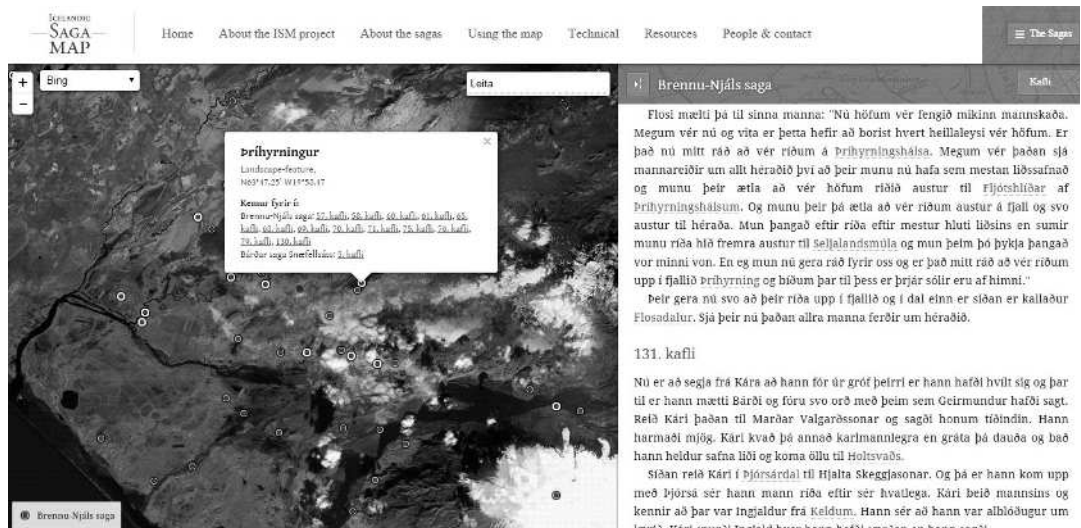


FIG. 5

Njáls saga; the Þríhyrningur mountain is selected, and the information box showing references to chapters in *Njáls saga* and other sagas that mention Þríhyrningur are listed here and hyperlinked to the text(s).



or other resources useful for the landscape-based study of the sagas.

Because the interface grants access to the world of the sagas to many different kinds of users, the *ISM* has both educational and entertainment value. Stories are always more memorable and meaningful when they can be attached to specific locations. The *ISM* has been put to good use as a teaching resource in both schools and universities. Tourists visiting Iceland may benefit from it during their stay, although at present only Icelandic texts of the sagas have been geo-referenced. Making the Web site and its content accessible to non-Icelandic speakers by adding English translations of each saga is a priority in the future development of the resource.

Plans for development of the *ISM* in the immediate future include adding *Landnámabók* and texts from other saga genres to the resource (contemporary sagas, bishops' sagas, *þættir* or short tales of Icelanders). A layer will be added soon that provides information about medieval and postmedieval manuscripts that contain texts of the sagas and the places they have been associated with. A genealogy dimension will also be added, hyperlinking characters named in the texts with associated places, or with each other, through family trees—genealogy is a core organizing principle in the saga narratives.

As part of the cyberNABO project (see Strawhacker et al. and www.cybernabo.org/),¹³ another key infrastructural development strengthening IEM and IHOPE Circumpolar Networks, exploratory efforts are under way to scope the potential for comparative approaches to the North Atlantic in the Viking and medieval periods by linking all kinds of existing data sets (e.g., for tephra, soil, pollen, ecological data, archaeological surveys) and enabling the layering of data and GIS visualizations. To this end, ontological concepts are being tagged in a sample of saga texts. Attempting to bring together the textual-literary record with environmental

proxy data sets by using an overarching ontological framework is a new approach and, it is hoped, one that will ultimately stimulate the creation of new sets of cross-disciplinary research questions and collaborations.

A New Model of Integrated Research and Scholarship

Interfacing the digital humanities and the environmental humanities is crucial to the success of interdisciplinary collaborations such as those now unfolding in Inscribing Environmental Memory in the Icelandic Sagas and IHOPE Circumpolar Networks. These scholarly communities of practice exemplify a model of integrated research and scholarship in which humanities disciplines such as environmental literary criticism and environmental history are demonstrably central to the production of new knowledge that is relevant to the societal challenges of the early-twenty-first century. This model can help place humanities specialists on surer and more equitable footing with experts from the social sciences and natural sciences in collective efforts to meet these challenges. The creativity of the humanities has been largely lacking in international environmental research initiatives. Innovative tools and interfaces such as the *Icelandic Saga Map* help realize the potential of an integrated environmental humanities approach to global change research. They also hold great promise for opening up specialist and expert knowledge to nonacademic audiences. Such interfaces and the larger interdisciplinary projects they are facilitating may represent bright future trajectories for humanities scholarship.

NOTES

1. In its start-up phase IEM received support from NordForsk, Vetenskapsrådet (Swedish Research Council),

Riksbankens Jubileumsfond (Swedish Foundation for Humanities and Social Sciences), Wenner-Gren Foundations, the United States National Science Foundation, and Mid Sweden University. IEM is coordinated by Steven Hartman (for NIES) and Thomas McGovern (for NABO).

2. *ISM* was conceived of and is overseen by Emily Lethbridge. Development has been funded in part by a Rannsóknasjóður grant from the Icelandic Centre for Research (RANNÍS). The *ISM* project has also been supported by Miðaldastofa (Center for Medieval Studies), University of Iceland, and the Árni Magnússon Institute for Icelandic Studies.

3. The official title of the project funded by the United States National Science Foundation is Comparative Island Ecodynamics in the North Atlantic (CIE). The lead principal investigator is George Hambrecht, from the University of Maryland.

4. A series of international workshops from 2013 through 2015 added participants and institutions to the program: in Iceland, the Fornleifastofnun Íslands (FSÍ, the Institute of Archaeology, Iceland), the Árni Magnússon Institute for Icelandic Studies, the Universities of Iceland and Akureyri, the Reykjavík Academy, and the Stofnun Vilhjálms Stefánssonar (Stefánsson Arctic Institute); in Scotland, the Universities of Aberdeen, Stirling, Edinburgh, and St. Andrews; in Sweden, the Universities of Umeå and Uppsala and Mid Sweden University; in Denmark, the University of Copenhagen and the National Museum of Denmark; in North America, the City University of New York, the University of Maryland, Université Laval, and the University of Colorado, Boulder. It is probably most accurate to describe IEM as a confluence of projects and collaborations that explore historical environmental change through crosscutting, team-driven studies from many knowledge communities and scientific domains. Because IEM straddles the fence between a large project and a cohesive program, it may be more useful to think of it as a scholarly community of practice (Wenger).

5. The authors are grateful to Thomas McGovern for his contribution of several formulations in this paragraph, expressed and developed in various informal communications with Steven Hartman as part of their original efforts to frame and formalize IEM and IHOPE Circumpolar Networks as an operative scholarly community of practice.

6. Among these projects are the Icelandic Archaeological Database (ISLEIF), the Strategic Environmental Archaeology Database (SEAD), the NABO Project Management System, the digital concept-mapping and concept-correlation tool Textametrica, and the cyber-NABO Cyber Infrastructure development project. These digital humanities and cyberelements are helping to transform a scholarly community of interest into a scholarly community of practice. Among the research groups and anchoring environments that are developing these tools and platforms for data collection, analysis, sharing, synthesis, and curation are the National Snow and

Ice Data Center at the University of Colorado, Boulder (cyberNABO); the University of Umeå (SEAD and Textametrica); the University of Edinburgh (the NABO Project Management System); Fornleifastofnun Íslands (ISLEIF); and, not least, University of Iceland (*ISM*). The City University of New York and the University of Maryland (as chief coordinating institutions for NABO) and Mid Sweden University and Sigtunastiftelsen / Sigtuna Foundation (as chief coordinating institutions for NIES) play a significant role in organizing international workshops, collaborative interdisciplinary meetings, fieldwork, and summer field schools for PhDs and postdocs. These institutional partners also lead the research collaborations within IHOPE Circumpolar Networks that are making new data and scholarly findings available for sharing, analysis, and curation in and through the cyber infrastructural tools and platforms outlined above.

7. For an introduction to and survey of these saga genres, see Clunies Ross. Environmental representation in various saga genres is discussed in Hartman et al., “‘Viking’ Ecologies.”

8. In English translation, “To return to Flosi: he said, ‘Now let’s ride to Berghorshvol and be there by nightfall.’ They did this. There was a depression in the knoll at Berghorshvol, and they rode into it and tethered their horses and stayed there until late at night” (Cook 217).

9. In English translation, “Flosi spoke to his men: ‘My advice now is that we ride back to Thrihyrning ridge. From there we can see which way men are riding in the district. . . . And now I propose this plan—that we ride up to the mountain Thrihyrning and wait there until the sun has passed from the sky three times.’ They did this” (Cook 227).

10. The variant reading is in the AM 133 fol. Kálfalækjarbók manuscript, at 79 recto. In English translation, the text reads: “So they do this—they ride up to the mountain and to a certain valley which has since been called Flosadalur (‘Flosi’s Valley’). From there, they see the movement of everyone around the district” (Lethbridge’s trans.).

11. This phrase is a reference to Henige.

12. Articles in Rastrick and Hafstein focus on aspects of Icelandic cultural heritage and heritage politics. On the sagas and cultural heritage, see especially Þorláksson; Hálfðanarson.

13. This project is funded by the United States National Science Foundation. The grant title is “BCC Building Cyberinfrastructure for Transdisciplinary Research and Visualization of the Long-Term Human Ecodynamics of the North Atlantic,” and the principal investigator is Colleen Strawhacker, of the National Snow and Ice Data Center, University of Colorado, Boulder.

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