

Oil and Vikings

Temporal Alignments within Norwegian Petroleum Fields

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Petroleum fields result from deep and long-term natural rhythms. Over millions of years, organic matter exposed to underground heat and pressure has been transformed into oil and gas contained in deep subterranean reservoirs. The first major oil discovery in Norway was made in 1969. Since then, approximately 120 petroleum fields have been discovered on the Norwegian continental shelf, 112 have been put in production, and approximately ninety are currently operative.¹ When humans explore for and extract petroleum, a temporal alignment is imperative for industrial success and the accompanying societal wealth: the slow, ancient processes, which produce petroleum and the speedy rhythms of industry and policy must adapt and be made to correspond. Petroleum fields are temporally complex, and cultural history and heritage contribute to how Norwegian offshore fields are understood. As part of industrial development, a field name must be chosen and approved by the Norwegian Petroleum Directorate. In 1973, a field in the North Sea was named Tor, after the Norse god Thor. Since then, about seventy of Norway's petroleum fields have been given names derived from the national golden age of the Vikings and Norse mythology.²

The contributors to this volume explore entanglements of time scales and different temporal durations, and argue that natural and historical temporalities interact and depend on one another. This chapter develops the concept of “alignment” as a tool for exploring practices, in which temporal rhythms of nature and culture are connected, arranged, and made compatible. To align means to arrange or adjust, to order elements continuously, or to place something in line. To align may also mean to support, to follow, or to associate with. The analysis of temporal alignments within petroleum fields will focus on rhythms, tempos, directions, and qualities of different timescales and durations, and explore how geological, industrial, political, and cultural



Figure 6.1 Platform on the *Oseberg* field, named after a Viking ship from the ninth century. Photograph by Harald Pettersen, © 2013. Equinor, used with permission.

temporalities are arranged, adapted, and manipulated in ways that make them correspond and support one another.

Since the dawn of the Norwegian oil age, the national government has stressed that the “petroleum resources belong to the Norwegian people and shall benefit the entire society.”³ The state-controlled petroleum industry and the spectacular profit resulting from it have transformed Norway into a wealthy country able to provide its citizens with a generous social welfare system.⁴ The country’s petroleum fund, one of the largest funds in the world, was established in the 1990s to ensure future welfare, and has, by 2021, grown to more than 12,000 billion kroner.⁵ Offshore petroleum fields are key to this economic success, and this chapter explores the temporal work needed for fields to emerge. The invisibility of oil is an often repeated issue within petrocultural research, and a starting point for the analysis is that fields are difficult to comprehend: they are located far away at sea and deep down in the ground.⁶ Petroleum fields must be translated and given some form and content to be exploited industrially as well as understood culturally.⁷ Such translations involve transformations and temporal alignments, and this chapter elaborates on two translational practices, through which fields are temporally aligned.

The first part of this chapter explores technoscientific translations, more specifically a series of four definitions presented in the vocabulary of the “ABC of Oil,” elaborated by the Norwegian Petroleum Directorate, hereafter

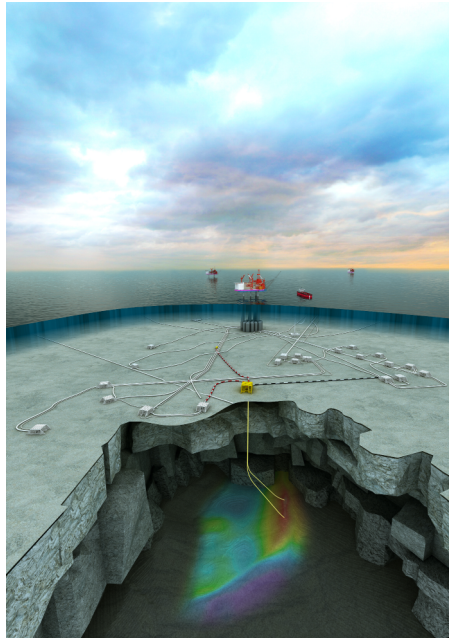


Figure 6.2 Conceptual cross section image of the Gullfaks oil field, named after a Norse horse. © Equinor, used with permission.

referred to as the ABC.⁸ The second part of the chapter elaborates on temporal alignments emerging with the Viking and Norse naming practice. The technical and naming practices are different, but they are also similar in how the alignments of durations and rhythms take place. Both practices involve a moving back, or a moving down, in time. The petroleum industry drills down into earth's deep time, and naming practices are anchored in the depths of national culture and history. Time-aligning work implies direction, and the direction from the present into the past, or from the past into the present, may take on vertical and linear shapes. The tempos of such movements through time may be characterized by the very slow pace of geological processes, by the accelerating speed of industry and politics, or by the steady, exemplary, and repetitive time of national identity. The concept of alignment will identify interplays and discuss the efforts needed to move down in time. Such efforts consist of processes of identification, selection, and isolation of distinct elements and qualities of the past. The aligned times may run parallel, or they may coincide in some specific period. Central to the analysis is the idea that aligned natural and cultural times need to be both similar and different, and that the industrially successful alignment involves a massive temporal concentration.

The Alignment of Industrial and Natural Timescales

Offshore petroleum fields are located far away and deep beneath the earth's surface.⁹ Through an airplane window, we might see platforms on the sea surface, but technological installations are only one part of a petroleum field. While other types of industrial environments more openly manifest traces of interplay between industry and nature, we cannot see the full extent of these fields or how they are marked by human industry. Oil and gas fields are oriented more vertically than horizontally. From rigs or ships, or installations on the seafloor, the fields stretch down through the water, cables, and pipes, reaching deep down into underground sedimentary layers. Oil workers get to see minor parts of their distributed components, but for most of us, fields appear as remote, almost abstract places.¹⁰ Fields extend vertically and they come into being when humans and technology explore downwards into earth's sedimented layers.

The distant, deep character of offshore petroleum fields necessitates translations, and translations adapted to industrial practices involve alignments: the slow time of oil and gas formation is arranged and adapted to the accelerated rhythms of industry. The cross-section image above (Figure 6.2) is one such translation. In it, slow and fast time neatly adapt to each other, as they both happen simultaneously within the same vertical, processual, and industrial visualization.¹¹ The image demonstrates how petroleum is made to flow when temporal alignment is industrially successful. The online ABC published by the Norwegian Petroleum Directorate is another effort to make petroleum fields comprehensible. In this section, the ABC's vocabulary forms the point of departure for exploring alignments between rhythms and durations of petroleum fields.

The ABC presents a series of definitions to establish the oil field as a named geological, industrial, and bureaucratic reality.¹² The four definitions of "play," "prospect," "discovery," and "field" are phases describing interplays between a broad range of actors and elements: hydrocarbons, layers of rock, geologists, bureaucrats, engineers, rigs, pipes, science, and technology must connect and adapt, support each other and collaborate well, for a petroleum field to come into existence. Temporal work is at the center of these interplays: the petroleum industry seeks to align the slow time of geological processes with the accelerated time of modern technology so that oil and gas may be extracted. A first step towards the conceptualization of an oil field is defined by the ABC as a "play." This is defined in part as a "geographically and stratigraphically delimited area where a specific set of geological factors is present so that petroleum should be able to be proven in producible volumes. Such geological factors are a reservoir rock, trap, mature source rock, migration routes, and that the trap was formed before the migration of petroleum ceased."¹³

Throughout the earth's history, its crust has been in constant movement. Tectonic movements and continental collisions between what later came to be North America (Laurentia) and Europe (Baltica) resulted in large mountain chains in what is now Norway. As the continents started to drift apart after the collisions, oceanic crust formation produced the lowlying ocean basins surrounding Norway. Erosion later transported rocks, sand, and soil from the mountains to the northern seas, where they were deposited in sedimentary layers along with salt produced by evaporation and chalk from dead organisms. Remains of organisms are buried within the sedimentary layers. In areas with little oxygen, large quantities of organic remains may be preserved and transformed into oil and gas within the sedimentary layers, as occurred on what later became the Norwegian continental shelf, particularly through the late Jurassic and Cretaceous periods and at the outset of the Cenozoic Era. As millions of years passed, new sediments covered the layers in the basin area rich with organic material, and, as the temperature and pressure in the lower layers increased, the organic material buried within them transformed into petroleum. Oil and gas are thus located deep beneath the surface and are created by extremely slow processes: over millions of years, remains of microscopic sea plants and animals, buried under layers of salt, sand, and rocks, have transformed into petroleum by underground heat and pressure.¹⁴

Petroleum geology and the ABC focus on very specific parts of these long-lasting earthly processes. Four geological factors are isolated and arranged with the definition of a play: a source rock, a reservoir rock, a migration route, and a trap. Oil and gas are generated within a source rock, and being lighter than the water in their surroundings, they migrate upwards into overlying sediments, which are termed reservoir rocks. The reservoir rocks are porous, fit to contain the moving substance. If the sedimentary layer above the reservoir rock is sufficiently impervious to flow, it is called a petroleum trap, or caprock, and it serves as an impermeable trap forcing the petroleum to remain inside the reservoir and preventing its further escape upwards and into the water.¹⁵ Three geologically defined types of rock, and the petroleum migrating between them, all still slowly evolving according to their own paces and durations, are potentially present within the play. In this first phase of timescale alignment, humans using advanced technology and science observe how these layers preserve and reflect earth's history.

Alignment implies a search for correspondences between different rhythms and durations. The vocabulary work involves inclusion and exclusion: the definition of a play isolates some relevant natural elements, while much of their surrounding environment is left out. The focus is set on layers and mechanisms of nature that result in specific types of rocks. The specialized geologists and technologists of the oil companies will test, calculate, and model the characteristics of sedimentary layers, which are used in the next

step towards defining a petroleum field, the “prospect.” A prospect is located within the larger area of the play and is defined as “a possible petroleum trap with a mappable, delimited volume of rock.” The sedimentary layers produced slowly over long timescales are interpreted, and the presence of a mappable trap—a caprock—impermeable enough to have blocked the upward migration of hydrocarbons is crucial. If the trap is estimated to have been effective in stopping the continued upward migration of petroleum, then the next translating and defining step will be the “discovery.” This is defined as a “petroleum deposit, or several petroleum deposits combined, discovered in the same well, and which testing, sampling or logging have shown probably contain mobile petroleum. The definition covers both commercial and technical discoveries.”¹⁶

The play defines a connection between the long-lasting temporal interplays among some isolated layers of rocks and the introductory industrial phase of observation. If the sedimentary characteristics reveal the potential to harvest the products of deep time processes through industrial drilling, one can move into the next phase: developing the prospect. The prospect further narrows the focus onto one specific sedimentary layer from a specific geological period, with the capacity to keep petroleum in place. The following definition, the “discovery,” establishes a tighter correspondence between the deep time of the rocks and the much speedier technology. In this phase, test drilling and computer modeling have demonstrated the presence of petroleum as part of a search for economically profitable future fields. Many drill stem tests will lead to dry wells, and there is a high risk that the reservoir rock has been unable to absorb profitable amounts of petroleum or that the caprock has not trapped enough of the migrating hydrocarbons. These are, however, calculated risks, and in the discovery phase, it becomes clear whether there is a good chance that crude oil or natural gas might be extracted.¹⁷

Lastly, test results are carefully evaluated by oil companies, and it is decided whether the discovery should be developed as a petroleum field or not. In the ABC, a petroleum field is defined as “One discovery, or a number of concentrated discoveries, which the licensees have decided to develop and for which the authorities have approved . . . a Plan for Development and Operation (PDO).”¹⁸ If a discovery appears to be sufficiently promising, the oil company will elaborate a PDO, which must be approved by the Ministry of Petroleum and Energy, or if it is an extensive project, by the National Parliament. When a field is finally put into production, a process often taking many years, the extracted petroleum testifies to the successful alignment of nature’s slow time and the faster pace of the industry. The steps to defining an oil field in the ABC represent a line of phases, through which petroleum, through the passing of geologic time, is subjected to investigations. These investigations aim at temporal alignment: to identify and arrange compatibility between geologic time and the desires of modern, industrial times.

To align means to arrange or to place something in line, and one could think of temporal alignment as a vertical line starting from today's industrial installations and extending downwards into earth's deep time, or as a line stretching from one geological period upwards to today's offshore installations. The paces of the processes operating at the start of each of these two directions are radically different, and it requires a great deal of work to make them compatible. The image of the petroleum field shown in Figure 6.2 depicts a successful alignment, and in it, the temporal qualities of earth and industry have become compatible. The vertical linearity of this image adds a place-like character to the petroleum field. It conveys a translation of the established, successful alignment. The progressive definitions of the ABC, on the other hand, add a more processual character to petroleum fields and enables insights into different phases where temporal differences are investigated and handled. The need to establish correspondences between sedimentary qualities established over geological periods and human industrial timescales is a temporal work, and it happens step by step, definition by definition. The ABC translates oil fields as a process, and it makes clear the phases leading towards the above image of a temporally aligned, productive field.

The rhythms and durations of nature and industry correspond and support each other along vertical lines. Drilling and pipelines enable the industry to penetrate downwards into oil reservoirs and petroleum to move upwards, followed by distribution of the oil globally.¹⁹ However, one could also describe the temporal work of the oil industry as focused on temporal coincidences. Earth's time is extended and deep, and the industrial focus is set on specific sedimentary layers and geological periods. The subterranean geologic time progresses constantly and slowly from the depths and upwards, and oil and gas are materialized effects of distinct periods of deep time. The industry, for its part, accelerates through millions of years as it drills downwards. Drilling moves through and into geological periods, and the industrial pace is decisively focused in its search: it is mainly interested in how deposits of some specific geologic periods have accumulated and layered over time. The desired petroleum is trapped by caprocks and has not been able to move upwards and into the rocks of later periods. As the industry drills down, it searches for temporal coincidence with the late Jurassic and Cretaceous periods, or the beginning of the Cenozoic Era, and it aims at enabling the further and accelerated movement of petroleum upwards. The modern industry drills through rocks representing millions of years, and it extracts the results of specific periods and incorporates these into our present.

"Nature becomes real through various forms of apparatuses or instruments," and the ABC's definitions designate a gradual alignment of industry and policy with the long duration of petroleum.²⁰ Different types of rocks are identified and investigated, and they must have specific and slowly gained

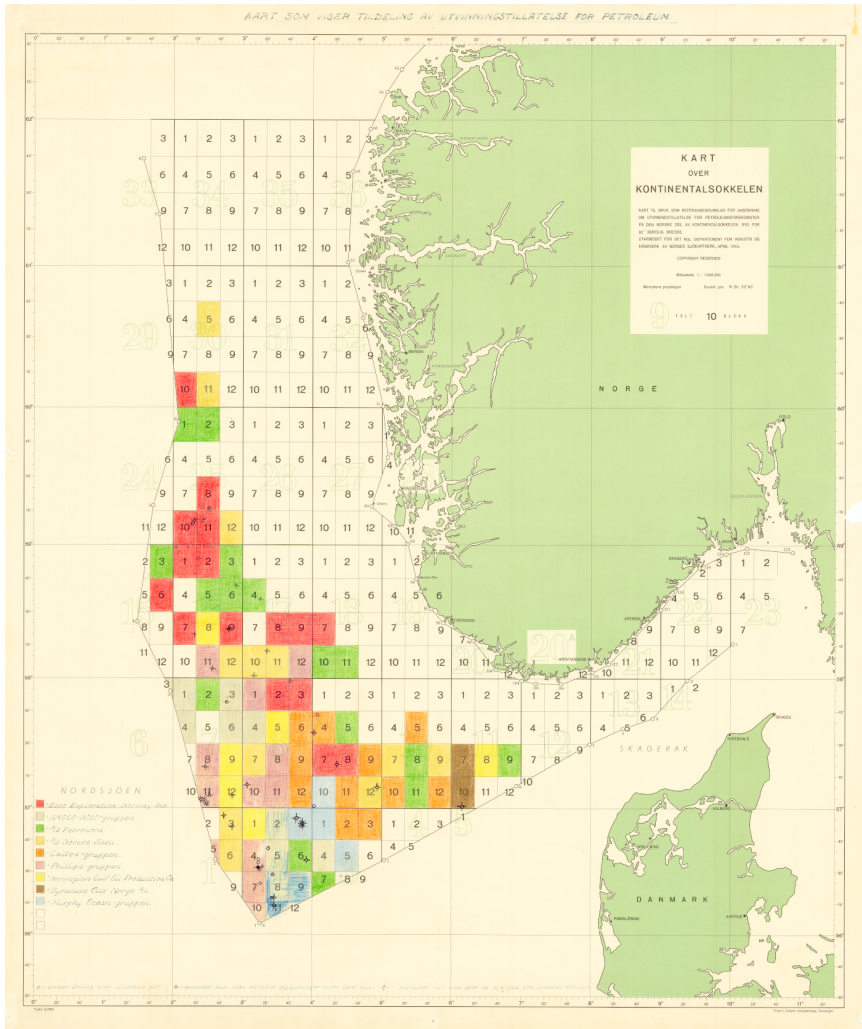


Figure 6.3 Map of the Norwegian continental shelf. © The Norwegian Petroleum Directorate, 1965.

qualities if industrial extraction is to be realized. Industrial success means that industrial and geologic timescales are made to support each other in the sense that materialized results of geologic time are brought into the present. For millions of years, oil and gas were maintained in their sedimentary layers and within their own time. The ABC is a translating apparatus that contributes to grant acute realness and agency to petroleum. The temporal work performed

by modern technology and industry, and the resulting alignment with ancient, geological times, is followed by a release of massively concentrated time.²¹ Such concentration will be discussed in the following section.

Temporal Concentration

A productive petroleum field depends on successful temporal alignments. In the early years of the North Sea offshore industry, the encounters between geologic and industrial rhythms did not always work out well. Aligned temporal interplays would sometimes be interrupted, as people, technology, or natural forces could swerve and fall out of the arrangement. The Bravo blow-out on the *Ekofisk* field in April 1977 is one example. During maintenance work on a drill well, rig workers failed to stabilize the pressure in the well with drilling mud, and a downhole safety valve was not installed correctly. This resulted in an uncontrolled blowout of oil and gas lasting eight days.²² A far more catastrophic event was the Alpha Piper accident in the UK sector of the North Sea in 1988. During maintenance work on a high pressure condensate pump, workers disabled a safety valve during a day shift, and information on the work was not sufficiently communicated to the workers on the following night shift. The disabled valve allowed gas to enter the pump, leading to overpressure and to the following disastrous explosions that caused the deaths of 167 persons.²³

Human failure has been identified as a chief cause of both of these accidents. Some nuances may be added with the concept of alignment as it focuses on the temporal work needed to make natural elements compatible with the human industry. The deep time of the sedimentary layers materializes within oil and gas, which, lying deep beneath later deposited strata, experience extreme pressures. The use of drilling mud and safety valves are industrial means for countering the fatal effects of these pressures. In the case of the two accidents, the previous alignment of natural and industrial rhythms was disrupted when humans failed to adapt to and control the effects of the earth's concentrated time. Temporal alignments do not happen by themselves; a great deal of industrial work is needed to control the ancient, concentrated time.

Disrupted alignments may have disastrous effects locally.²⁴ In the context of climate change, however, the most fatal effects are global, stemming from successfully aligned petroleum fields "working all too well" and the sequential combustion of fossil fuel.²⁵ While past geologic time is located in the depths and slowly builds upwards, industrial time moves from the present and downwards, and this temporal difference is crucial to the modern petroleum

enterprise. The tempos of earthly and industrial times are very different: it takes the industry little time to drill down into the earth's slow time, and successful fields cause the release of massively concentrated time. "Oil is very literally time materialized, time that has pooled in the form of a liquid," argues Andrew Pendakis.²⁶ Petroleum "is the energy made possible by eons of concrete dying," and it comes "dressed up in the very form of time."²⁷ Petroleum is temporal concentration, and it can be envisioned at the level of a single human as in a comment made by environmentalist Rob Hopkins: "This liter of petroleum contains the same amount of energy that would be generated by me working hard physically for about five weeks."²⁸ It can also be envisioned in the context of earthly duration, such as when Timothy Mitchell describes the exhaustion of the earth's stock of petroleum: "organic matter the equivalent of the earth's entire production of plant and animal life for 400 years was required to produce the fossil fuels we burn in a single year."²⁹ The temporal alignment of fields implies that very different time spans are made industrially compatible, and it results in the release of densely concentrated time, which disrupts the earth's carbon balance. The temporal qualities of petroleum emerged millions of years ago, and the "only thing humans add to it that is truly important—and unnatural—is to burn oil. And with that profoundly artificial act, we change the climate and impose a catastrophe upon ourselves and the rest of the world."³⁰

Modernity, according to Anna Tsing, is "the triumph of technical prowess over nature." This triumph requires that nature be cleansed of other transformative relations; "otherwise it cannot be the raw material of *techne*."³¹ One could also say that such technical prowess is temporal: sedimentary layers were deposited over the earth's timespan, and petroleum resulted from the transformative relations between layers and rocks. As these layers, in our times, have been incorporated in new transformative relations, the expeditious combustion and unleashing of deep earthly time is the result. Petroleum is concentrated time: it takes a very long time for it to emerge, which is why oil and gas are defined as nonrenewable resources. Discussions of peak oil reflect this point, and while Norwegian oil production peaked in 2000/01, gas production is still increasing.³² Petroleum is a tremendous source of income, and as extraction technology improves, continued exploitation is made possible.

Scholar of environmental studies Stephanie LeMenager has asked why "oil remains so beloved" and why there is such a "strong resistance to the imagination of alternatives, even as we recognize its unsustainability."³³ On the front page of the Norwegian Petroleum Directorate website, under the heading "Barely Halfway," it is explained that fifty-two percent of Norway's petroleum resources are still to be found and extracted from the ground. The Director General of the Directorate is quoted: "Production forecasts for the next few years are promising and lay a foundation for substantial revenues, both for

the companies and the Norwegian society.”³⁴ Future alignments are within sight, and the Norwegian authorities show few signs of wanting to restructure the country’s economy away from fossil fuel reliance. Extraction and love of petroleum in a country with elaborate and costly welfare systems are deeply connected with the economy. However, these also relate to petrocultural narratives that support and add culturally comforting rhythms to oil and gas. The following sections explore temporal alignments between the petroleum industry, the Viking Age, and Norse mythology.

Offshore Names and Cultural Depths

As part of the PDO, operating oil companies must suggest a name for the field they are developing. For security reasons, field names must be brief and easy to pronounce in various languages, and the names cannot be confused with existing place names or names of other fields.³⁵ During the first years of the Norwegian oil age, petroleum companies developed their own logics for field naming. The national petroleum company Statoil (later Equinor) intended to use “Stat” as a prefix followed by terms for natural environments, emphasizing the central role of the state as well as a connection between state and nature. Only one field, however, was named accordingly: Statfjord. Shell wanted to use names of shells, resulting in a field named Albuskjell (common limpet). Philips Petroleum named their discoveries after Norwegian fish names, ordered alphabetically after the blocks the fields were located in, such as Brisling and Flyndre. However, it was difficult to find suitable Norwegian names, and English ones were also used (Anchovis, Cod, Dace, Eel).³⁶

Partly due to the companies’ toponymical creativity, bureaucratic procedures for approval caused delays. Another reason for the delays was that three governmental agencies, the Petroleum Directorate, the Language Council, and the Ministry of Petroleum and Energy, all took part in the evaluation process. In 1984, the Directorate was set as the sole approving authority, thus cutting the need for final approval by the Ministry, while the Language Council continued as the advisory agency. Around the same time, the Language Council created a list of preapproved field names, from which the operators were urged to choose.³⁷ The list, which contributed to reducing the bureaucratic delays, consisted of names from Viking Age and Norse mythology, names of figures from folktales, and names of sea birds. The first category has become the most frequently used by far. Two fields are named after birds, and thirteen have been given names from folktale figures, while around seventy fields have been given names stemming from Viking Age and Norse mythology.³⁸

The first field given a Viking or Norse name was Tor, named after the hammer-wielding Norse god associated with natural forces, as well as the

maintainer of worldly order and protector of mankind. The field is located in the southern part of the North Sea, and the PDO and name were accepted in 1973. Both the Petroleum Directorate and the Language Council lent their support to the toponymical practice, as seen with the incorporation of these names on the preapproved list. As offshore petroleum fields are typically located deep beneath the sea and far from shore, people outside the industry see few signs of production and need cultural connections to comprehend the oil fields.³⁹ Place names imply power over place and time, and the standardization of offshore appellations by authorities connected petroleum to the national golden age of the Vikings.⁴⁰ Petrocultural scholar David McDermott Hughes has noted that oil and gas “often enjoy the most support precisely at the point of their production” where the natural resources benefit “from the entire sentiment of local belonging and history.”⁴¹ In Norway, names from the national past have brought petroleum fields and petroleum culturally closer to the population by their incorporation into broader heritage practices. Fields are placed in parallel with pleasant and familiar memories of what it means to be Norwegian, and they become culturally and historically recognizable.⁴²

Place naming “is a powerful vehicle for promoting identification with the past and locating oneself within wider networks of memory,” argues cultural geographer Derek Alderman.⁴³ Names lend comfortable cultural rhythms to industry, the economy, and politics. While the use of Norse mythology and Viking Age names is specific to Norway, the subterranean depths of petroleum are associated with culture and history differently in other places.⁴⁴ For example, anthropologist Douglas Rogers, in a study of the postsocialist onshore petroleum industry in the Perm region, sheds light on how oil relates to various culturally significant depths, called “glubinka” in Russian.⁴⁵ Regional backwardness in Perm is seen as one related kind of depth; the intellectual and personal depth that traditionally signals an authentic Russian identity is another. Further associations with the depths of oil are the valuable things people buried in the ground to hide them from the former socialist government, as well as the large numbers of buried victims of the socialist regime who were dug up from the ground.⁴⁶ Petrocultural scholar Elana Shever has shown how sentiments of kinship and familial associations of property in Argentina characterize the petroleum industry.⁴⁷ In Nigeria, environmentalist Michael Watts has noted how the subterranean origin of oil resonates with “extraordinary magic events,” such as the ability to live without having to work, or the capacity “to tarnish and turn everything into shit.”⁴⁸ Another association with cultural depths, also mentioned by Watts, is how a former Venezuelan president described oil as “the Devil’s excrement.”⁴⁹ The following section explores how deep petroleum and the cultural depths of the Viking Age align.

Cultural Depths: “So Very Norwegian”

Various Norwegian petroleum fields are named after Norse gods and goddesses, such as Tor, Odin, Vilje, Frigg, Frøy, Balder, Hod, and Brage. Others take their names from the mythological creatures *jötnar*, such as the Yme, Trym, and Hyme fields. Other fields are named after mythical objects, like Odin’s spear Gungne, or after longships, such as Ormen Lange and Oseberg (see Figure 6.4). Names of Norse mythical animals are used, such as the goat Heidrun, the horse Gullfakse, and the deer Dvalin. Also, mythical as well as historical place names designate fields such as Valhall, Gimle, Åsgård, Alvheim, and Sygna. Snorre, author of Norse literature, and his prose work, Edda, are also used as field names.

A brochure titled *Gudar i oljå* (“Gods within the oil”) was published in 2002 by the Norwegian Petroleum Directorate for its thirtieth anniversary. In the introductory part of the approximately forty-page brochure, the question is raised: “what on earth do we mean by using names from Norse mythology on something as modern and international as the petroleum industry?” The author then explains how she had asked around, presumably within the petroleum industry and bureaucracy, and concluded that “probably, one did not think very much about it. It was just so very Norwegian—and so very strong!”⁵⁰

Field names connect the present with the past, and as with many other place names, they “resonate in myth, history, worldview, and heritage.”⁵¹ The use of Viking and Norse names involved a reformulation of an already much reshaped historical period. From the early nineteenth century onwards, the Viking Age has been understood and shaped in different ways and it has served various political purposes. The excavations of ships and objects from the 1860s until the beginnings of the twentieth century fell in line with Norwegian cultural and political struggles towards independence after half a millennium of being governed first from Denmark and then from Sweden. The ships pointed back to the Viking Age as an epoch of national independence and pride, and the period turned into a chief origin myth for the Norwegians.⁵²

When Norse and Viking Age field names were used in the 1970s, only a few decades had passed since the historical period had been used as an ideological source by the political party Nasjonal Samling and by Nazism. While this previous use came to be associated with brutality and plundering, historians and archaeologists introduced a new focus on journeys and exploration from the 1960s and onwards.⁵³ The renewed academic focus has been explained as a way of taking back ownership of an important part of national history.⁵⁴ The use of Norse and Viking names ran parallel to more conventional heritage practices, and the petroleum industry and policy contributed to mold a more suitable and less brutal past, adapted to the needs of contemporary society.



Figure 6.4 The *Oseberg* ship was excavated in 1904 and is displayed in the Viking Ship Museum in Oslo. Photo: Mittet & Co., 1957. National Library of Norway, public domain.

A highly significant moment in Norwegian petroleum history was the first major discovery of oil in 1969. The drill rig used then was named *Ocean Viking*, and the field naming practice followed afterward. The Norse and Viking names preceded, or one could even say paved the way for, more conventional heritage practices. Archaeologist Nanna Løkka pinpoints an initiating moment in the transformation of Viking Age heritage to be the 1983 unveiling of the commemorative monument “Sword in Mountain.”⁵⁵ The monument consisted of three large bronze replicas of Viking swords anchored in rock slopes at the seaside, located just outside Norway’s “oil capital” Stavanger and near the site of the *Hafsrfsford* battle of 872, a battle said to have enabled Harald Fairhair to unite Norway as one kingdom. Heritage involves a manipulation of the past, and Løkka quotes a speech made by King Olav at the unveiling ceremony: “the time for peace and cooperation has come. Let it be a symbol for agreement, peace, and solidarity among the Norwegian people.”⁵⁶ Contemporary culture needs historical continuity, and peaceful democracy and collective solidarity need historical roots. The Viking monument offered evidence from the past: these national qualities had indeed existed in Norway for a very long time. Offshore naming practices contributed, and the idea of a democratic and solidary Viking past resounded well

with the idea of the Norwegian citizens' collective ownership of the petroleum resources.

Like deep and far flung petroleum fields, Vikings and their Norse mythology extend deep into history, and their ships and treasures have been brought up from the underground. These resemblances promote alignment: both petroleum and Vikings are distant and deep. In a preface to the abovementioned anniversary brochure, an assistant director at the Petroleum Directorate commented on the distant character of petroleum: "Most Norwegians don't know much about the wealth hidden in the seafloor. Every day we read about value creation, oil fortune, sale of gas, production numbers and prognoses." He continued by drawing a bigger picture: "Actually, it is all so much more powerful—the dimensions, the pressure, the sea, and the work culture." The natural and industrial grandeur, according to the assistant director, inevitably suggested the naming practice: "No wonder most oil and gas fields have their names from Norse mythology." Petroleum was logically and inevitably connected to the national golden age, a "world with mighty natural forces and a persisting life struggle."⁵⁷ Such understandings contributed to aligning the deep time of oil with the deep time of national culture: the magnitude, the natural forces, and the impressive strength of human and godly struggles were distinctive qualities chosen to describe them both, and these resemblances aided in establishing a supportive relationship of similarity between past and present.

While humans appeared in the territories that came to be Norway some eleven thousand years ago, the first culturally and nationally significant Norwegians were the Vikings. One could say that it does not make much sense to move further back or deeper down in Norwegian history in search of national origins or pride. The petroleum industry formed part of a broader heritage movement, and the skilled mastering of the seas was another contemporary quality in need of historical roots. An exhibition on offshore technological progress at the Norwegian Petroleum Museum in Stavanger may illustrate the point. Most of the exhibit is dedicated to oil history, but it is introduced with a glass case titled "A Floating Empire," decorated with Norse runes picturing ships. Historical models of ships are displayed in the glass case, and the accompanying text explains that "Norway was in contact with the outside world by sea as far back as the Stone Age. But the Gokstad ship is representative of the swift sails, which carried the Vikings abroad as warriors, explorers, traders, and settlers, a thousand years ago. Their shipbuilding skills allowed them to conquer the seas, and even to reach North America." While seafaring Norwegians existed in the Stone Age, they flourished during the Viking Age. Warfare is mentioned, but the text places the most emphasis on technological skills, international orientation, and more peaceful ways to conquer and explore the seas. The Viking Age and the present oil age thus

align and show similarities; they both belong within a national history of increasingly skilled sea exploration.

The naming practice establishes a connection between the past and the present that seems obvious and indisputable. A reflection on the suitability of Viking and Norse names is made in the anniversary brochure: “The oil adventure on the Norwegian shelf has probably, to a great extent, taken over the function as a national myth. It seems reasonable to draw the lines back to the ideas of a dynamic, expansive Viking Age as another great epoch of our history.”⁵⁸ The grandeur of the contemporary oil age is shaped and conveyed as mythical as well as energetic, modern, and expansive, to such an extent that it surpasses most other periods of national glory. Only the Viking Age can manifest a historical magnificence comparable to the contemporary oil society.

Exemplary Temporal Concentration

In the above quote, a “line” is drawn between the present and past grandeur. This could lead one to think of time as a linear and continuous progression: the Vikings mastered the ocean with great success, and the contemporary Norwegians do it just as well, or even better. Linear time tends to be flattened out horizontally, ordered progressively and chronologically, and within such an understanding historical periods are often presented as different rather than similar. This does not seem to be the case with petroleum and the Viking Age. Instead, as in the earlier discussions of vertical linearity, one could envision a more vertically oriented national history, one that stretches down into cultural depths and to a very specific period. A vertical connection between past and present, aided by the naming practice, could be thought of in terms of temporal concentration. Earlier in this chapter, petroleum was discussed as a densely concentrated form of time. Here, a temporal concentration of exemplary national qualities will be elaborated on as a similar kind of alignment through an analytical tour into an earlier understanding of history.

Within the *Magistra vitae* tradition, which governed history writing from Antiquity until the late eighteenth century, history functioned as a guide and a “teacher of life”: history was understood as a reservoir of good and bad examples to be learned from, demonstrating moral virtues or depravity, and wise or unwise decisions. Contrary to a modern understanding of history as a unitary process made up of sequential and fundamental differences between historical periods, experiences of the past were considered relevant for dealing with present and future situations, thus implying a fundamental resemblance between past, present, and future.⁵⁹ Applying these insights to the connection established between past and present with offshore names, one could describe the Viking and Norse past as a source of excellent examples to be learned from,

with examples of relevance for industry both today and in the future. The Vikings and their gods fought continuously and successfully against nature's forces, the Vikings mastered the sea, and they came to represent a historical origin for Norway as a great democratic nation. These exemplary qualities repeat within the contemporary oil industry; the Viking Age supports and aligns with present qualities.

Examples are repeated rhetorical figures, in the form of specific, individual instances pointing towards and confirming the validity of a general statement. They function "as illustration, as an aid in understanding, in visualizing" a general statement.⁶⁰ In the present case, the general statement would be that Norway and Norwegians are successful in their mastery over nature and the sea and that they constitute a democratic collective. The Viking Age, as well as the present oil industry, would then be specific instances supporting this general idea. Also, when an example alludes to a whole series of similar incidents, it implies repetition.⁶¹ Here, this would mean that Norway and its inhabitants repeatedly show, independently of the passing of time, that they are very capable in their mastery of the seas and in their struggles against the forces of nature. Often, however, when examples are used persuasively, such repetition is "abandoned in favor of a single instance that stands for many similar cases," and examples are chosen among exceptions rather than from common occurrences.⁶² Examples may thus be paradoxical as they are "arguing in favor of a norm while displaying the fascinating exception."⁶³

The rhetorical strength of examples is both fascinating and paradoxical. Both the Viking Age and modern industry are identified as outstanding incidences of national glory, and typical national qualities concentrate within and characterize them. But even though these are considered typical and defining qualities of what it means to be Norwegian, they rarely seem to appear in history. Instead, the Viking Age and the present industry function as examples of historical periods, in which outstanding national qualities are massively concentrated. Perhaps, if the presence of these qualities throughout Norwegian history had been emphasized and posed as an example, the significance of these two specific periods would be reduced, and they would instead represent typical historical occurrences. When national grandeur is to be proved, temporal concentration seems to work better than explicit repetition. The two historical periods, which are strikingly different, align through the claimed, shared presence of these qualities. Moreover, these qualities are at the same time exemplary exceptions and general, reiterated national qualities. The naming practice establishes continuity within national history, and it also bears the promise of future alignments as these qualities are destined to repeat again and again.

Petroleum is concentrated in subterranean reservoirs, and, similarly, the Viking Age is situated in the cultural depths of Norway. The exemplary

national qualities of mastery over the sea, struggling against nature, and popular democracy have been densely concentrated within the Viking Age, and through temporal alignment these qualities are made to be reproduced within the contemporary petroleum industry. Petrocultural histories normalize our reliance on fossil fuels and naturalize the role of petroleum within social orders, and a central part of such histories is how they allow us to not see, to forget, and to overlook our deep reliance on petroleum and the environmental damage it involves.⁶⁴ In an earlier section, it was shown how the release of concentrated time depended on both the similarity and difference between industrial and geologic timescales. The same could be said here: the alignment between Viking past and industrial present involves identification and selection of a very limited set of qualitative similarities. Such selection contributes to diminishing the visibility of differences between past and present. Vikings and Norse gods did not only master the sea and struggle against natural forces; many other things went on in their times. The same is valid for today's industry, and among the destructive effects of the limited focus on mastering nature and the sea are the ways in which Norwegians are made to overlook and forget the environmental damages that occur when the massively concentrated time of earth is unleashed.

Conclusion

Throughout Norway's oil age, the government has stressed how petroleum collectively belongs to the Norwegian people, and the economic resources stemming from it have been used to secure a high level of welfare. Heritage practices incorporating petroleum contribute to anchoring these ideas and welfare. The Viking Age and its mythological universe offer a comfortable cultural rhythm that counters the speedy and destructive rhythm of the petroleum industry and combustion.

This chapter started by exploring technoscientific practices and continued with cultural and historical practices incorporating petroleum fields. These practices belong within different disciplines, and they integrate earthly time-scales in different ways; this chapter has aimed to investigate how natural and historical temporalities align within petroleum fields. The concept of alignment functions as a tool for exploring some similarities as to how temporal durations and rhythms are connected, adapted, manipulated, and made compatible. Both industrial and cultural engagements with petroleum fields involve a moving downwards or backward in time. The petroleum industry drills down into layered periods of geologic time, and offshore naming practices stretch back into the depths of national culture. Alignment also involves direction, and petroleum fields emerge both upwards from deep layers of

earth and from today's industrial installations, and downwards into time and sediments. Temporal directions may be horizontal or vertical, and industrial exploration stretches through kilometers and across geological epochs, guided by the societal desire to locate, extract, and combust the materialized time within specific sedimentary layers. Temporal alignment involves processes of identification, selection, and isolation of specific elements and qualities of the past. Such processes establish supportive similarities between radically different timespans, but they also disguise destructive differences. The invisibility of such differences is heavily supported by the manipulative use of heritage and history. Offshore naming practices concentrate exemplary time and provide culturally comfortable rhythms to the broader population. They also enable the transformation of petroleum into a specifically Norwegian resource, politically, popularly, and destructively understood to be collectively owned by all Norwegians.

"The gods remember a golden age": the concluding words of the anniversary brochure published by the Petroleum Directorate concern the petroleum field Åsgard, named after the home of the Norse gods, and they are strangely apocalyptic. While the gods' present is characterized by a constant struggle, their past is described as much more harmonious. The goddess Idunn used to secure apples of youth for her godly fellows so that they would maintain their strength and health and could live in "a state of innocence in perfect, static equilibrium between the forces." But the times changed, and the apocalypse is now approaching: "the *Jörmungandr* encircles the human world, *Hel* rules in his kingdom, and the *Fenrir* wolf is tearing away his shackles. Beasts are gnawing on the roots of *Yggdrasil*. Like a smoldering fire, *Ragnarok* is about to emerge." Chaotic, threatening interplays between dangerous forces have come to define the present of the Norse gods, it is explained, but in this troublesome world, a new dream prevails: "After *Ragnarok*! A new heaven and new earth will emerge. The gods shall once again gather in the yard . . . recover their golden boards in the grass from the good old times and continue their divine plays in perfect harmony. The new *Åsgard*!"⁶⁵ Horrible natural disasters characterize the Norse apocalypse *Ragnarok*. The world is submerged in water, many gods will die, and humanity will nearly be exterminated. After *Ragnarok*, however, the world will resurface, green and fertile, the remaining gods will meet up, and the two human survivors will repopulate the world.

Why the Petroleum Directorate chose to end its anniversary brochure in this way is not explained, but it is very unlikely that the closing words were intended as a mythological parallel to the catastrophic environmental consequences of fossil fuel combustion. The depths of national history may be understood and molded in different ways, and petrocultural scholars stress the need to rethink "how oil everywhere has social, aesthetic, and historical forms" and argue that we need to recode "these forms through an

environmental narrative.”⁶⁶ Investigations of cultural histories that legitimize and support the oil industry and its politics form part of such recoding efforts as they may identify temporal mechanisms that work well within a broader audience. While the temporal alignments between earthly timespans and the Viking Age heritage could be described as shameful and manipulative, these alignments may provide lessons for such recoding and for establishing new histories of how we act and see ourselves in nature.

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NOTES

1. “Fields,” Ministry of Petroleum and Energy and the Norwegian Petroleum Directorate, retrieved January 3, 2021 from <https://www.norskpetroleum.no/en/facts/field/>.
2. Information from the mobile application “Oil Facts” provided by the Norwegian Petroleum Directorate.
3. The quotes are from the most recent white paper on petroleum policy and industry, see: Norwegian Ministry of Petroleum and Energy, *An Industry for the Future: Norway’s Petroleum Activities. Meld. St. 28 (2010–2011) Report to the Storting (White Paper)*, retrieved from https://www.regjeringen.no/contentassets/19da7cee551741b28edae71cc9aae287/en-gb/pdfs/stm201020110028000en_pdfs.pdf.
4. Compare Einar Lie, “Learning by Failing,” *Scandinavian Journal of History* 43, no. 2 (2018): 284–89; Helge Ryggvik, “A Short History of the Norwegian Oil Industry: From Protected National Champions to Internationally Competitive Multinationals,” *Business History Review* 89 (2015): 3–41.
5. For a real-time projection of the size of the fund, see: <https://www.nbim.no/en/>.
6. See Graeme Macdonald, “Containing Oil: The Pipeline in Petroculture,” in *Petrocultures: Oil, Politics, Culture*, ed. Sheena Wilson, Adam Carlson, and Imre Szeman (Montreal: McGill-Queen’s University Press, 2017), 36–77; Kirsty Robertson, “Oil Futures/Petrotextiles,” in *Petrocultures*, ed. Wilson et al., 242–63; Joshua Schuster, “Where Is the Oil in Modernism?” in *Petrocultures*, ed. Wilson et al., 197–214; Andrew Pendakis, “Being and Oil: Or, How to Run a Pipeline through Heidegger,” in *Petrocultures*, ed. Wilson et al., 377–88; Douglas Rogers, *The Depths of Russia: Oil, Power, and Culture after Socialism* (Ithaca: Cornell University Press, 2015); Frederick Buell, “A Short History of Oil Cultures: Or, the Marriage of Catastrophe

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7. Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network-Theory* (Oxford, UK: Oxford University Press, 2005), 39–108.
 8. “ABC of Oil,” Norwegian Petroleum Directorate, Retrieved January 3, 2021 from <http://www.npd.no/en/About-us/Information-services/Dictionary/>.
 9. Compare Pendakis, “Being and Oil,” 387.
 10. Lise Camilla Ruud, “Oil as Heritage: Temporalities and Toponymies on the Norwegian Continental Shelf,” *Ethnologia Scandinavica* 49 (2019): 143–61; Macdonald, “Containing Oil”; Rogers, *The Depths of Russia*.
 11. Compare Tim Kaposy, “Petroleum’s *Longue Durée*: Writing Oil’s Temporalities into History,” in *Petrocultures*, ed. Wilson et al., 389–406.
 12. “ABC of Oil.”
 13. “ABC of Oil.”
 14. Knut Bjørlykke and Per Avseth, *Petroleum Geoscience: From Sedimentary Environments to Rock Physics* (Berlin: Springer, 2010), 8–10; David McDermott Hughes, “Petro-Pastoralism: Agrarian Hydrocarbons in South Trinidad” in *Petrocultures*, ed. Wilson et al., 411; see also Marcia Bjornerud, *Timefulness: How Thinking Like a Geologist Can Help Save the World* (Princeton: Princeton University Press, 2018).
 15. Bjørlykke and Avseth, *Petroleum Geoscience*, 10–19.
 16. “ABC of Oil.”
 17. Bjørlykke and Avseth, *Petroleum Geoscience*, 21–23.
 18. “ABC of Oil.”
 19. Macdonald, “Containing Oil”; Darin Barney, “Who We Are and What We Do: Canada as a Pipeline Nation,” in *Petrocultures*, ed. Wilson et al., 78–119.
 20. Kristin Asdal and Gro Birgit Ween, “Writing Nature,” *Nordic Journal of Science and Technology Studies* 2, no.1 (2014): 7.
 21. Timothy Mitchell, “Carbon Democracy,” in *Energy Humanities: An Anthology*, ed. Imre Szeman and Dominic Boyer (Baltimore: Johns Hopkins University Press, 2017); Pendakis, “Being and Oil.”
 22. David W. Fischer, ed., “Managing Technological Accidents: Two Blowouts in the North Sea,” in *IIASA Proceedings Series. International Institute for Applied Systems Analysis* (Oxford, UK: Pergamon Press, 1982); Robin J. Law, “The Ekofisk Bravo Blowout, 1977,” in *Oil Spill Science and Technology*, ed. Mervin Fingas (Oxford, UK: Elsevier, 2011), 1107–8; Helge Ryggvik, “Norwegian Oil Workers: From Rebels to Partners in the Tripartite System,” in *Working for Oil*, ed. Touraj Atabaki, Elisabetta Bini, and Kaveh Ehsani (Basingstoke: Palgrave Macmillan, 2018).
 23. W. Douglas Cullen, *The Public Inquiry into the Piper Alpha Disaster* (London: H.M.S.O, 1991); David C. Shallcross, “Using Concept Maps to Assess Learning of Safety Case Studies—The Piper Alpha Disaster,” *Education for Chemical Engineers* 8, no. 1 (2013): 1–11.
 24. Compare Macdonald, “Containing Oil,” 42.
 25. Szeman, “Crude Aesthetics,” 433.

26. Pendakis, "Being and Oil," 386.
27. Pendakis, 387
28. Quoted in Stephanie LeMenager, "The Aesthetics of Petroleum, after Oil!" *American Literary History* 24, no. 1 (2012): 60.
29. Mitchell, "Carbon Democracy," 159.
30. McDermott Hughes, "Petro-Pastoralism," 411.
31. Anna L. Tsing, "On Nonscalability: The Living World Is Not Amenable to Precision-Nested Scales," *Common Knowledge* 18, no. 3 (2012): 513.
32. Colin J. Campbell, *The Coming Oil Crisis*, (Brentwood, England: Multi-Science Publishing, 1997); Jan Inge Faleide, Knut Bjørlykke, and Roy H. Gabrielsen, "Geology of the Norwegian Continental Shelf," in *Petroleum Geoscience*, ed. Bjørlykke and Avseth, 469–70; Bjørlykke and Avseth, *Petroleum Geoscience*, 23–24.
33. Lemenager, "The Aesthetics of Petroleum," 61.
34. "Norwegian Petroleum Directorate," retrieved January 3, 2021 from <https://www.npd.no/en/>.
35. Lars S. Vikør and Per A. Ølmheim, "Namn på oljefelt i Nordsjøen," *Språknytt* 2 (1978): 13.
36. Vikør and Ølmheim, "Namn på oljefelt," 13.
37. Eli Ellingsve, "Lovløse Stedsnavn i Norske Farvann—et Minefelt," *Lokalhistorisk magasin* 4 (2012): 14–17.
38. Information on the names is retrieved from the application "Oil Facts" provided by the Norwegian Oil Directorate. In addition to these naming categories, six fields are named after persons associated with nineteenth-century and twentieth-century nation-building (such as Johan Sverdrup, or Johan Castberg). Around twenty fields have names from other categories. Some are constructed names such as Statfjord, Eldfisk, and Ekofisk. Some are named after seabirds (Skarv and Ærfugl) and others have fish names (such as Cod or Marulk). One is named after the wild cat species Gaupe, and another bears an old name for wolf, Varg. Some names relate to the UK sector of the North Sea, such as Murchison, Islay, and Morvin, while others are given traditional female names (Kristin, Oda, and Maria). Two fields are named after biblical figures (Enoch and Goliat) and another two after stars (Nova and Vega).
39. McDermott Hughes, "Petro-Pastoralism," 412.
40. Amit Pinchevski and Efraim Torgovnik, "Signifying Passages: The Signs of Change in Israeli Street Names," *Media, Culture and Society* 24, no. 3 (2002): 367; Vikør and Ølmheim, "Namn på oljefelt."
41. McDermott Hughes, "Petro-Pastoralism," 426–27.
42. Ellingsve, "Lovløse Stedsnavn"; Ole-Jørgen Johannessen, "Innovasjon i Navnemønstre til Sjø og i Luften," in *Innovationer i Namn och Namnmönster: Handlingar från NORNA:s 43:e symposium i Halmstad den 6–8 november 2013*, ed. Emilia Aldrin et al. (Halmstad: NORNA-förlaget, 2015); Ruud, "Oil as Heritage"; Vikør and Ølmheim, "Namn på oljefelt." For a discussion of petroleum and national identity in a Canadian context see Barney, "Who We Are and What We Do."

43. Derek H. Alderman, "Place, Naming and the Interpretation of Cultural Landscapes," in *The Ashgate Research Companion to Heritage and Identity*, ed. Brian Graham and Peter Howard (Farnham: Ashgate, 2008), 195.
44. McDermott Hughes, "Petro-Pastoralism"; Michael Malouf, "Behind the Closet Door: Pixar and Petro-Literacy," in *Petrocultures*, ed. Wilson et al., 138–61; Jennifer Wenzel, "Petro-Magic-Realism: Toward a Political Ecology of Nigerian Literature," in *Energy Humanities: An Anthology*, ed. Imre Szeman and Dominic Boyer (Baltimore: Johns Hopkins University Press, 2017), 486–503; Lemenager, "The Aesthetics of Petroleum."
45. Rogers, *The Depths of Russia*.
46. Rogers, xiif.
47. Elana Shever, "Neoliberal Associations: Property, Company, and Family in the Argentine Oil Fields," *American Ethnologist* 35, no. 4 (2008): 701–16.
48. Quoted in LeMenager, "The Aesthetics of Petroleum," 73.
49. Quoted in LeManger, 73.
50. Asgjerd Taksdal, *Gudar i Oljå* (Stavanger: Oljedirektoratet, 2002), 6–7.
51. Hendrik Van Gijsegheem and Verity H. Whalen, "Mining, Ritual, and Social Memory: An Exploration of Toponymy in the Ica Valley, Peru," in *Rituals of the Past: Prehispanic and Colonial Case Studies in Andean Archaeology*, ed. Silvana A. Rosenfeld (Boulder: University Press of Colorado, 2017), 270.
52. Hanne Lovise Aannestad, "Våre Helter Vikingene—et Portrett av en Historisk Periode," *Primitive tider* (2016): 64–78; Nanna Løkka, "Dagens Vikingtid," *Ottar* 2 (2015): 51–55; Jorunn Sem Fure and Terje Emberland, *Jakten på Germania fra Nordensvermeri til SS-arkeologi* (Oslo: Humanist Forlag, 2009).
53. Peter Sawyer, *The Age of the Vikings* (London: Arnold, 1962); Aannestad, "Våre Helter Vikingene," 61.
54. Line Esborg, "Det Norske Nei til EU: En Studie av Motstand som Kulturell Praksis," PhD diss., University of Oslo, 2008, 90; Aannestad, "Våre Helter Vikingene."
55. Løkka, "Dagens Vikingtid."
56. Løkka, 54.
57. Taksdal, "Gudar i Oljå," 2.
58. Taksdal, 7.
59. Anne Eriksen, *From Antiquities to Heritage: Transformations of Cultural Memory* (New York: Berghahn Books, 2014), 21; Alexander Gellay, ed., *Unruly Examples: On the Rhetoric of Exemplarity* (Stanford: Stanford University Press, 1995), 5.
60. John Lyons, *Exemplum: The Rhetoric of Example in Early Modern France and Italy* (Princeton: Princeton University Press, 1989), 33; Gellay, *Unruly Examples*, 3.
61. Lyons, *Exemplum*, 26.
62. Lyons, 26, 237.
63. Lyons, 33–34.
64. Wilson et al., *Petrocultures*, 133; Malouf, "Behind the Closet Door," 146.
65. Taksdal, "Gudar i Oljå," 37.
66. Macdonald, "Containing Oil," 55.

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