SOFIA NANNINI

Icelandic Farmhouses

Identity, landscape and construction (1790-1945)

FIRENZE UNIVERSITY PRESS

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Farmhouse in Arnarstapi, Snæfellsnes peninsula.
Photo by Sofia Nannini, 2019.

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Atli Magnus Seelow
Friedrich-Alexander-Universität Erlangen-Nürnberg

Viðborðsel farmhouse
Sveitarfélagið Hornafjörður, 2016.

The rapid leap from turf to concrete in the Icelandic countryside: from a peripheral colony's medieval building technique to the modern architecture of an independent country

Despite the obvious fact that Iceland is an island, the effects of its geographic isolation are often underestimated. Iceland was settled by Scandinavian Vikings in the second half of the 9th century as the last European country to be settled. After a period of national independence and cultural awakening, Iceland came under Norwegian – and later Danish – rule in the 13th century. For several centuries, the country was an isolated and impoverished colony on the fringes of the inhabited world, very remote or even completely cut off from most political, social and technological developments on the European continent. Accordingly, the Icelandic building tradition differs fundamentally from that in most other countries. Due to the volcanic origin of the island and the exceptional climatic conditions, traditional building materials such as clay suitable for brick making or types of rock that are easy to work with are just as scarce as wood, which has to be imported. Therefore, late Iron Age turf houses remained the most common form of construction from the settlement of Iceland right into the 20th century. During this lang span of time, they changed comparatively little because of the modest materials and handicraft techniques available. Compared to building methods common in the other Nordic countries or on the European continent, turf houses are a very simple, not to say primitive, type of building. Among other things, moisture and damp from the turf and the ground are a constant problem and responsible for the fact that turf houses require constant renewal. Just how primitive the living conditions in turf houses are has been described many times, for example very recently by Hallgrímur Helgason in his novel *Sextíu kíló af sólskini* (2018):

> Although turf houses were … sometimes little more than hollowed-out mounds and in fact closely related to the Greenlandic igloos in terms of shape and organization (one communal space with low entrances), the entrance passages of Icelandic houses were usually quite long, as good doors were not easily to be had in the treeless country, and the length therefore necessary to reduce the cold and diminish the wind. However, the strongest gusts often managed, if an opening

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> was unlocked, to send the drifting snow all the way onto the communal living room floor. In front of the living room door in Bæjarkot was a so-called slamming door that Lási now let go, because it slammed again before the duo reached the end of the tunnel, so it became completely dark. Reverend Árni looked for woodwork, finally found the door ring and removed this curtain from a reality he had heard about, but not yet seen, the very triumph of Icelandic poverty; the Icelandic communal living room above the cowshed [*fjósbaðstofa*]. The door-cord stretched over his head and the stone at the end of it was pulled up at the back of the door with a deep sound. The stench was overwhelming (Hallgrímur Helgason 2018, 152–53).[1]

It was not until the middle of the 18th century that political and economic liberalization began which gradually opened up the country and led to an era of ever faster progress at the end of the 19th and beginning of the 20th century. This entailed the import of numerous technical innovations as well as various social disruptions transforming the country from a backward colony into a progressive country within a few decades' time.

Among the many technical innovations that reached Iceland in the late 19th and the early 20th century, concrete is of particular importance and proved to be a key factor in the development of an independent Icelandic architecture. The advent of concrete meant that the Icelanders – for the first time in their history – had at their disposal a building material, the ingredients of which were largely available in the country, which could also be used with comparatively simple means and which proved to be durable and earthquake-proof under the difficult Icelandic conditions. The first experiments with the new material were carried out in the countryside before the turn of the century with the building of farmhouses. And most of the major early advances were undertaken by local builders, sometimes anonymous craftsmen, who used concrete in an experimental way without involving any engineers. After the turn of the century the development of concrete construction was continued by the first generation of scientifically trained Icelandic engineers — above all Knud Zimsen (1875–1953) and Jón Þorláksson (1877–1935). Concrete construction quickly displaced all other building methods and became not only the generally dominant construction method, but also one that was to Icelandic 20th-century architecture like no other. Iceland differs from most other countries in that

[1] "Þótt torfbæirnir væru, líkt og hér, stundum lítið annað en útgrafnir hólar og í raun náskyldir hinum grænlensku íglúum hvað lögun og skipulag varðaði (einn sambýlisgeimur með lágum aðgöngum) voru bæjargöngin íslensku þó jafnan höfð nokkuð löng þar sem góðar hurðir voru ekki rifnar upp úr hverri þúfu í trjálausu landinu, og lengdin því nauðsynleg til að draga úr kulda og dempa vind. Hörðustu hviðum tókst þó oft á tíðum, ef opnaðist loka, að leggja sína skafrenninga alla leið inn á baðstofugólf. Fyrir baðstofudyrum í Bæjarkoti var svokölluð skellihurð sem Lási sleppti nú takinu á því hún skall aftur áður en tvímenningarnir náðu göngin á enda, svo almyrkvað varð. Séra Árni fálmaði eftir tréverki, fann loks hurðarhringinn og svipti þessu fortjaldi frá veruleik, sem hann hafði heyrt um enn ekki séð, sjálfu sigurverki íslenskrar fátæktar; hinni íslensku fjósbaðstofu. Hurðarsnærið strekktist yfir höfði hans og steininn í enda þess dróst upp að hurðarbaki með dimmu hljóði. Óþefurinn var yfirþyrmandi."

the breakthrough and success of concrete construction takes place not only a few decades earlier than in the other Nordic countries, but also the fact that it essentially takes place in the countryside, in the context of farmhouse buildings. This confirms in a unique way Adrian Forty's hypothesis that concrete construction, as he puts it somewhat pointedly, is initially an unmodern and simple – not to say primitive – way of building, which only gradually advances to a technically advanced construction method.

This study has a pioneering character and presents unique new knowledge. The investigation of the farmhouse in Iceland and the rapid breakthrough of concrete building offers a unique opportunity to examine the modernization of building techniques – from the medieval turf house to modern concrete construction – *en miniature*. In no other European country does this modernization happen in so close contact with the rapid social upheavals and technical innovations that catapult the country from the Middle Ages to the modern age within just a few decades. And due to the comparatively small number of builders and craftsmen who are active at that time, the developments can still be viewed as a whole. Thus, this study makes it possible to follow step by step the transition from the work of the first pioneers and their successes with concrete to its mass usage. One can only hope that the lesson to be learned in Iceland will be transferred to other countries and can contribute to the advancement of architectural history to include the hitherto somewhat neglected aspects of rural building and construction history.

Introduction

Concrete farmhouse
Austur-Skaftafellssýsla, 2016.

To foreigners and travellers, Iceland is a mysterious geographical entity, a land located somewhere in the cold Atlantic Ocean and narrated through medieval sagas and folk tales. Its social and political history is usually unknown by the general public, as is its architectural history. Icelandic architecture is peripheral in comparison to European architectural history and its specificities are generally overshadowed by the architectural history of the other Nordic countries. This book explores a specific trait of Icelandic architecture: the history and material development of the island's farmhouses between the late-eighteenth century and the mid-twentieth century. The rural nature of Icelandic society characterized its economy from the medieval period until after the Second World War. Not only were traditional farmhouses considered symbols of Icelandic history and culture, but they also became an important backdrop against which to debate the modernization of local building techniques. The innate flaws of traditional turf construction resulted in an almost constant renovation of local farmhouses: it was a necessity with severe economic drawbacks for the inhabitants. Suggestions concerning the improvement of turf farms date back to as early as the late eighteenth century. However, it wasn't until the late nineteenth century that new architectural proposals and construction materials emerged. By this time, building experts were able to propose different ways of building in the Icelandic countryside, and finally replaced turf as the main building material.

This book retraces the history of Icelandic rural architecture, with a focus on farmhouses, throughout the nineteenth century and until the mid-twentieth century. This time span is of particular importance to Icelandic political and social history. From the time of the Kalmar Union, established in the late fourteenth century, Iceland had been officially under the rule of the kingdom of Denmark. Its political status, however, was often blurred. At times Iceland was alternately referred to as a province, a dependency [*biland* in Danish, *hjálenda* in Icelandic] or a colony (Guðmundur Hálfdanarson 2014).

During the nineteenth century, Icelandic society slowly experienced a political and cultural independence movement that eventually resulted in increased political autonomy, culmi-

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Farmhouse in Bustarfell
Vopnafjörður, 2019.

nating in the Act of Union in 1918 and the declaration of independence in 1944 (Gunnar Karlsson 2000, 200–23; Gunnar Karlsson 2008; Guðmundur Hálfdanarson 1995). As Icelandic politics changed, so did Icelandic society. From the early twentieth century, Iceland experienced a rapid process of industrialization and modernization of its infrastructures, as more and more inhabitants abandoned the countryside and moved to urban settlements along the coast, especially to Reykjavík. Together with politics and society, Icelandic architecture was transformed. The almost timeless tradition of turf houses, stemming from the Middle Ages, eventually came to an end. The first generation of Icelandic engineers and architects promoted new building technologies. Turf was replaced by concrete, and this building material changed Icelandic architectural history for posterity. The cultural legacy of turf houses has recently been labelled as a "difficult heritage" for Icelandic history (Sigurjón Baldur Hafsteinsson, and Marta Guðrún Jóhannesdóttir 2015) and the eradication of turf architecture throughout the twentieth century has been interpreted within a colonial discourse by Icelandic scholars (Sigurjón Baldur Hafsteinsson 2019). The case study of Icelandic rural architecture may confirm Adrian Forty's view that, despite the inner modernity related to concrete and the buildings it generated, its history of trial-and-error was also "wholly non-modern" and linked to a rural world (Forty 2012, 16). Furthermore, the quick ending of the turf tradition and its replacement with technologies like concrete may be interpreted as one of the many

outcomes of the capitalistic transformation of twentieth-century architectural culture, as recently highlighted by the German philosopher Anselm Jappe (2020).

This book tackles the changes that occurred in Icelandic construction techniques within the specific frame of rural architecture. According to Barnabas Calder's interpretation of architectural history through its energy resources (Calder 2021), the history of Icelandic rural architecture can also be understood within an energy framework. The evolution of Icelandic farmhouses from turf to concrete is a clear example of how an energy system – that of fossil fuels, allowing more frequent travel, material exchange, and new building materials, especially Portland cement – was able to transform a thousand-year-old vernacular tradition at the northernmost tip of Europe.

The first chapter of this book presents the main characteristics of Icelandic vernacular architecture: in other words, turf construction. The chapter retraces some late eighteenth and nineteenth-century publications regarding the architectural improvement of Icelandic farmhouses, analysing their contexts and scopes. Most of these sources were sporadic in nature and circulated by means of pamphlets, usually printed in Reykjavík, and of brief articles appearing in newspapers or journals. They were usually addressed to a varied audience of farmers and rural inhabitants, although they were also read by local builders. These texts were meant to foster political debate among members of Parliament in order to promote specific laws designed to improve the living conditions on farms. This chapter concludes by underlining the much-debated issue of the regular renovation of turf farmhouses, required by every generation of farmers.

The second chapter deals with the modernization of Icelandic rural construction in the first half of the twentieth century. Thanks to the increasing popularity of concrete all over the country, farmhouses became a field of experimentation in modern building materials within the harsh Icelandic environment. This chapter draws attention to a debate around the modernization of farmhouses, which opened a discussion on traditionalism in Icelandic architecture, merging national-romantic stances with nationalistic feelings towards vernacular construction, while recognizing the desperate need for modernization. Since the late 1920s, the issue of rural dwellings has been tackled centrally, with the opening of a technical office for the planning of farmhouses at a national scale, which came to be known as Teiknistofa Landbunaðarins [Technical Office of the Agricultural Agency]. At this time, the challenge was to draw as many projects as needed for the remotest corners of Iceland's countryside, as well as provide builders with necessary information related to the construction of concrete farms. This chapter retraces the vast influence of Teiknistofa Landbunaðarins, thanks to the consistent body of drawings collected at the National Archives of Iceland. The contribution of

this technical office was not only vast regarding the number of projects delivered, but its planned farmhouses also became part of the public discourse. In his masterpiece *Independent People* (1934–35), novelist and Nobel laureate Halldór Laxness (1902–98) frequently mentioned the increasing and debatable presence of newly built concrete farmhouses in the countryside.

opposite
Farmhouse in Arnarstapi
Snæfellsnes peninsula, 2019.

Through the study of Icelandic rural buildings, this book narrates a very particular history of architecture: one of adaptation and tradition, the scarcity of building materials and difficulty in communicating with Europe. The history of Icelandic farmhouses is intermixed with construction issues, nationalistic debates, and a quest for a much-needed modernization of the standards of living. Discussing this history means analysing the human presence on this North Atlantic island, and the rural core of Icelandic society.

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Concrete farmhouse Reykir, Mosfellssbær, ca. 1946. ©Courtesy of Þjóðminjasafn Íslands/National Museum of Iceland.

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Notes on Icelandic pronunciation

Á/á [au] – as in "all**ow**"
Đ/ð (eð/eth) – "th" as in "**th**e", "wea**th**er"
Þ/þ (þorn/thorn) – "th" as in "**th**in", "**th**ick"
Æ/æ [ai] – "i" as in "**I**" or "H**i**"

Icelandic names are always referred to with full names, the last name being usually a patronymic [–son, –dóttir]; when not specified, all translations in the book are by the author. All photographs, unless specified, are by the author.

Abbreviations

Lbs = Landsbókasafn Íslands [National and University Library of Iceland]
ÞÍ = Þjóðskjalasafn Íslands [National Archives of Iceland]
ÞM = Þjóðminjasafn Íslands [National Museum of Iceland]

The persistence of turf

Reconstruction of a turf church
Árbær Museum, Reykjavík, 2019.

Ever since its settlement by the Scandinavian and British populations in the ninth century, Iceland has not offered a great variety of building materials to its inhabitants. The lack of clay sources and the gradual reduction of forests on the island did not enable the construction of buildings other than traditional turf farmhouses.Vernacular Icelandic construction combined the few building materials available on the island: turf, gravel and driftwood. Turf became the dominant building material for almost a thousand years. To the eyes of foreign visitors, Icelandic construction seemed to have been frozen in time; its inhabitants condemned to early-medieval living conditions.[1] This seemingly eternal tradition was slowly eradicated by the turn of the century, with the increasing use of concrete as the most popular building material in twentieth-century Iceland (Lýður Björnsson 1990; Seelow 2011, 69–78). Cement, concrete, and corrugated iron replaced the materials of tradition, and turf constructions were entirely banned from the city of Reykjavík as early as 1903 (Nannini 2020a). The number of turf houses rapidly diminished over the whole country, until the few remaining buildings either became ruins, or were listed as national heritage sites by the National Museum of Iceland.[2]

Thanks to its key role as the protagonist of Icelandic vernacular architecture, turf construction is one of the most researched topics when it comes to Icelandic architectural history. The first modern studies of Icelandic turf architecture date back to the last decades of the nineteenth century. Studies by the Danish archaeologist Daniel Bruun (1856–1931) were based on many field trips to the island and were published in Denmark with several illustrations and surveys of old farms (Bruun 1897; Bruun 1908). In the first decades of the twentieth century, traditional turf farms were also part of a widespread interest in Nordic culture among German scholars. One example is the booklet *Die aus Grassoden und Holz gebauten*

[1] Compare, for example, the comments on Icelandic vernacular buildings by Adam of Bremen in *Gesta Hammaburgensis ecclesiae pontificum* and the description of living conditions in the country by nineteenth-century visitors, such as George Stuart Mackenzie in *Travels in the Island of Iceland* (1811).
[2] The Historic Buildings Collection of the National Museum of Iceland [Húsasafn Þjóðminjasafns Íslands] records, renovates and promotes several turf farms around the country.

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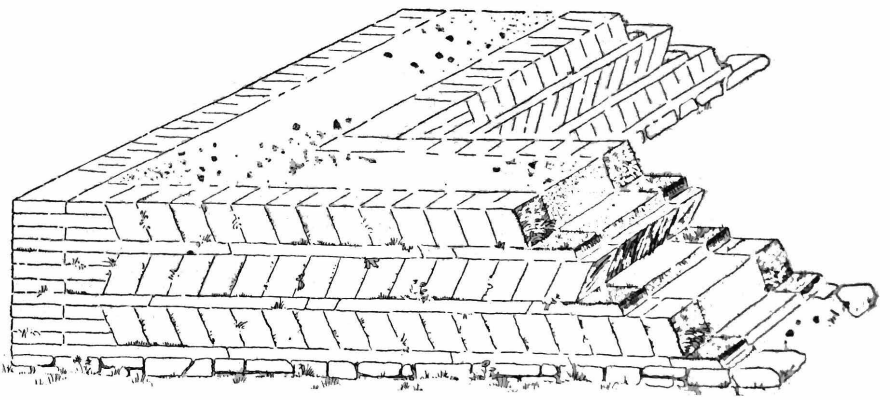


Section of a turf wall
Sacher, *Die aus Grassoden und Holz gebauten Höfe und Kirchen in Island* (1938), table II.

opposite
Detail of a turf wall with coarse stones
Bustarfell farmhouse, Vopnafjörður, 2019.

Höfe und Kirchen in Island by Edwin Sacher (1906–?). This work was the result of a dissertation at the Technische Hochschule in Berlin, hence the presence of technical details about traditional building techniques (Sacher 1938). However, from his references, it is possible to detect that his background was not only linked to construction history. On the contrary, Sacher's work stemmed from several contemporary German studies on Icelandic sagas, Norse mythology, and travels to Iceland, all connected to a general interest in Nordic culture that had been on the rise in the German speaking world since the early nineteenth century (Henningsen, and Klein 1997; Zernack 2011). One example is the book by Karl Gustav Stephani, *Der älteste deutsche Wohnbau und seine Einrichtung* (1902), with direct references to traditional Scandinavian and Icelandic architecture. Until today, traditional turf houses have been the object of many studies by contemporary scholars. Several authors have researched turf construction with scientific aims, spanning from an analysis of the inner environment and comfort to the chemistry and botany of the turf layers, also linked to Scottish vernacular architecture (Van Hoof, and Van Dijken 2008; Stampfer 2019; Walker 2006; Wilkinson 2009).

Turf houses have been extensively studied by many Icelandic scholars, including architects, architectural historians, and conservation experts, with a recent focus on the classification of heritage sites and their restoration (Sigurjón Baldur Hafsteinsson 2010; Sigríður Sigurðardóttir 2012). In 2011, "The Turf House Tradition" was listed in one "Tentative List" of the Unesco World Heritage Centre.[3] One of the first detailed Icelandic ac-

[3] "Unesco," https://whc.unesco.org/en/tentativelists/5589/, last accessed 06/04/2022.

counts of turf buildings was written by the medical doctor and building expert Guðmundur Hannesson (1866–1946), as a chapter in his comprehensive volume on Icelandic construction history, published in 1942 and entitled *Húsagerð á Íslandi* [*Architecture in Iceland*]. A second source of information is the thorough study of Icelandic architectural history between 1750 and 1940, *Íslensk byggingararfleifð* [*Icelandic Architectural Heritage*], published in 1998–2000 by the artist and researcher Hörður Ágústsson (1922–2005), which provided an overview of subtle developments in turf farms and churches until the early twentieth century. To date, the most comprehensive study on Icelandic turf construction is the beautifully illustrated volume *Af jörðu*, written by architect Hjörleifur Stefánsson (Hjörleifur Stefánsson 2013).[4]

[4] The book was recently translated into English as *From Earth* (2021).

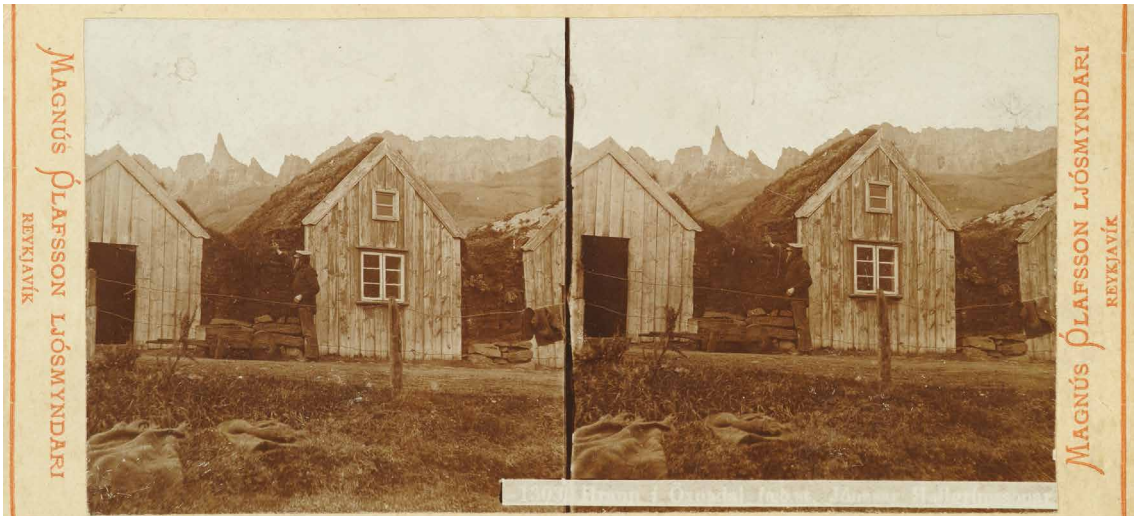
Building with the earth: The turf farm

Before analysing the modernization of rural architecture in Iceland, it is important to briefly mention a few characteristics of turf construction in order to understand the pivotal role that this traditional method had in Icelandic architecture until the first half of the twentieth century. It is worth noting that this book will mostly use the term "turf" to describe this building material, without considering the various details that geologically differentiate between one kind of turf and another. In the Icelandic language, the term *torf* is the most common, although there are many different categories, depending on the vegetation that covers the ground layers (Hjörleifur Stefánsson 2013, 17; Stampfer 2019, 330). Also, the specific characteristics of turf vary greatly according to its location within the Icelandic territory (Sigurjón Baldur Hafsteinsson 2010, 272).

opposite
Turf farmhouse
Bustarfell, Vopnafjörður, 2019.

According to Hjörleifur Stefánsson's definition, a turf house is a structure whose walls are mainly made of turf blocks, sometimes mixed with gravel and coarse stones. The roof structure is usually made of timber beams and rafters, topped with a final layer of grass-covered turf. There have been several tools used over the centuries to cut turf layers from the ground, resulting in blocks with different shapes to build walls and rooftops. Generally speaking, the walls of a turf house usually rest on a lower level of gravel or coarse stones, alternating with flat turf pieces. On top of this first level, the turf structure itself is double, with two outer layers of turf blocks containing a core of earth and rubble (Hjörleifur Stefánsson 2013, 18–31).

Turf construction had many positive characteristics. It provided cheap and readily available building material to almost all the inhabitants of the country and, most importantly, it acted as an insulating layer against the harsh climate. However, the absence of heating systems was tolerable only thanks to thick walls and to the almost complete lack of windows, which resulted in rather unhealthy environments. Heating was usually provided by burning dried manure, and it caused respiratory difficulties due to the lack of ventilation. The technique behind turf construction was a common heritage shared among the inhabitants and it was replicated by many builders over the centuries. However, turf constructions were in constant need of renovation every few decades, forcing their inhabitants to refurbish, or even rebuild, their own dwellings each generation (Hjörleifur Stefánsson 2013, 32–36). This continuous act of rebuilding was "an inseparable part of the turf house" (Hannes Lárusson 2016, 535) and, as we will see, it was precisely one of the reasons why the turf tradition was eventually replaced by concrete.



Gabled house, or *burstabær*
Photo by Magnús Ólafsson, ca. 1900–10. Courtesy of Þjóðminjasafn Íslands/National Museum of Iceland.

According to Halldór Laxness, the architectural development of a turf farm cluster "is a little like the propagation of coral, or cactuses" (Laxness 2004, 17). By observing the plans of Iceland's existing or reconstructed turf farms, one is tempted to think that their layout is entirely random or generated by some incomprehensible natural law. The most common term usually adopted to describe a turf farm is *bær*, that is "a cluster of houses where the division between them is unclear and each unit connects to another to form a whole" (Hannes Lárusson 2016, 524). Despite the great variety, the architectural evolution of the Icelandic farm can be traced back to an increasingly complex form in its planimetric disposition. The "longhouse" [*skáli*], the one-room dwelling typical of the settlement period, was progressively enlarged with transversal, or separated, areas within the same cluster. The additional rooms could be the kitchen [*eldhús*] and the simultaneous living room and bedroom, usually called *baðstofa*. Later and until today, the term *baðstofa* began to represent the whole complex of a turf farm, usually arranged around one central hall for most activities, including sleeping. According to Icelandic artist Hannes Lárusson, the *baðstofa* can be considered as "the axis, the heart, the womb of the housing cluster and also Iceland's most important contribution to three-dimensional art" (Hannes Lárusson 2016, 530).

By the nineteenth century the most common turf farm typology consisted of a central corridor connecting all the rooms. As Hjörleifur Stefánsson pointed out, the majority of today's existing Icelandic turf farms derive from the late nineteenth-century typology of

the "gabled house" or *burstabær*, with a façade of gabled timber entrances in front of the turf cluster (Seelow 2011, 40; Hjörleifur Stefánsson 2013, 53–55). As shown in the second chapter of this book, this specific typology was at the core of an early twentieth-century architectural fascination with the shapes of turf houses, particularly during the decades when traditional farms were abandoned in favour of concrete or timber dwellings.

Enlightenment and earthquakes: Projects for the countryside

One of the earliest essays to tackle the improvement of Icelandic farmhouses was written in 1790 by an Icelandic priest, Guðlaugur Sveinsson (1731–1807), and published in the pages of the journal of the Icelandic Society for Learned Arts (Guðlaugur Sveinsson, 1790).[5] The text highlighted some efficient ways of building vertical structures with turf and gravel, and also suggested three different layouts for smaller and larger "gabled" farms (Seelow 2011, 40; Hjörleifur Stefánsson 2013, 82–83). The intrinsic spontaneity of turf houses did not match well with these kinds of resolutions: not only were farmhouses built and rebuilt several times over the course of one generation, but they were also usually constructed by their own inhabitants, and not by formally educated technicians. Common practices and word-of-mouth advice became the basis of construction techniques that were repeated for centuries and rarely, and only gradually, modified. Despite the growing national debate concerning the state of Icelandic farms, it is hard to find examples of turf houses that can be classified as models of innovative construction techniques throughout the nineteenth century. An exception might be the farm designed and built by Icelandic master mason Sverrir Runólfsson (1831–79) at the beginning of the 1860s, on the shores of the Ellíðavatn lake near Reykjavík. Thanks to his knowledge of construction issues – he was one of the first Icelanders ever to receive an official education in stonemasonry – he opted for walls made with stone ashlars and followed the layout of the Icelandic gabled farm (Sverrir Runólfsson 1909; Guðmundur Hannesson 1942, 231–34; Páll Líndal, 1986, 126; Hörður Ágústsson 2000, 292–98). This case was an isolated example within the Icelandic countryside, where the predominance of turf construction was not questioned until the early twentieth century.

A full revision of the building techniques adopted in farmhouses timidly emerged at the very end of the nineteenth century after one tragic event: a series of earthquakes, occurring in 1896 in southern Iceland, destroyed the majority of its farm clusters (Ísafold 1896a; Skúli Skúlason 1896; Sveinbjörn Björnsson, 1975/76). The destruction caused by the earthquakes

[5] The Icelandic Society for Learned Arts [Hið íslenzka Lærdómslistafélag] was founded in 1779 by Icelandic scholars in Copenhagen, and its journal was published between 1781 and 1798. The society was one of the actors that fostered the development of Enlightenment ideals in the Icelandic context: its effects were to be seen throughout the whole of the nineteenth century (Ingi Sigurðsson 2010).

Turf farms destroyed after the earthquakes in Southern Iceland, 1896. Courtesy of Þjóðminjasafn Íslands/National Museum of Iceland.

soon prompted reflections on the poor state of Icelandic rural buildings and the reconstruction of these southern farms. As early as September 1896, a committee for the "collection of contributions" for the earthquake-stricken areas was founded.[6] In February 1897 a thorough discussion was published in the pages of the *Ísafold* journal, specifically regarding the "improvement of farmhouses in the earthquake areas" (*Ísafold* 1896c). The journal published four texts, which tackled the issue of the reconstruction and structural improvement of Icelandic farmhouses. From this debate, two autonomous proposals emerged as contrasting ways of addressing the problem: one was submitted by the Danish master mason Fredrik Anton Bald (1845–1909), and one by the Icelandic carpenter Jón Sveinsson (1852–1936). They were quite different: Bald submitted a handwritten text from Copenhagen, whereas Jón Sveinsson printed a pamphlet in Reykjavík. Such differences, and the opposing projects they suggested, were signs that a renewed debate on Icelandic farmhouses was taking place, and was also of interest to the general public.

Bald's contribution consisted of a five-page handwritten text entitled *Forslag til Forbedring af islandske Landboboliger* [*Proposal for the Improvement of Icelandic Farmhouses*], writ-

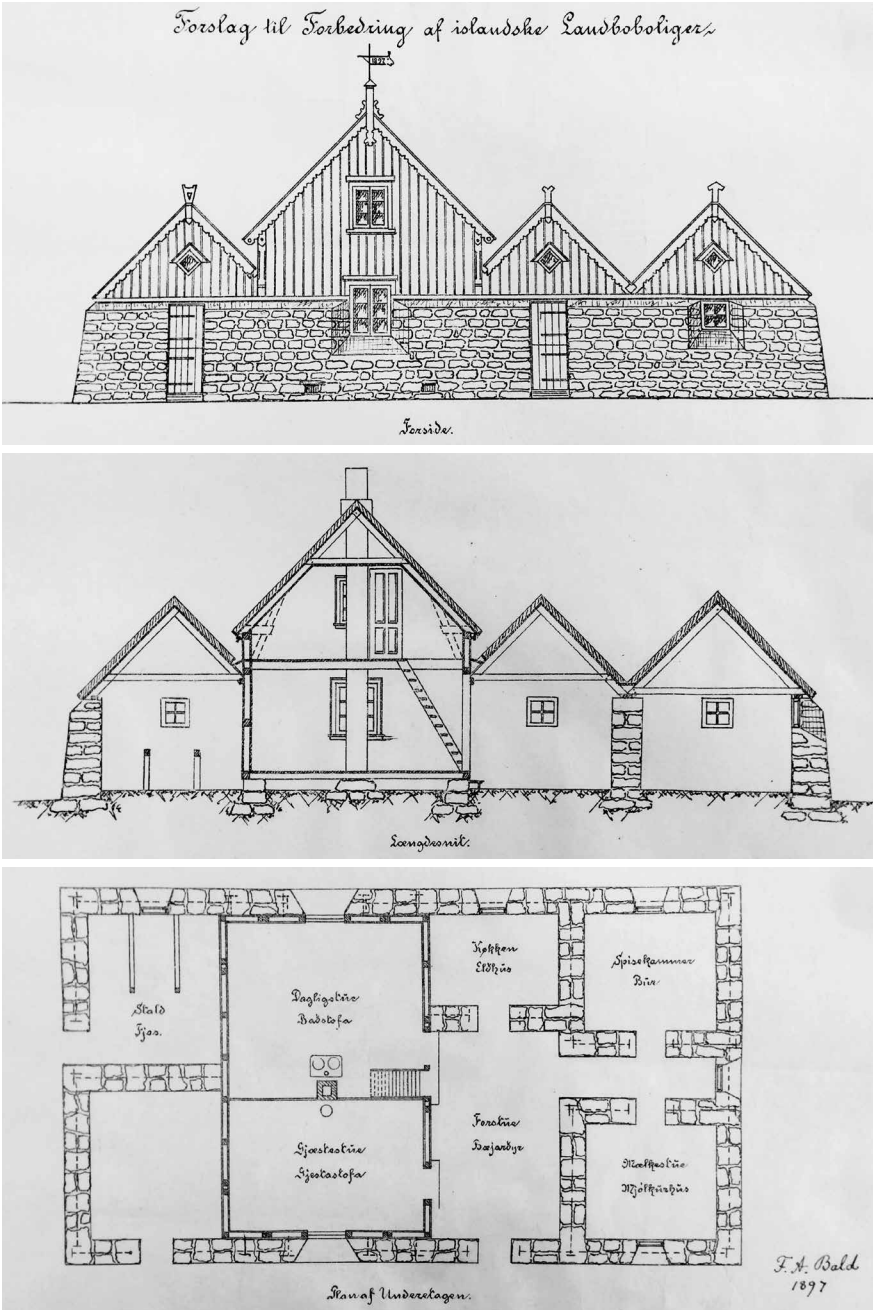
[6] The committee was named Landskjálftasamskotanefndin [The Committee for the Collection of Contributions Related to the Earthquake]. Mentions of the foundation of the committee can be found in the pages of the *Ísafold* newspaper on 16th September 1896. A group of twenty workers was formed and coordinated by politician and bank director Tryggvi Gunnarsson (*Ísafold* 1896b). No further mention of the committee has been retrieved in the years after 1896.

ten in Danish, and followed by a drawing of an ideal Icelandic turf farm.[7] The same text was translated into Icelandic and published with a few comments in the pages of the *Ísafold* journal (Bald 1897). It is important to consider that, by the end of the century, Bald was already a particularly important figure for the Icelandic construction industry; he had supervised the construction of the House of Parliament in Reykjavík in 1880–81 and, together with his son, he promoted several building works in Iceland and on the Faroe Islands (Haugsted 2014).

His proposal for the improvement of farmhouses mixed traditional Icelandic elements with some novelties, in both the layout and the building technique. Bald's design for a farmhouse was made with stone ashlars, alternating with regular turf blocks, resulting in thick vertical structures that were quite similar to those envisaged by Guðlaugur Sveinsson in the late eighteenth century. The general layout bore a strong resemblance to ordinary gabled turf farms. However, Bald proposed an extended use of timber, in the front gables and the roofing system, made with timber planks and covered by a turf layer. He also underlined the distinction between the living and sleeping rooms and the rest of the farm: the latter being enclosed by the thick walls of stone and turf, and the former protected by an extra timber structure. This central portion spanned two levels and contained a central chimney for heating purposes; it was structured in bricks bound in lime, with concrete smoke pipes. Aware of the recent earthquakes, Bald suggested placing iron chains within the stone and turf walls, using them to connect the inner timber structures to the outer walls. He encouraged the use of a good amount of timber, a masonry chimney, and some iron rods. Despite its traditional appearance, the design included a number of technical improvements that were absolute novelties in late nineteenth-century Iceland. At the turn of the century, the presence of a turf farm with a central stove was quite a rarity, not to mention the use of iron chains for structural purposes. However, despite its immediate appearance in the press, the fact that such a proposal was delivered only in handwritten form clearly attests to its limited spread around the country. Despite the precise description and drawings, Bald's contribution was a rather unique attempt to deal with the task of the intensive reconstruction of farmhouses, especially in the southern part of the island.

One year later, a more structured proposal was published: thanks to its printed form it undoubtedly reached a wider public and its proposals had practical outcomes. Entitled *Húsabætur á sveitabæjum* [*Improvement of Farmhouses*], with descriptions and drawings by the Icelandic carpenter Jón Sveinsson, the text was published with the support of the com-

[7] *Forslag til Forbedring af islandske Landboboliger*, a copy of a handwritten document and one drawing by F. A. Bald, 1897. Lbs, Islandssafn. As a note on the last page suggests, the copy was given to the National Library by librarian and archivist Jón Jakobsson (1860–1925) on 24 March 1908.

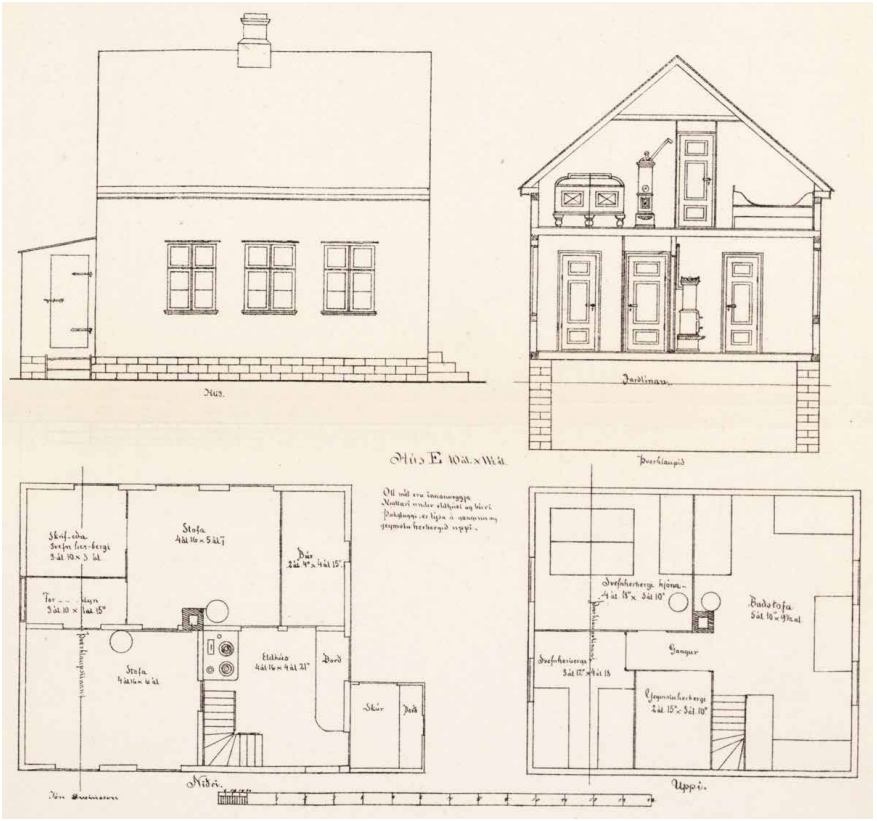


Frederik Anton Bald, *Forslag til Forbedring af islandske Landboboliger*, 1897.
Lbs, Íslandssafn.

mittee founded in 1896 (Jón Sveinsson 1898). The specificity of this pamphlet lay in the projects it suggested. Unlike Bald's proposal for an ideal turf farm, Jón Sveinsson published a few plans for timber houses to replace the turf buildings destroyed by the earthquakes. The author suggested six different layouts for what he called house [hús] and three bigger layouts for a modern version of the Icelandic *baðstofa*, meaning the core dwelling of the Icelandic farm, where the inhabitants would both work and sleep in a common hall, surrounded by service rooms. To each layout the author attached a drawing and a precise list of the building materials needed, together with the price of each one. This choice could be linked to Jón Sveinsson's technical skills; he was a trained carpenter who had studied in Reykjavík, and worked abroad in Copenhagen, Hamburg and Chicago (Páll Eggert Ólason 1950, 285). His international expertise might also have been linked to the ongoing trend of importing Norwegian timber "catalogue houses" [*katalóghús*], a very common business in Icelandic urban settlements in the last decades of the nineteenth century (Halvorsen 2003). For the first time, the modern and expensive "catalogue" timber houses, usually a prerogative of the Danish trading class in urban contexts, were proposed for the rural countryside. Despite the high costs of the materials and the difficulties in transporting them, timber structures were nevertheless proposed as the ultimate solution to reconstruct Icelandic farms and reach decent living standards. All his projects had a timber structure, surrounding a central masonry chimney, and roofs cladded with corrugated iron sheets. As the drawings show, each building was envisaged without a basement, resting directly on stone foundations. However, Jón Sveinsson wrote some final remarks on the construction of a storage basement located under the first floor. In particular, he suggested casting a layer of concrete and tar on the basement floors to prevent the spread of humidity rising from the ground (Jón Sveinsson 1898, 25–26).

The pamphlet aimed at widening knowledge of these structures, listing the building materials needed and offering construction models. However, the fact that expert carpentry skills were required might have hampered the approval of this proposal among the rural inhabitants. The text did not circulate properly at a national level, and its projects were not taken up as efficient models for the improvement of farmhouses. As the next paragraph will show, most of the national funds granted for farmhouses were still designated for the reconstruction of turf buildings. Only a few houses were built according to the carpenter's suggestions, limited to the earthquake areas.[8]

[8] In particular, the timber house in Teigur í Fljótslhlíð is mentioned as one of the structures built according to Jón Sveinsson's proposals (Sigurður Jónsson 1996).



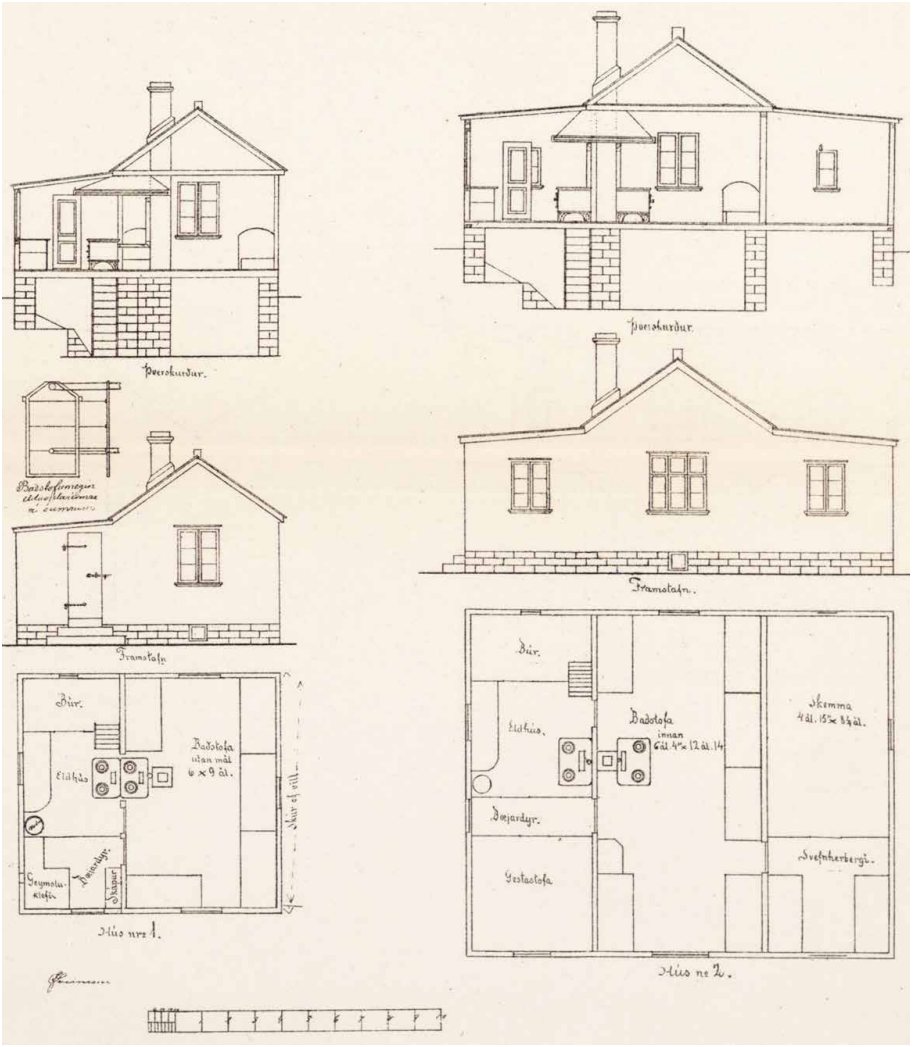
Jón Sveinsson, *Húsabætur á sveitabæjum*, 1898. Projects for a farmhouse.

opposite
Jón Sveinsson, *Húsabætur á sveitabæjum*, 1898. Projects for two farmhouses (no. 1 and no. 2).

"A public and national issue": The endless renovation of turf houses

The state of Icelandic living conditions was badly affected by one critical concern for Iceland and its economy: the endless process of construction and refurbishment of the traditional farmhouse, and the great amount of money required. As a survey on building traditions conducted in 1900 indicated, the average age of a turf farm was around 40–50 years, requiring that after half a century every house in the country had to be wholly restored.[9] If the specific farm was built on public land [*þjóðjörð*], it also meant that the farmer could ask for a grant in order to support the works. This particular subsidy for the improvement of houses was frequently debated in Parliament at the turn of the century, and in 1900 the

[9] The survey was conducted by Sigurður Pétursson (1870–1900), Iceland's second graduated engineer. The Manuscript Department of the National Library of Iceland holds some of the handwritten answers to the survey: Lbs 767 Fol., Örk 8.



first structured law concerning low-interest loans for agricultural and building purposes was issued. In 1899, it was decided that a subsidy could be granted to a farmstead, if its inhabitants were able to guarantee at least one third of the total costs (*Alþingiskjöl* 1899, 313).
While debating the financial report of the year 1906, parliamentary documents reported that several public landholdings received subsidies for the improvement of farmhouses (*Alþingiskjöl* 1909, 498). Law no. 1, issued on 12th January 1900, declared the opening of a specif-

ic department of the National Bank which would offer low-interest, long-term loans for acquiring agricultural land and/or renovating one's dwellings (Steingrímur Steinþórsson 1942, 262–63).

As claimed in the pages of *Búnaðarrít*, the journal of the Agricultural Society of Iceland:

> It was self-evident to recognize that our houses are generally poor, vulnerable, and yet unbearably expensive, and most people were aware that a lack of knowledge was hindering future renovations. The improvement [of houses] became a public and national issue […] (*Búnaðarrit* 1901, 5).[10]

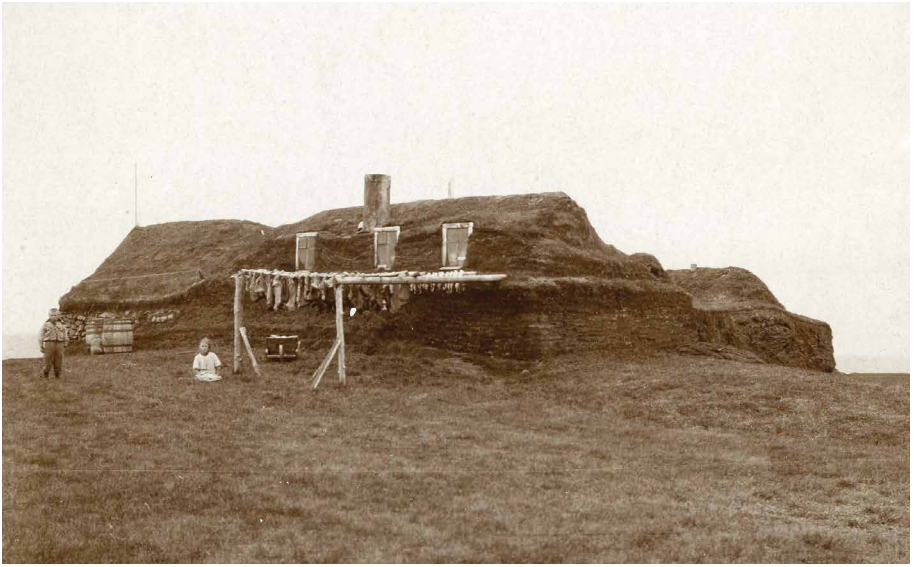
opposite
Turf farm, ca. 1927–30. Photo by Geir Geirsson Zoëga. Courtesy of Þjóðminjasafn Íslands/National Museum of Iceland.

The Ministry of Iceland received dozens of requests for national grants to be devoted to the renovation of farmhouses and farmsteads. Today, these documents are collected in the National Archives of Iceland and are an outstanding tool in understanding the modernization of Iceland's construction habits. Between 1904 and 1927 at least 47 requests for housing grants were issued. The documents include farmers' letters, accounts by building experts, expense estimates, governmental papers, and even some simple drawings. These sources paint an interesting picture of the state of Icelandic construction in the first decades of the twentieth century: its internal problems, the recent technological changes, and the way in which a rural society dealt with a national-scale emergency. The structure of each request was quite repetitive. Generally, the farmer in need of a house renovation – or one who had just renovated a farm – wrote to the county attorney [*umboðsmaður*], describing the state of the old farmhouse and the renovation project. Usually, an economic evaluation of the forthcoming works would also be attached. Then, the attorney wrote to either the local county representative [*sýslumaður*] or the territorial Amtmann.[11] Finally, the request was brought to the attention of the Ministry of Iceland. All demands were related to the refurbishment of farmhouses and the surrounding buildings, and the majority regarded traditional structures. Sometimes the farmer would only request the replacement of an old timber or turf roof with one made of corrugated iron. The farmers often called for financial support towards the reconstruction of the whole farmhouse, as these dwellings were usually damaged and damp, or had been destroyed by fire.[12] The outcome of such projects was usually another structure made of turf and

[10] "Það var sjálfgefið, að kannast við það, að hús vor eru yfirleitt slæm, endingarlítil og því óbærilega dýr, og meiri hlutinn kannaðist og við það, að þekkingarskorturinn stæði fyrir öllum bótum. Húsabótin varð þingmál og landsmál."

[11] The Amtmann [*amtmaður*] was a legal figure active until 1904.

[12] The latter is the case for a request issued in 1919 in the southern county of Rangarvallasýsla. See: ÞÍ, Stjórnarráð Íslands II. Skrifstofa B/25, Örk. 8 (1919). In one case an old farm was without windows, making it extremely unsuitable for living. On requesting financial support for this project, the farmer attached a drawing of the new house, boasting three windows in a row, and the receipt regarding the three windowpanes bought in Akureyri. ÞÍ, Stjórnarráð Íslands II. Skrifstofa B/25, Örk. 1 (1906).



gravel. Only in a few cases was the new dwelling built in timber, clad with corrugated iron.[13] Although it may seem surprising that an owner would want to rebuild their farm with damp and weak turf walls, these documents show the unimaginable complexity and exceptional costs behind the construction of timber structures in the countryside. In a 1905 request for a new timber house in the southern region of Hörgslandshreppi, the carpenter attached his schedule and quote for the task. The great variety of beams, rafters, and planks, topped with the transportation costs, notably increased the price, thus rendering timber a material affordable only for a small élite. In this case, the total cost of a timber house was 2265,64 kr., making it three to five times more expensive than the renovation of an ordinary turf farm.[14] In this context only a few houses were planned to be rebuilt in stone, lime, or concrete. Stonemasonry had been quite extensively adopted by Danish masons for the construction of public buildings since the mid-eighteenth century, such as the Viðeyjarstofa, designed by Royal architect Nicolai Eigtved (1701–54) and built as the residence of Skúli Magnússon in 1753–55 (Finsen, and Hiort 1978; Þorsteinn Gunnarsson 1997; Hörður Ágústsson 2000, 271–83). However, local inhabitants usually considered stone houses to be unsuitable for living. Only one case describes the construction of a cowshed with cut stones and some bricks,

[13] An example is the request issued in 1904 in the area of Hafnarfjörður. ÞÍ, Stjórnarráð Íslands II. Skrifstofa B/2, Örk. 2 (1904).
[14] ÞÍ, Stjórnarráð Íslands II. Skrifstofa B/7, Örk. 2 (1905)

enabling the structure to resist "forever".[15] Cement was sometimes employed in the construction of cellars, and only one case documents the extensive application of concrete for the casting of the walls in a stable.[16]

opposite
Sveinatunga farmhouse. Unknown photographer, ca. 1929. Courtesy of Þjóðminjasafn Íslands/National Museum of Iceland.

By the end of the nineteenth century, cement had been in use since the late 1840s, and master masons had been experimenting with lime and cement conglomerates since the 1870s. Most experiments took place in Reykjavík, where local builders were most often in contact with Danish experts and imported building techniques from the continent. Anticipating a revolution in the island's one-thousand-year-old building tradition, by 1894 the construction of turf houses was banned in the city centre of Reykjavík. By 1903, with Reykjavík's first building code, turf buildings were entirely banned both in the city and on its outskirts. However, it was the rural countryside – and not the growing village of Reykjavík – which hosted Iceland's first structure entirely made of concrete: the Sveinatunga farmhouse, in the valley of Norðurárdalur (Guðmundur Hannesson 1942, 240–49; Lýður Björnsson 1990, 61–64 and 66–70). The farm was built in 1895 by master mason Sigurður Hannsson[17] – a pupil of Sverrir Runólfsson – and by farmer and owner Jóhann Eyjólfsson (1862–1951). The novelty of the Sveinatunga farmhouse was its fully cast walls in concrete, taking advantage of the aggregates available on site. The choice of using concrete was partially linked to a question of energy and logistics. Cement could transform locally available resources – sand, gravel and water – into potentially long-lasting structures, without the need to transport heavy building materials along Iceland's scarce road network. Furthermore, the casting of the walls at Sveinatunga was accomplished with the help of moveable timber formworks (Guðmundur Hannesson 1942, 248). According to this system, only three timber planks were to be used at a time, fastened onto the outer supports with timber wedges, and then moved upwards, once the concrete below had set. This reduced the amount of timber needed on site, which had to be sparing, considering the scarcity of wood on the island.

The Sveinatunga farmhouse plays a significant role in Icelandic history. Thanks to Guðmundur Hannesson's book on Icelandic architecture and building techniques, *Húsagerð á Íslandi*, the building became the beginning of an unshakeable myth about Icelan-

[15] "Um ældur og ævi". ÞÍ, Stjórnarráð Íslands II. Skrifstofa B/1, Örk. 6 (1904). The particular richness of this refurbishment project – also including a detailed drawing – is perhaps linked to a contribution by Jón A. Hjaltalín (1840–1908), school director at Möðruvöllum í Hörgárdal and Akureyri, and member of Parliament.

[16] Cement was employed as a binder for stones and bricks to make walls around 1 ell thick [1 Danish alin = 1 ell, ca. 0,63m]. Moreover, concrete was also used to make the floors of a stable. Sometimes it would be mixed with turf layers in the same walls. See again: ÞÍ, Stjórnarráð Íslands II. Skrifstofa B/1, Örk. 6 (1904).

[17] Despite several mentions in a number of sources, no biographical information is available on Sigurður Hannsson.

dic construction history: according to the author, concrete was "invented" there – spontaneously and with no foreign influence (Nannini 2018). Guðmundur Hannesson wrote that Iceland's first experiment in concrete did not stem from "educated men, who could read foreign languages", nor from "those who had travelled and seen foreign models". On the contrary, he asserted that "there was an Icelandic farmer and a builder, who were making some experiments on their own, and they discovered concrete!" (Guðmundur Hannesson 1942, 247).[18] His belief in the Icelandic invention of concrete was influenced by a nationalistic attitude that re-read Iceland's social and technological accomplishments, especially on the verge of the declaration of independence in the 1940s. According to the author, Iceland's autonomy in technical matters originated from the countryside, being the very cradle of an ancient rural culture that had been able to welcome technical innovations, despite being shaken by the social changes brought about by these novelties.

Despite the structural modernity promoted by the construction at Sveinatunga, traditional farmhouses were very resilient. The persistence of turf as the country's main building material was in stark contrast with the opinion of many Icelandic thinkers – such as the artist Sigurður Guðmundsson (1833–74) – who promoted an "anti-turf house discourse" based on a colonial interpretation of the political and social status of Iceland (Sigurjón Baldur Haf-

[18] "Hér voru þá íslenzkur sveitabóndi og steinsmiður að gera tilraunir eftir sínu höfði og uppgötvuðu sementssteypu!".

opposite
Reconstruction of a turf house. Árbær Museum, Reykjavík, 2019.

steinsson 2019). According to physician Jón Hjaltalín (1807–82), traditional turf houses were "the worst cancer for Iceland" (Jón Hjaltalín 1872, 32).[19] In 1875, the district administrative officer [*hreppstjóri*] Jónas Símonarson (1836–93) published an article with a few considerations on how to improve Iceland's building traditions, promoting a wider use of timber and stone constructions. Rather harshly, he also acknowledged the miserable natural conditions of Iceland, "this huge, difficult, and mountainous snowland"[20] (Jónas Símonarson 1875, 91).

Until the 1920s, most farmhouses were still built and restored in turf, and building experts were rarely consulted. Suggestions on how to build farmhouses and rural buildings were often printed in local journals, such as *Búnaðarrit*, the journal of the Agricultural Society (Sigurður Guðmundsson 1898; Sigurður Stefánsson 1902). However, with the exception of a few technicians, usually carpenters and master masons, farmhouses were still predominantly built by their actual inhabitants. A systematic and reliable approach to the modernization of rural architecture and the construction of concrete farms was not achieved until the end of the 1920s, thanks to the establishment of the Technical Office of the Agricultural Agency.

[19] "Hið versta krabbamein fyrir Ísland."
[20] "[…] þetta risavaxna, grítta og klettótta snæland."

Into the Icelandic landscape: Towards concrete farmhouses

INTO THE ICELANDIC LANDSCAPE: TOWARDS CONCRETE FARMHOUSES

Concrete warehouse. Southern Iceland, 2018.

The real shift within the debate on Icelandic farmhouses resulted from increasing knowledge about Portland cement and concrete construction brought to the country by its first engineers. This new construction technology prompted major changes in the development of Icelandic architecture, and more specifically in the construction of rural buildings. Also, Icelandic engineers promoted a collection of data concerning the values and drawbacks of the new concrete farms, built all over the country.

At the beginning of the twentieth century, the Icelandic engineering profession was in its infancy: the first Icelandic engineer, Sigurður Thoroddsen (1863–1955), graduated from Den Polytekniske Læreanstalt – the Polytechnic School of Denmark – only in 1892. It was not until 1912 that Verkfræðingafélag Íslands [The Icelandic Engineers' Society] was founded, with the aim of expanding the engineering knowledge of the country. Among the early Society members were the first Icelandic building engineers, namely Jón Þorláksson (1877–1935), Knud Zimsen (1875–1953) and Thorvald Krabbe (1876–1953), all trained at the Polytechnic School of Denmark. Another member of the Society was Rögnvaldur Ólafsson (1874–1917), Iceland's first academically educated architect, who had trained at the Det Tekniske Selskabs Skole in Copenhagen (Seelow 2011, 80–81; Björn Björnsson 2016). Their combined effort to modernize the building traditions of the country led to the establishment of *steinsteypuöldin* – the age of concrete – which characterized Icelandic architectural and construction history throughout the twentieth century. The engineers' contribution was fundamental in many areas: Knud Zimsen fostered an import trade of Portland cement with the Aalborg Portland-Cement Fabrik in Denmark; Jón Þorláksson promoted a number of infrastructural works to the island's road network; Thorvald Krabbe acted as a conveyor of technical skills between Iceland and Denmark's scientific knowledge of reinforced concrete (Sveinn Þórðarson 2006; Nannini 2021). Thanks to their knowledge of building techniques, these engineers conveyed their expertise all over the country and inaugurated the long-lasting tradition of rural dwellings in concrete. The first coordinated attempt to track the reception of concrete farms, built in the countryside, took the shape of a survey, organized by en-

Referee List (DOI 10.36253/fup_referee_list)
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gineer Jón Þorláksson and medical doctor Guðmundur Hannesson. The results were published in 1911 in the journal of the Agricultural Society, with an article signed by the engineer and entitled "Hvernig reynast steinsteypuhúsin?" [How do concrete houses turn out to be?] (Jón Þorláksson 1911). The text included one of the earliest acknowledgments of the fast changes taking place in Icelandic construction: less than ten years after his homecoming as an engineering graduate, Jón Þorláksson claimed that "there is no longer any doubt that the country's building traditions are changing. The age of timber construction, which has been active for a while, is about to end, while the age of concrete is rising" (Jón Þorláksson 1911, 207).[1] These words are particularly important for historiographic reasons: it appears to be one of the earliest mentions – if not the earliest – of the term *steinsteypuöldin*, regarding Icelandic construction history. The proclamation of the beginning of a new age for Icelandic construction was linked to the increasing number of concrete houses being built in the capital and in the countryside. In particular, the engineer reported that in 1910 Reykjavík had seen more new houses built in concrete than in timber.

The survey was very specific and dealt with recent uses of concrete in the countryside. As it was the very beginning of the Icelandic concrete age, even the term *steinsteypa* [concrete] was adopted to describe a wide range of construction techniques, including cast walls, concrete cast stones, and stonemasonry. The survey forms were sent out to eighteen farmers who had built or renovated their dwellings in concrete, between 1888 and 1909. Twenty-eight in total, the questions were addressed to the understanding of how these farmhouses had been built, both in terms of building materials and layout, and, most importantly, how they tolerated the Icelandic climate. The survey's aim was to gather as much information as possible on how concrete was used, in order to paint a clear picture of local experimentations and outcomes. To understand the early influence of the pioneering work of Iceland's first engineers, the answers to questions 17 and 18, which focused on the structure of the walls, the mixing ratio, and its aggregates are the most interesting. The majority of early concrete farmhouses were built with single cast walls, approximately 9 to 15 inches thick (ca. 20–36cm). The mixing ratio varied greatly, from stronger blends of 1 : 2 : 3 to weaker proportions of 1 : 4 : 8. Other examples included a farmhouse with double walls in concrete cast stones, most likely produced in Reykjavík, and other buildings in coarse lava stones, basalt, or dolerite, held together by lime or cement mortar. Particular attention was devoted to the treatment of the outer surfac-

[1] "Það er nú ekki lengur neinum efa undirorpið, að húsgerðarlagið í landinu er að breytast. Timburhúsaöld sú, sem hér hefir gengið yfir um hríð, er að enda, en steinsteypuöldin upp runnin".

es, in relation to cold temperatures and waterproof dwellings: it turned out that all eighteen buildings were covered by a layer of cement mortar, at times mixed with *Testalin*.[2]
According to Jón Þorlákson the "battle" of Icelandic builders was mainly fought against the cold climate and humidity, which spread rapidly inside the structures (Jón Þorlákson 1904). Thanks to this survey he could draw some conclusions from the practical data gathered from the countryside. Undeniably, the majority of recently built concrete houses were very damp, especially in the winter months, and sometimes even colder than traditional turf farms. There was, however, one truly positive exception: a small hospital had not experienced problems even in colder temperatures, thanks to its double walls of concrete cast stones and a hollow core between the two layers (Jón Þorlákson 1911, 218). This particular feedback became a trigger for a series of future essays on the construction of warm concrete farmhouses, written by one of the promoters of the survey. He was a protagonist of the country's development in construction techniques, and he would also play a key role in writing the first construction history of Iceland: not an engineer, but a medical doctor, Guðmundur Hannesson.

Guðmundur Hannesson: The hygiene of concrete

Guðmundur Hannesson is mainly known as the author of books on Icelandic construction history and as the pioneer of Icelandic urban studies. However, Guðmundur Hannesson was not a mere collector of information on the evolution of Icelandic architecture: on the contrary, he was an active protagonist of such changes, and played a central role in spreading the technical knowledge promoted by local engineers (Nannini 2018). Trained in Copenhagen as a doctor specialized in medical hygiene, between 1887 and 1894, Guðmundur Hannesson was active as a medical doctor in the northern area of Skagafjörður (1894–96) and in the village of Akureyri (1896–1907). From 1907 onwards he settled in Reykjavík, working as a teacher of medicine. In 1911 he was one of the co-founders of the University of Iceland (Páll Pétursson, and Sigrún Magnúsdóttir 2016). The difficult living conditions in Iceland became one of Guðmundur Hannesson's obsessions, as he dreamt of offering more suitable and hygienic living standards to all Icelanders. As suggested by architect Pétur H. Ármannsson, Guðmundur Hannesson might have visited the social housing project of Brumleby in Østerbro, Copenhagen, designed by Michael Gottlieb Bindesbøll (1800–56) and built by the Danish Medical Association between 1854 and 1872 (Pétur H. Ármannsson 2016, 59). Such an example of communal housing might have spiked a twofold interest in the doctor: urban planning and modern construction techniques.

[2] *Testalin* was produced in Germany by the company Hartmann & Hauers. It was a chemical alcohol-based solution which was mixed with cement to make it waterproof. It was quite popular among the German-speaking countries at the turn of the century.

Guðmundur Hannesson.
Ca. 1900. Courtesy of Minjasafnið á Akureyri/Akureyri Museum.

opposite
Guðmundur Hannesson, House at Hverfisgata, Reykjavík, 1910.
Photo by Arlène Lucianaz, 2018.

Guðmundur Hannesson's career as a pioneer of Icelandic urban planning has been retraced elsewhere (Seelow 2011, 156–61; Ásdis Hlökk Theodórsdóttir, and Sigurður Svavarsson 2016). Conversely, his role in the development of local building traditions is worth highlighting as a key moment in Iceland's history of concrete, especially concerning its use in rural buildings. Despite having no formal architectural or engineering education, once back in Iceland Guðmundur Hannesson started experimenting with building materials, seeking for ways to facilitate higher hygienic living standards, first in timber, then in concrete. Already in September 1902 the *Stefnir* newspaper, printed in Akureyri, mentioned the doctor's work in overseeing the construction of a small hospital for the village and of his own family house. Both buildings were made with a timber structure and were praised for the presence of a cardboard insulating layer [*pappi*] (Stefnir 1902).

Whether consciously or not, Guðmundur Hannesson inserted himself into what architectural historian Peter Collins has defined as the "important line of propaganda, which was to constitute the most effective argument of partisans of concrete construction", dealing with the "fireproof", "sanitary", and "hygienic" qualities of concrete (Collins 1959, 43). His first attempt at building with concrete dates back to 1910, when he was already in Reykjavík. There, he designed and built his own house at Hverfisgata 12, on one of the city's most central streets and right in front of the newly-built national library. The doctor's house followed most of the advice promoted by engineer Jón Þorláksson: it was built on a stone basement, made of dolerite ashlars, and the outer walls consisted of double walls of cast concrete, filled with a padding of sawdust, wood panelling and cardboard for insulating purposes (Pétur H. Ármannsson 2016, 33–34). It was this particular insulation layer which defined Guðmundur Hannesson's design signature.

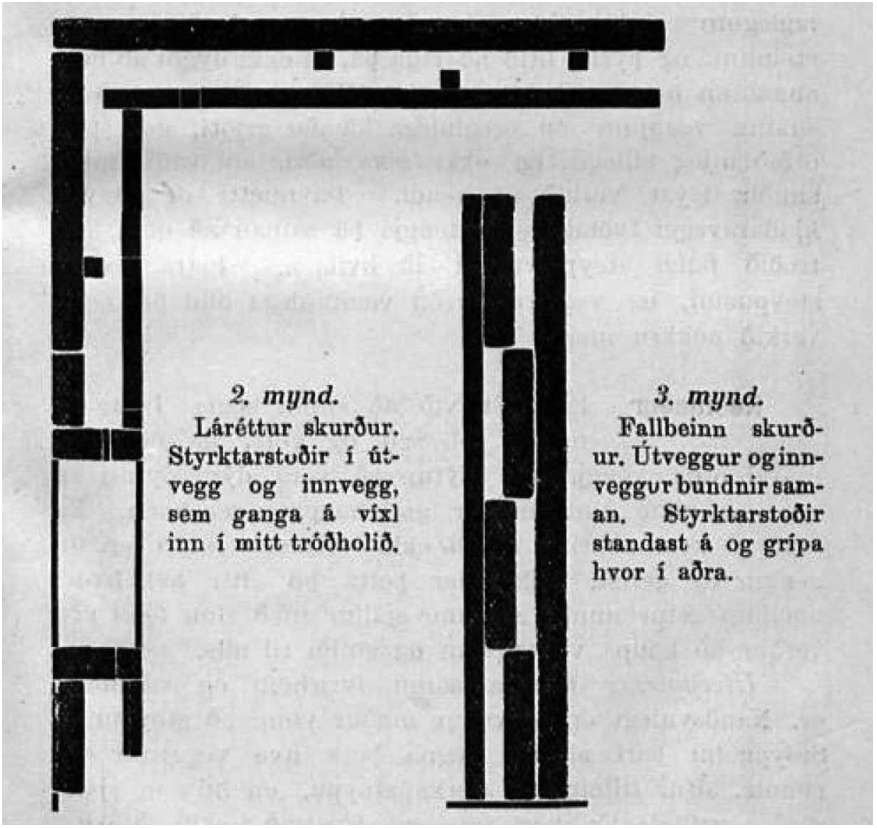
In fact, it became the doctor's leading battle in teaching how to build "Hlý og rakalaus steinhús" [Warm and dry concrete houses] – this was the title of an article he published two years after Jón Þorláksson's survey of concrete farms (Guðmundur Hannesson 1913). Like

many other articles by the same author (Guðmundur Hannesson 1915, 1918, 1919b, 1922), the text was published in the journal of the Agricultural Society, thus presumably addressed to farmers, masons and rural workers. Guðmundur Hannesson acknowledged the growing popularity of building with concrete even "outside the earthquake areas" (Guðmundur Hannesson 1913, 1).[3] He also recognized the many "drawbacks" of Icelandic concrete construction, which was still in its "infancy", both in terms of living standards and, of no lesser importance, of aesthetic qualities.

What were, then, the disadvantages of concrete in rural buildings, according to Guðmundur Hannesson? From a structural point of view, the main problem was related to the difficulty of producing fully waterproof, cast concrete walls. This was due to two specific factors: the almost constant rainfall that did not allow much time for the concrete to dry, and the absence of properly trained workers, resulting in flawed structures that were prone to damage (Guðmundur Hannesson 1913, 2–3).

Not only was a farmhouse much more exposed to the harsh Icelandic climate than a building in Reykjavík or in a sheltered village, but there were also greater obstacles to the supply of fuel for heating, such as coal, peat, dried manure, and less frequently, timber. One technical detail highlights a self-evident fact that is the one characteristic differentiating turf from concrete structures. Despite being terribly unhygienic and of an impermanent nature, turf walls

[3] "Utan jarðskjálftasvæðanna vilja nú flestir byggja alt úr steinsteypu, sem vel skal vanda og lengi á að standa."



Guðmundur Hannesson, "Hlý og rakalaus steinhús. Tillögur og leiðbeiningar," 1913.
Sections of double concrete walls.

had good insulating properties. On the contrary, concrete walls were not able to sustain the cold winter weather. Concrete – despite being promoted as the material of modernity – did not seem suitable for the Icelandic countryside. Single concrete walls were considered "much too cold" for rural conditions, therefore the author suggested building double concrete walls, divided by a layer of insulating materials (Guðmundur Hannesson 1913, 3–4; Jón Þorláksson 1911, 211). The insulation could be of timber and cardboard panels, sawdust, peat chunks, dry turf, pumice or volcanic ash. Furthermore, the inner walls were also covered in timber panels, enhancing the insulating effect. (Guðmundur Hannesson 1913, 6–7 and 12–13). Thanks to some elementary drawings – one of the first cases of semi-technical drawings published in an Icelandic essay on building matters – Guðmundur Hannesson also suggested different ways of connecting the outer and inner walls in order to provide more resistance to earthquakes.

Guðmundur Hannesson highlighted two key issues which would characterize local concrete construction in the decades to come. First, although surprising for an article dealing with technical problems such as dampness and insulation, the author complained about the aesthetic problems of concrete: "the appeareance of the buildings is far from beautiful, and has nothing national, nor special" (Guðmundur Hannesson 1913, 1).[4] In this matter, he claimed that concrete houses were "inferior" when compared to traditional Icelandic farmhouses, which instead "could be very beautiful"; new houses were influenced by the "tasteless" architecture of urban settlements. By comparing rural and urban architecture, Guðmundur Hannesson was making an assumption which would influence future architectural debate in Iceland: was a national architecture to be sought for in the forms of rural farmhouses, or within urban – and more European – projects?

The second issue introduced by the author was the need to involve experts when dealing with new construction methods, in order to avoid mistakes and inaccuracies at the building site. Readers were encouraged both to ask for advice from professionals, such as architect Rögnvaldur Ólafsson, mentioned as the "only expert in architecture" of Icelandic origin in the country, and also to employ at least one mason with a good knowledge of concrete structures (Guðmundur Hannesson 1913, 24–25). This was a piece of advice given to individuals, yet Guðmundur Hannesson also addressed the Parliament directly. He suggested that the government should finance expert builders to be hired in the countryside to supervise the construction of new concrete farmhouses. By doing this, he intended to fill the gap between the lack of building experts and the majority of farmers who had no connections with the professional world. Just as the aesthetic issues concerning the colour of concrete preceded later debates and experimentations (Nannini 2020b), the plea for better support from governmental structures would eventually lead to the establishment of the first technical office for the planning of farmhouses, in the late 1920s.

Between tradition and modernity

In the late 1910s the debate about Icelandic farmhouses was encouraged by two essays published one after the other: *Íslensk húsgerðarlist* [*Icelandic Architecture*], printed in 1918 and written by Danish architect Alfred Råvad (born Alfred Christian Ludvig Jensen, 1848–1933), and Guðmundur Hannesson's *Skipulag sveitabæja* [*Planning of Farmhouses*] in 1919 (Råvad 1918; Guðmundur Hannesson 1919). It is important to understand the great influence which both of these essays had on rural Icelandic architecture and its development (Seelow 2011, 102–05).

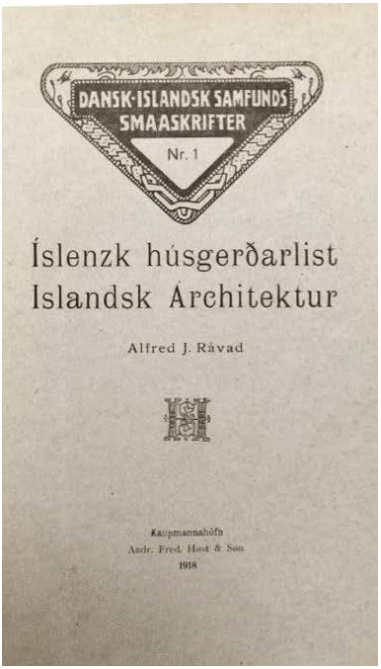
[4] "Útlit húsanna er viðast fjarri því að vera fagurt, og þaðan af síður neitt þjóðlegt eða einkennilegt."

Råvad was the brother of Thor Jensen (1863–1947), one of Reykjavík's most prominent businessmen. He published his essay after a short stay in Iceland (Madsen 1990; Birgir Sigurðsson 1994, 40–42). *Íslensk húsgerðarlist* was written both in Icelandic and Danish, and was part of the "Smaaskrifter" series of the Dansk-Islandsk Samfund. The booklet was conceived as an ode to traditional turf houses, which inspired the author to design modern-day versions of a gabled farm and a rural church. Compared to Bald's 1898 proposal for an Icelandic farmhouse, Råvad's project is definitely poorer in precision and less interested in the technical improvement of this kind of construction. Almost no attention is given to building materials or to how to make earthquake-proof structures. In fact, the point of Råvad's design proposals was mainly to prompt Icelandic architects to maintain and celebrate the external appearance of traditional farmhouses, that is, the wooden pointed gables and the thick walls of coarse stones and turf (Seelow 2011, 103).

opposite
Alfred Råvad, *Íslensk húsgerðarlist*, 1918; Guðmundur Hannesson, *Skipulag sveitabæja*, 1919. Book covers.

According to Atli Magnus Seelow, Råvad fostered a "national romantic enthusiasm for traditional rural buildings in Iceland" and yet, as a foreigner, he perhaps ignored "the primitive, unhealthy living conditions in traditional turf houses" (Seelow 2011, 102).[5] In Råvad's words, he wanted to celebrate the "Gothic origins" of traditional architecture, which were "in harmony with the landscape" (Råvad 1918, 3).[6] Such "national" forms of architecture were compared to the recent "international buildings" of Reykjavík, such as the house of parliament and the national library, respectively built by Bald in 1880–81 and by Johannes Magdahl Nielsen (1862–1941) in 1906–09. If the former was acceptable because it was at least made of "the country's own stone" – dolerite ashlars –, the latter was labelled as "too Italian", unable to educate future Icelandic architects (Råvad 1918, 5).[7]

[5] "[…] die nationalromantische Begeisterung für das traditionelle rurale Bauen nach Island trägt. […] er ignoriert sowohl die primitiven und gesundheitsschädlichen Lebensbedingungen in den traditionelle Torfhäusern".
[6] "Menn halda ef til vill, að ekki sje til á Íslandi fortíðarfræ, er þjóðleg byggingarlist geti gróið upp af, en svo er það þó. Bæði í grunnmynd og hinu ytra sniði torfkirkjunnar og hins gamla ísl. bæjar eru fyrirmyndir, gotnesks uppruna og eðlis, er sem bezt má nota við ætlunarverk og byggingar í framtíðinni. Hinir þykku, traustu hliðveggir og sundurgreindu gaflar með hvössum þökum eru ágætur grundvöllur til að reisa á fyrirmyndir til bygginga með þjóðlegu sniði og í samræmi við landslagið." [People may believe that in Iceland there is no past origin from where a national architecture could grow, and yet there is. Both the layout and the outer shape of turf churches and of old Icelandic farms are models of Gothic origin and nature, which can be well used for projects and buildings in the future. The thick, solid side walls and the gables with pointed roofs are a proper starting point for erecting models for buildings with national forms and in harmony with the landscape].
[7] "Alþjóðarbyggingar í Reykjavík, þær er reistar hafa verið af húsasmiðum frá Khöfn, geta ekki stutt neitt að ráði að þróun innlends byggingarsniðs. Alþingishúsið hefir að vísu nokkura þýðingu, af því að til þess er notað landsins eigið grjót, en það gefur enga leiðbeiningu, sem notandi sje, um byggingar-listfengi. Landsbókasafnið er mjög snotur bygging og það fer mjög vel á því, eins og því er komið fyrir í bænum, en stíll þess er víst ítalskur, til þess að það geti haft nein góð áhrif." [International buildings in Reykjavík, which have been built by master masons from Copenhagen, cannot support the development of national building forms. The house of parliament is meaningful, because the country's own stone was used, but it doesn't give any useful suggestions regarding architecture. The national library is a very beautiful building, and it suits well with the town, but its style is way too Italian, so that it cannot have a good influence].



It is interesting to see that a Dane, and not an Icelander, was the main promoter of national pride for the supposed gothic features of traditional Icelandic architecture. Iceland, in fact, had apparently been left out of the developments related to national romanticism and the myth of a common and primigenial gothic culture which, instead, had influenced Germany and Scandinavia throughout the nineteenth century. Despite its many meanings, it is likely that, by the term "Gothic", Råvad meant a fascination for the Middle Ages, as the moment in history when Iceland experienced its supposed golden age. Those ideals went hand in hand with a growing sense of nationalism in the northern regions and were deeply connected to an increase in the study of Germanic languages, Nordic archaeology and literature, and they also prompted studies on Nordic vernacular architecture (Lane 2000). In Råvad's view, the Icelandic turf house, rooted in the earth, was seen as a natural element of the Icelandic soil itself, stemming from the ground, echoing similar stances in debates on both Swiss and German traditionalist architecture (Schultze-Naumburg 1929; Gubler 1975; Pigafetta, Abbondandolo and Trisciuoglio 2002, 270).

Iceland was considered to be one of the cradles, if not the cradle, of Nordic language and culture. Icelandic sagas had been considered a source of national pride since the early nine-

Alfred Råvad, *Íslensk húsgerðarlist*, 1918. Design of a country house.

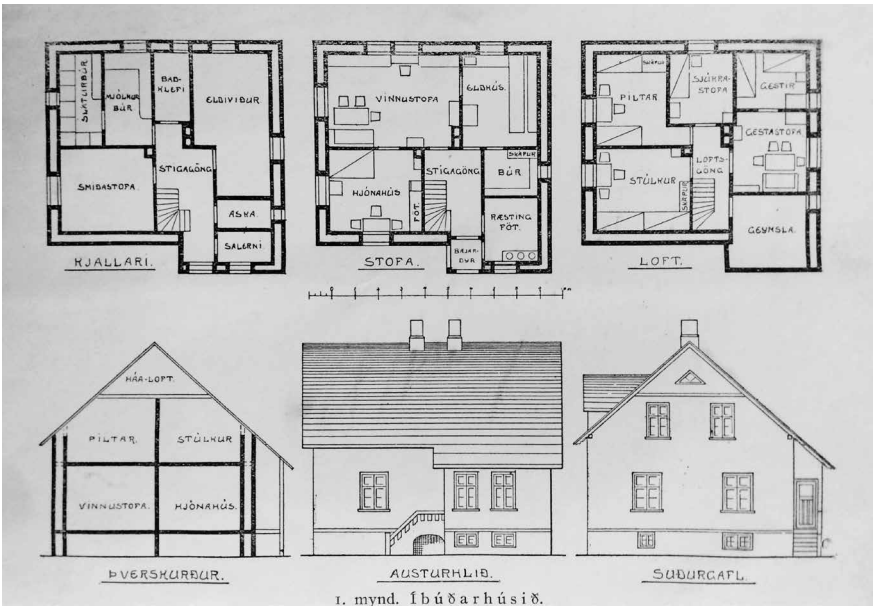
teenth century (Byock 1994; Guðmundur Hálfdanarson 2011) and they had generated much interest among Victorian scholars (Wawn 2000). However, as stated by Icelandic historian Gunnar Karlsson, the fascination for rural life, which was a common factor among Nordic national romantic movements, could not be fully appreciated in nineteenth- and early twentieth-century Iceland. Its poor living conditions were far too similar to those of the Middle Ages to be celebrated (Gunnar Karlsson 1985, 452; Byock 1994, 163–64).

By the turn of the century, many studies on Finnish, Norwegian, and Swedish rural heritage had already influenced some contemporary projects in the Scandinavian countries (Lane 2000, 79–120). Interesting examples are the traditionalist designs for farmhouses and private dwellings by Herman Gesellius (1874–1916), Armas Lindgren (1874–1929) and Eliel Saarinen (1873–1950), inspired by Carelian rural buildings. On the other hand, although Icelandic turf houses had been extensively studied by Danish archaeologist Daniel Bruun, such studies did not result in any kind of imitation of rural dwellings by Icelandic upper-class families or artists. Since the mid-nineteenth century, national romanticism in the Nordic countries and in Germany had prompted a number of revival movements in architecture: however, Iceland was not part of this picture (Lane 2000, 58–73). All public buildings recently erected in Reykjavík by Danish architects and master masons – from the house of parliament to the national library – owed more to Neo-Renaissance motifs than national romantic influences. The only exception seemed

to be a project for the headquarters of the newly-founded University of Iceland, drafted by Rögnvaldur Ólafsson in 1913. The building was to be located on the central hill of Arnarhóll and shaped as a giant, gabled farmhouse. However, the design was soon discarded (Hörður Ágústsson 2000, 335; Anna Dröfn Ágústsdóttir, and Guðni Valberg 2014, 40–42). Thanks to his viewpoint as an outsider, Råvad was therefore the first to publicly promote traditionalist ideals into the country and to praise Icelandic rural architecture. Although Råvad's essay was published at the end of the Scandinavian national romantic era, it promoted a late interest in a transformation of Icelandic vernacular architecture into concrete.

Counterposing Råvad's opinions was Guðmundur Hannesson's position as a determined promoter of twentieth-century models, up-to-date materials, and higher hygienic standards. His 1919 essay *Skipulag sveitabæja* can, in fact, be seen as a prompt reply to Råvad's national romantic suggestions. Drawing from his interest in building materials and his mission to improve living conditions in rural Iceland, Guðmundur Hannesson merged a number of different topics into what has rightly been considered a sort of "textbook" addressed to a variety of readers, from farmers to the growing number of engineers, builders, and architects (Seelow 2011, 105). As opposed to the aforementioned proposal of timber farms by Jón Sveinsson, Guðmundur Hannesson suggested only three projects of farmhouses, and yet he went into great detail describing each planimetric or structural choice. Two projects were designed by Guðmundur Hannesson; one was by the master mason Finnur Thorlacius (1883–1974). The latter had a more rustic outlook, due to the application of large stone slabs onto the corners of the concrete walls and on the window frames (Guðmundur Hannesson 1919, 47–48). What he proposed was a full renovation of Icelandic farmhouses, according to hygienic considerations: functional planimetric layouts, shaped according to the inhabitants' occupations; proper sun orientation; services such as an inner toilet, a separate kitchen, and storage rooms. The author also gave recommendations regarding what construction techniques to adopt, arriving at a general synthesis of all the suggestions on concrete construction gathered over the years. According to the author, concrete walls should be double, approximately 10–15cm wide, with a 30cm layer of turf padding, and connected horizontally with "reinforcement pillars", made of cast stones. The suggested concrete mixing ratio was 1: 2 ½: 4. Reinforced concrete was suggested for the horizontal slabs (Guðmundur Hannesson 1919, 23–26).

Reading Guðmundur Hannesson's book, it becomes clear that Iceland was not aligned with other Nordic countries when it came to rural architecture and its improvement. Since the mid-nineteenth century, Nordic farmhouses had been at the centre of many renovation plans related to their architecture, function, and even ornament (Brogaard, Lund, and Nør-

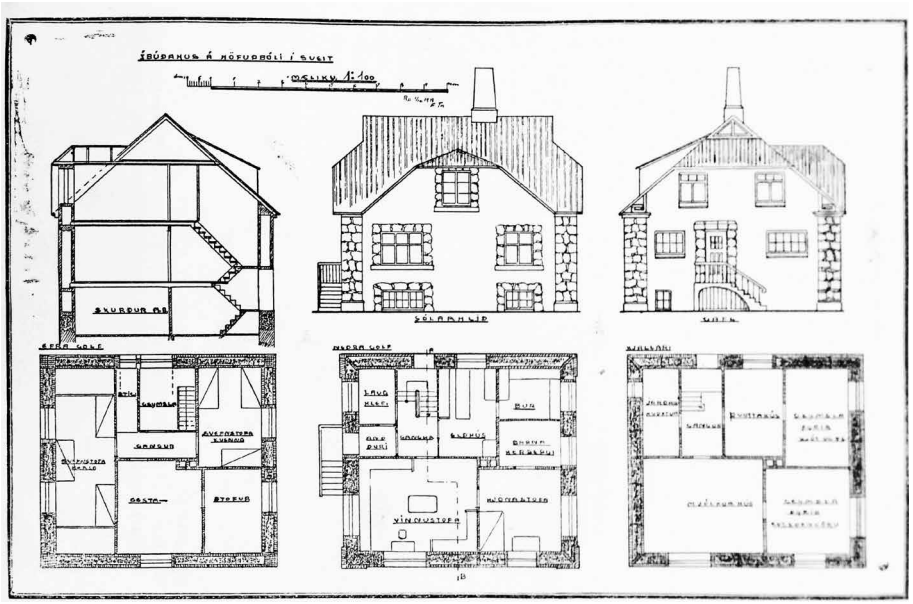


Guðmundur Hannesson, *Skipulag sveitabæja*, 1919. Design of a concrete house in the countryside.

regård-Nielsen 1985, 58–67; Lane 2000; Ripatti 2019). Despite the contribution of Iceland's Agricultural Society, and of its journal *Búnaðarrit*, the improvement of Icelandic farmhouses had not been tackled systematically throughout the nineteenth century. Therefore, the perceived backwardness of Icelandic farmsteads and the general lack of timber had isolated Iceland from Nordic national romantic developments in architecture and crafts, and, instead, increased the gap between turf houses and early twentieth-century experiments in concrete.

opposite
Guðmundur Hannesson, *Skipulag sveitabæja*, 1919. Design of a farmhouse by Finnur Thorlacius.

It should not come as a surprise that *Skipulag sveitabæja* was not at all concerned with furniture, architectural ornament, or style: Guðmundur Hannesson wrote his text after Råvad's essay and made a point of detaching his position from any kind of historicist revival of turf houses. Instead, *Skipulag sveitabæja* was greatly influenced by British literature, particularly the works of the English architect Mackay Hugh Baillie-Scott (1865–1945), whose essay "The Cheap Cottage" was the only text directly quoted by Guðmundur Hannesson (Guðmundur Hannesson 1919, 5–6; Baillie-Scott 1914). A number of key issues – such as the costs of a farmhouse, the concept of a "minimum cubic space" for the inhabitants, and the harmony between the cottage and the landscape – had been tackled by Baillie-Scott and were thus part of Guðmundur Hannesson's arguments (Baillie-Scott 1914, 135). Guðmundur Hannesson mentioned the issue of minimum space in



the paragraph entitled "Herbergjaþörfin" [The Need for Rooms]. His affinity to British literature was also evident in his previous book *Um skipulag bæja* [*On Town Planning*], published in 1916 and highly influenced by the Garden City Movement – as indicated by the bibliography selected by the author (Guðmundur Hannesson 1916).

Reduced costs, functionality, lack of ornament: the formal results were farmhouses with no specific features in terms of architectural design. However, Guðmundur Hannesson understood that farmhouses had become a starting point to debate nationalism and architecture: the supposed lack of national characteristics in his projects was a source of concern. Nevertheless, he was convinced that following proper hygienic standards and obtaining good living conditions were necessary steps towards a wholly Icelandic, yet renovated way of building. Despite admitting that his farmhouses might resemble "foreign architecture", this exterior detail should not have mattered, as long as they were built "with good taste, well suited to the countryside, comfortable to live in, and as cheap as possible" (Guðmundur Hannesson 1919, 40).[8] Contrary to Råvad, Guðmundur Hannesson asserted that the shape of a building

[8] "Það má ef til vill segja, að byggingunum svipi til kaupstaðarhúsa eða útlendrar húsagerðar, en það skiftir í raun og veru ekki mjög miklu máli, ef húsin eru smekkleg, fara vel í sveit, eru hentug að búa í, og svo ódýr sem kostur er á." [It might be said that the buildings are similar to city houses or to foreign constructions, but that doesn't really matter much, if the houses are beautiful, if they match well with the countryside, are comfortable to inhabit, and are as cheap as possible].

had to follow its materials, and not the other way around: it was "natural and unavoidable" that the shape of a building changed according to the materials and techniques adopted. The use of concrete or stone, instead of turf, had obvious architectural consequences (Guðmundur Hannesson 1919, 40).[9]

This prompted the author to reflect on the meaning of traditions in architecture: Guðmundur Hannesson fully accepted the economic and social changes that were transforming Iceland during the first decades of the twentieth century (Seelow 2011, 104). Something becomes "Icelandic", he argued, only "after a long time", after experiments and improvements, as had occurred with traditional turf farms (Guðmundur Hannesson 1919, 43).[10] Beyond all debates on how to build in the countryside, Guðmundur Hannesson summed up the issue by stating his practical and down-to-earth point of view:

> We should build according to what best suits us, according to our climate, landscape, building materials, living conditions, and finances. And we need to gradually improve such building methods, so that they become beautiful and complete (Guðmundur Hannesson 1919, 41).[11]

Guðmundur Hannesson retained his role as main advocate and teacher of concrete construction in the public eye throughout the 1920s. A comprehensive collection of his construction advice on concrete structures resulted in a handbook published by Iðnfræðafélag Íslands [The Icelandic Industry Society] and entitled *Steinsteypa. Leiðarvísir fyrir alþýðu og viðvaninga* [*Concrete. A Guidebook for Common People and Beginners*] (Guðmundur Hannesson 1921). In just over one hundred pages, he explained, in simple terms, the composition of the material, its mechanical strength and also offered brief descriptions of its use in the building sector. He included notes on the use of reinforcement bars, and detailed descriptions of timber formworks, along with axonometric drawings. Most of this information was later incorporated into his book on the history of Icelandic construction. Although not directly quoted, Guðmundur Hannesson must have collect-

[9] "Það er í raun og veru bæði eðlilegt og óhjákvæmilegt, að byggingasniðið breytist til mikilla muna, ef alt annað byggingarefni kemur í stað torfsins og gersamlega ólíkt því. Hjer er alt miðað við að byggingarefnið sje steypa eða steinn. Ef tilætlunin hefði verið sú að byggja torfveggi, hefði alt byggingalagið gerbeytst, alt fengið annan svip." [It is both natural and inevitable that the shape of buildings changes to a great extent, if a completely different building material replaces turf. Everything here implies that the building material is concrete or stone. If the idea had been to build out of turf, the whole structure would have changed, and everything would have had a different shape].

[10] "Alíslensk getur það fyrsti orðið með löngum tíma, þegar innlend reynsla og smekkur og hugsunarháttur hefur lagt á það smiðshöggið, breytt því svo og bætt, að hver hlutur verði jafnsjálfsagður og hann var orðinn í gömlu bæjunum." [Something becomes Icelandic only after a long time, when the local experience, taste and way of thinking have given its touch, changed it, and improved it, so that each part becomes natural, as happened in old farmhouses.]

[11] "Vér eigum að byggja svo sem oss hentar best, eftir voru tíðarfari, landslagi, byggingarefnum, lifnaðarháttum og fjárhag. Og vér eigum smámsaman að þroska það byggingalag, svo að það verði fagurt og fullkomið."

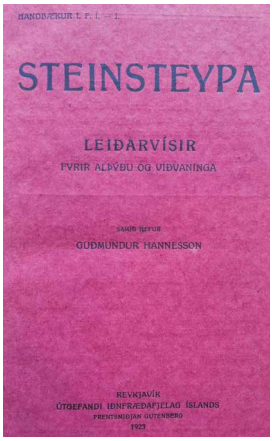
ed his technical knowledge from a number of foreign sources. It is particularly evident that this text was directly influenced by some popular handbooks on concrete construction published by many Portland cement associations, especially in the United States. Certain drawings showing the placement of formworks or the application of concrete for fence posts are copied respectively from *Concrete Construction about the Home and on the Farm* (1912, 64) and *Farmer's Handbook on Concrete Construction* (1916, 16). At the beginning of the century, the cultural and professional influence of the United States was not yet evident in Iceland, but many Icelanders had emigrated to North America and might have contributed to an exchange of technical information back to the island. It is thus likely that Guðmundur Hannesson had access to American construction handbooks and used them as a source of reference for his work. Eventually, Guðmundur Hannesson's pragmatic stance reflected his core ambition, which was to improve the general living conditions of a population mostly living in unsuitable dwellings. This quest undoubtedly originated from his education as a medical doctor and became such a lifetime commitment that he asked for the following epitaph, later inscribed on his tombstone in the Hólavallagarður cemetery in Reykjavík: "He taught the Icelanders how to build warm houses" (Anna Guðmundsdóttir 1974, 107).[12]

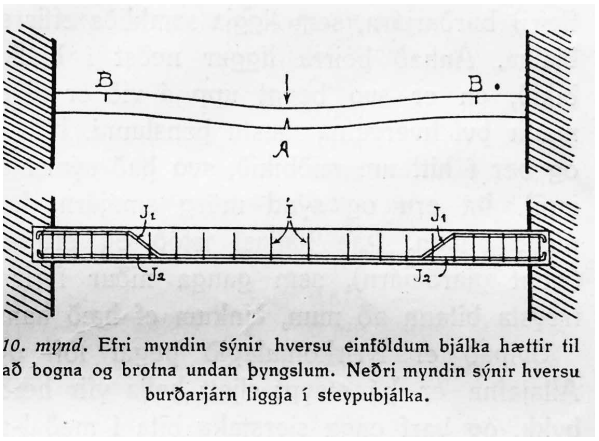
Two different outcomes stemmed from Råvad's and Guðmundur Hannesson's positions. On the one hand, the Danish architect prompted a few short-lived experiments in what can be labelled as a late national romantic influence on Icelandic architecture. On the other hand, Guðmundur Hannesson's studies fostered the systematic planning and construction of concrete farmhouses all over the country, coordinated by a centralized office, which had lasting effects on the Icelandic rural landscape.

Traditional architecture in concrete

Between the two wars, Iceland's "most influential and controversial political leader" was Jónas Jónsson (1885–1968), also known as Jónas Jónsson frá Hriflu, a member of the agrarian and liberal Progressive Party and minister of Justice between 1927 and 1932 (Helgi Skúli Kjartansson 2002, 126). The Progressive Party [Framsóknarflokkurin] had been founded in 1916 and was one of the four main parties that had characterized Icelandic politics since the act of union in 1918 – the others being the Independence party, the Communist party, and the Labour party. The Progressive Party would lead all governments between 1927 and 1942, thanks to the considerable support of rural voters (Gunnar Karlsson 2000, 302–08; Helgi Skúli Kjartansson 2002, 124–30).

[12] "Hann kenndi Íslendingum að byggja hlý hús".





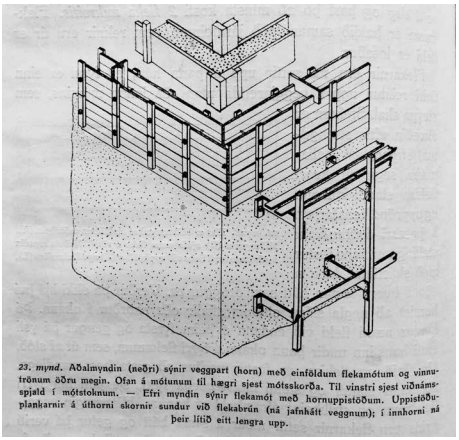
10. mynd. Efri myndin sýnir hversu einföldum bjálka hættir til að bogna og brotna undan þyngslum. Neðri myndin sýnir hversu burðarjárn liggja í steypubjálka.

Guðmundur Hannesson, *Steinsteypa*, 1921. Book cover and section of reinforced concrete beams.

Jónas Jónsson influenced the whole country in several ways, often showing very conservative views about culture, art, and society (Ólafur Rastrick 2013, 185–91). In 1942 Jónas Jónsson organized "one of the most controversial art exhibitions in Icelandic history", displaying what he believed to be "degenerate art". The event was compared to the exhibition format of the Third Reich (Ólafur Rastrick, and Benedikt Hjartarson 2019). He devoted particular attention to the rural areas. He supported the Icelandic cooperative movement, which had originated in the early 1880s in Northern Iceland and was represented by Samband Íslenskra Samvinnufélaga [The Federation of Icelandic Cooperative Societies]. Furthermore, he promoted the construction of several secondary schools in the countryside, known as "district schools" (Gunnar Karlsson 2000, 246–47 and 307).

Jónas Jónsson also contributed to many Icelandic journals: as the director of the *Samvinnan* [Cooperation] journal, he wrote extensively on cooperative societies and school buildings. The journal was founded in 1926 and directed by Jónas Jónsson until 1946. Moreover, one of his major goals was to promote the search for a rural architecture which could fit as well into the Icelandic landscape as the old turf farms did, and yet improve living conditions in the countryside. He wrote:

> In the past years we Icelanders have lived our own lives outside the main trends of architecture. We did have our own history in this matter, although modest. We had even acquired a particular architectural style, in harmony with the country's location, climate, building material, and with that breeze above the natural landscape. I mean the old farmhouses, made of turf and stones, with timber cladding in the courtyard and, behind it, a long *baðstofa* with



23. mynd. Aðalmyndin (neðri) sýnir veggpart (horn) með einföldum flekamótum og vinnutrönum öðru megin. Ofan á mótunum til hægri sjest mótsskorða. Til vinstri sjest viðnámsspjald í mótstoknum. — Efri myndin sýnir flekamót með hornuppistöðum. Uppistöðuplankarnir á úthorni skornir sundur við flekabrún (ná jafnhátt veggnum); í innhorni ná þeir lítið eitt lengra upp.

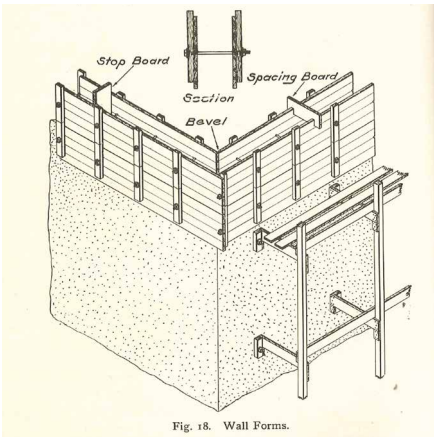
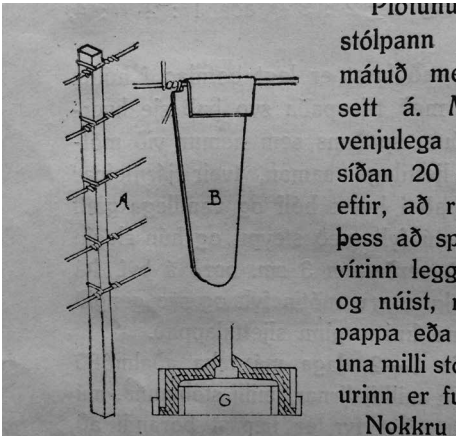


Fig. 18. Wall Forms.



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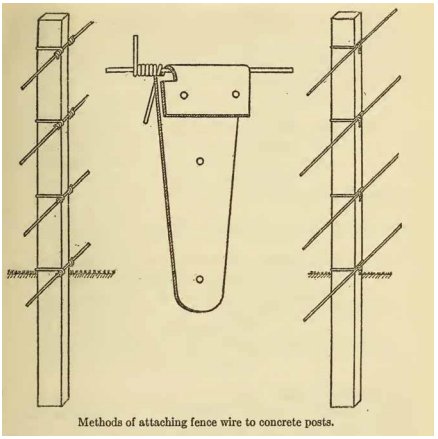


Methods of attaching fence wire to concrete posts.

Guðmundur Hannesson, *Skipulag sveitabæja*, 1919.
Technical drawings influenced by *Concrete Construction about the Home and on the Farm* (1912) [above] and *Farmer's Handbook on Concrete Construction* (1916) [below].

Guðmundur Hannesson's gravestone at Hólavallagarður cemetery. Reykjavík, 2018.

many gables. On the outside, old turfhouses were in perfect harmony with the mountainous nature of the country (Jónas Jónsson 1931, 196).[13]

Jónas Jónsson therefore actively promoted the construction of buildings that, despite using modern materials, such as concrete, embodied the shape of the traditional turf farms. He also coined the term *sveitabæjastíll* [farmhouse style] to describe buildings designed according to the shapes of tradition – in perfect harmony with Råvad's essay on Icelandic architecture (Jónas Jónsson, and Benedikt Gröndal 1957, 36–43). This particular trend was short-lived; however, it produced a number of buildings inspired by rural architecture, both in the countryside and in Reykjavík. Referred to as "the turf house revival" by Seelow, it comprised several experiments on residential, rural, and public buildings by different architects throughout the 1920s (Seelow 2011, 119). Guðjón Samúelsson (1887–1950), Iceland's State architect from 1919, as well as other professionals, engaged in experiments that aimed at translating the shapes of the traditional farm into modern materials, thus implementing Råvad's national romanticism into an architecture of con-

[13] "Við Íslendingar höfum þannig fram á síðustu ár lifað okkar eigin lífi utan við meginstrauma byggingarlistarinnar. Við höfum að vísu líka í þeim efnum haft okkar eigin sögu, þótt fábrotin sé. Við höfum meira að segja eignast fyrir Ísland sérkennilegan byggingarstíl, sem var í samræmi við legu landsins, loftslag, byggingarefni og þann blæ, sem er yfir náttúru landsins. Ég á þar við sveitabæina gömlu, hlaðna úr torfi og grjóti, með mörgum timburþilum fram á hlaðið og langri baðstofu á bak við mörgu burstinar. Gömlu torfbærirnir voru að ytri sýn í fullkomnasta samræmi við fjallanáttúru landsins."

crete. Many projects for concrete farmhouses, boasting the shapes of traditional turf farms, can be found in the pages of the Samvinnan journal. These designs were signed by Guðjón Samúelsson (Jónas Jónsson 1926b, 152–53), Finnur Thorlacius (Jónas Jónsson 1926c, 250) and even by the painter Ásgrímur Jónsson (1876–1958), a prominent figure of the Icelandic visual arts (Jónas Jónsson 1926a, 25).

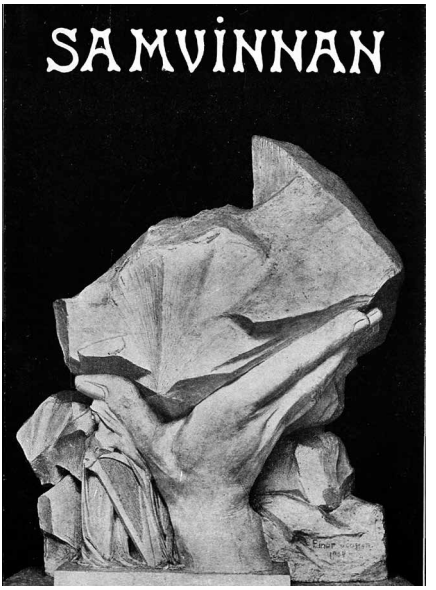
The reasons behind these experiments can be related to a number of different factors. The growing political importance of politician Jónas Jónsson addressed the debate about what he defined as the Icelandic "farmhouse style". Not only did he endorse and promote the rural policies of the Progressive Party (see next paragraph), but he was also one of the most prominent supporters of Guðjón Samúelsson's search for a national architectural language (Seelow 2011, 107–109; Pétur H. Ármannsson 2020, 189–93). The search for national meanings within Icelandic buildings might have been one of the causes of an interest in the shapes of rural architecture. Different from historicist elements, deriving from a distant classical culture, traditionalist architecture was, in fact, much more linked to the social and cultural history of rural Iceland, and therefore better suited to its built image.

The definition of "traditionalist architecture" is uncertain and often blurred. For the purpose of this research, traditionalist architecture will be interpreted through the definition by Martin Steinmann, who described it as "the effort to provide architecture with a deeper 'reality', stemming from the tradition of a country or a people", which was rooted in nineteenth-century Romanticism (Steinmann 1985, 169; Magnago Lampugnani 1980, 123–43). However, the emergence of a traditionalist debate in Iceland in the early 1920s was not an isolated phenomenon within the European architectural scene. On the contrary, the Icelandic case can be related to traditionalist and neo-vernacular movements that had already affected the architecture of Germany and the Nordic countries from the late nineteenth century (Lane 2000, 28–32 and 164–75; Tuomi 1979, 61–81; Ringbom 1987, 46–51; Eriksson 1998, 18–45; Nezik 2018; Brekke 2019, 286–288).

The most evident source of influence on the Icelandic traditionalist debate was Råvad's essay, which, for the first time, sparked interest in the country's traditional architecture. Furthermore, since the early 1920s, print sources from the European traditionalist debate had slowly started appearing in the catalogue of the National Library. It is important to mention the presence of four texts by Hermann Muthesius (1861–1927): *Das englische Haus* (first published in 1904),[14] *Die Bedeutung der Gartenstadtbewegung* (1914),[15] *Kleinhaus und Kleinsiedlung*

[14] Acquired by the National Library between 1918 and 1924 (*Ritaukaskrá Landbókasafnsins* 1918–24, 184).
[15] Acquired in 1916 (*Ritaukaskrá Landbókasafnsins* 1916–17, 104).

Jónas Jónsson frá Hriflu. Courtesy of Þjóðminjasafn Íslands/National Museum of Iceland.



***Samvinnan* journal, 1926.** Cover image.

(1918) and *Kann ich auch jetzt noch mein Haus bauen?* (1920).[16] These texts were probably read by Guðmundur Hannesson, since traces of Muthesius's works and theoretical stance often appeared in his writings (Guðmundur Hannesson 1916, 55). In 1927, an article by Guðmundur Hannesson debated the use of flat or pitched roofs in architecture, explaining Muthesius's endorsement of the latter (Guðmundur Hannesson, 1927, 3–4). In addition to Muthesius's writings, the library also contains *Das ländliche Arbeiterwohnhaus* by Raymund Brachmann (1872–1953), published in 1913, which shows many designs of detached houses with traditional pointed gables. Also, architect Guðjón Samúelsson owned a copy of the illustrated book *Hausbau und dergleichen* (1916) by Heinrich Tessenow (1876–1950).[17] According to the architectural historian Thomas Bo Jensen, *Hausbau und dergleichen* was very popular in Denmark, where it became "a little bible for young Danish architects" (Jensen 2009, 66).

Iceland's material specificity and its corresponding building industry can be perceived in its late-1920s and early-1930s traditionalist architecture, especially if compared with contemporary neo-vernacular projects built in Nordic countries. While Nordic traditionalist architecture developed around the materials of tradition, such as timber, bricks, or natu-

[16] Both acquired in 1926 (*Ritaukaskrá Landbókasafnsins* 1926, 47).
[17] The copy is today held at the library of the Iceland Academy of the Arts: The volume belonged to Guðjón Samúelsson according to the description: *Arkítektafélag Íslands: Guðjón Samúelsson*.

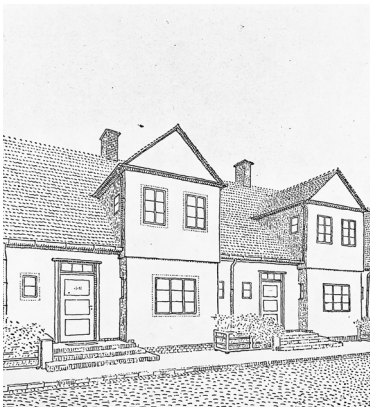
ral stone, Iceland's local technique – turf – was never used within the projects of the so-called "farmhouse style". On the contrary, the shapes of tradition were replicated in concrete, a material and technique which in Iceland, for a short time, enabled the building of both functionalist villas and revivals of rural constructions. The results of this architectural period were diverse in scope and dimension, yet they all reflected a common nostalgic feeling towards the country's quickly disappearing rural past.

A concrete metamorphosis of turf farms was manifest in some residential projects built in Reykjavík soon after Råvad's publication. In 1921, engineer Jón Þorláksson designed and built a couple of twin concrete houses in Baldursgata 19–21, where the reference to the layout of the traditional turf farm is evident, due to the pointed front gables and the absence of windows on the lateral walls (Hörður Ágústsson 2000, 330–32). Similar experiments on residential architecture also reached northern Iceland, where the master mason Sveinbjörn Jónsson (1896–1982) sketched a proposal for a row of workers' houses that strongly resemble a rural "gabled" farm. The proposal is undated, yet it was most likely sketched in the early 1920s (Friðrik G. Olgeirsson, Halldór Reynisson, and Magnús Guðmundsson 1996, 85).

That same year, State architect Guðjón Samúelsson designed and built a row of communal houses funded by the State bank, therefore called *bankahús*, "bank houses" (Seelow 2011, 272–75). Located at Framnesvegur 20–26a, these houses owed much to Råvad's design, distorting the traditional planimetric layout as they showed pitched transversal gables connected by longitudinal roofs. Later, Guðjón Samúelsson's project was considered as "difficult to inhabit", most likely due to the high pointed roofs which were not easy to build out of concrete and took up too much living space on the second floor (Jónas Jónsson, and Benedikt Gröndal 1957, 120). Rather than stemming from Icelandic traditional farmhouses, these houses might have been inspired by a number of traditionalist residential projects which were increasingly common in Germany and northern Europe from the mid-1910s. A particular influence could have derived from the row of houses of the Copenhagen Public Housing Association[18] and from some of Muthesius's and Tessenow's housing projects, published in the aforementioned texts. It is also important to consider that Muthesius's *Wie baue ich mein Haus* (1917) – of which *Kann ich auch jetzt noch mein Haus bauen?* was a later reprinted and modified version – was extremely popular even beyond Germany, becoming a widely-used source of building advice for many European architects throughout the 1920s (Bucciarelli 2011, 22–23).

[18] KAB (Københavns Almindelige Boligselskab). See for example the Bakkehusene housing project by Ivar Bentsen and Thorkild Henningsen, in Bellahøj, Copenhagen. See also the housing project in Hellerup, built in 1920–24 (Boldsen, 1924).

Project for "Siedlung der Gewerkschaft Viktoria". Architects D. and K. Schulze. Muthesius, *Kleinhaus und Kleinsiedlung* (1918, 184).



Heinrich Tessenow, *Hausbau und dergleichen* (1916, 64).

More projects followed and included ideas of public buildings, shaped as massive traditional farms. They echoed some eclectic experiments of Scandinavian national romanticism, such as Martin Nyrop's Fishery Building at the Nordic Exposition of 1888 or Arnstein Arneberg's Eidsvold Folk High School, designed in 1906–8, influenced by rural models enlarged on a giant scale (Lane 2000, 164–72). The most daring proposal was Guðjón Samúelsson's project for the swimming pool of Reykjavík, envisaged in 1925 as a huge farmhouse boasting three high-front gables and round windows. Its gables seemed to be resting on thick lateral stone walls, yet the bearing structure was a plain concrete frame. The pool was eventually built according to a different design in 1929–37 (Seelow 2011, 119 and 202–05). Another well-known outcome of this trend was Guðjón Samúelsson's small parish seat in Þingvellir, built in 1929–30, at the time of the one-thousand-year anniversary of the Icelandic historical assembly, Alþingi. Celebrated by a great number of citizens and by the Danish King Christian X (1870–1947), the 1930 anniversary was a core event for the development of the Icelandic modern state and involved a number of celebrations (Helgi Skúli Kjartansson 2002, 81–85; Guðmundur Hálfdanarson, and Ólafur Rastrick 2006, 92–95). Its national rhetoric and symbolism were well matched with the adoption of the "farmhouse style" in architecture. Another contemporary project by Guðjón Samúelsson was the school in Laugarvatn (1929–32). Its rural appearance, with six pointed roofs, coexisted with the internal octagonal-shaped reinforced concrete pillars (Guðjón Samúelsson 1933; Seelow 2011, 120–21; Pétur H. Ármannsson 2020, 193–97).

opposite
Guðjón Samúelsson, Houses in Framnesvegur 20–26a, 1922–23. Reykjavík, 2018.

Lesser known and yet characteristic examples of concrete traditionalist buildings were two projects built in 1925 on the outskirts of Reykjavík. One was the huge milking farm at

Korpúlfsstaðir, owned by Råvad's brother, Thor Jensen (Birgir Sigurðsson 1994). Its first draft was designed by master mason Guðmundur Halldór Þorláksson (1887–1958) and then modified and built by architect Sigurður Guðmundsson (1885–1958). Guðmundur H. Þorláksson also designed a warehouse for the headquarters of the fishing company, Alliance, in Reykjavík's harbour area, Grandinn (Drífa Kristín Þrastardóttir, and Guðný Gerður Gunnarsdóttir 2009, 61). Both buildings show the extreme contradiction of the Icelandic architectural revival: enormous concrete gabled fronts, with no specific ornaments or decorations, aimed at echoing the idea of a traditional turf farm, yet, at the same time, resting on reinforced concrete structures. Different from other Nordic historicist projects, which usually employed reinforced concrete as a structural material to be hidden behind stone or timber cladding, in this case the concrete was not hidden by other materials applied to the façade.[19] Conversely, concrete was proudly shown on the outer surfaces, only protected with a layer of cement plaster. This was a statement of its popularity among Icelandic builders – yet it could also be regarded as pragmatic evidence of the still basic means available within the Icelandic construction field. Despite the interest that emerged at a national level, the enthusiasm for such experiments was short-lived, largely opposed by intellectuals such as Halldór Laxness, and by the emerging generation of modernist architects active in Iceland (Halldór Laxness 1939;

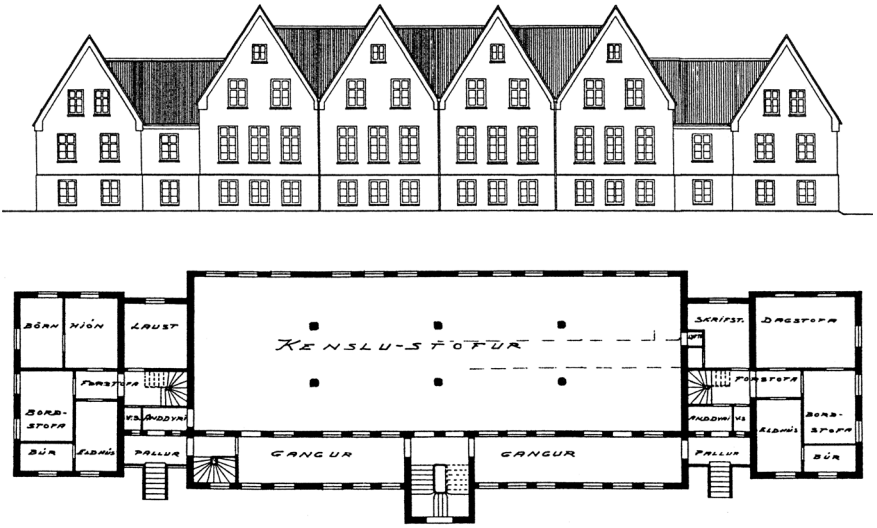
[19] See, for example, Onni Tarjanne's National Theater, built in 1900–02, and Lars Sonck's Telephone Company Building, Helsinki: both reinforced concrete structures, clad in granite.

Seelow 2011, 224–25 and 234–36). Later the whole experience was even labelled as a complete failure by its main supporter, Jónas Jónsson. He wrote that "turf and concrete had nothing in common" (Jónas Jónsson, and Benedikt Gröndal 1957, 118).[20] As the next paragraph will show, similar changes occurred in the design of farmhouses, whose traditionalist design was soon substituted by low, functional dwellings.

One might wonder why traditional farmhouses were momentarily brought back to life at a time when modern architecture was pointing in a completely different direction. One answer can be found in what Barbara Miller Lane writes as she tackles the issue of monumentality in Scandinavian architecture and its links to the idea of the nation: "By evoking the northern past, each of the Scandinavian countries laid claim to a period in its history in which it could be viewed as larger and more dominant than it was in the present" (Lane 2000, 244). Rural turf farms were strongly linked to the idea of a mythical Icelandic past, and to the great literary and cultural accomplishments of the Middle Ages. Reinventing this architectural tradition in lasting materials was thus a way of evoking the dream of a "golden age" of Icelandic history (Gunnar Karlsson 2000, 51). The Icelandic "farmhouse style" was a true case of invention of a tradition (Hobsbawn and Ranger, 1983), since the concrete translations of turf houses were mostly "gabled" farms, whose origins date back only to the late eighteenth century, and which were extremely different from the dwellings of the first settlers and heroes of the sagas. Furthermore, despite politician Jónas Jónsson's repeated hints to and praises of the country's rural architecture, it is very likely that Icelandic twentieth-century vernacular projects owed much more to contemporary German traditionalist designs and developed less as a direct reference to Icelandic farmhouses. To some extent, it could be argued that Iceland and its traditionalist architectural culture were not as isolated as imagined by its supporters. On the contrary, Iceland was an active part of a continental debate on architecture and regional traditions. However, the symbolic value of gables and pitched roofs as traditional elements of Nordic architecture was very successful: still in the 1990s, Norwegian architect and author Christian Norberg-Schulz romantically considered their shapes as "characteristic of the North" (Norberg-Schulz 1996, 53). Another reason behind this vernacular turn could be found in what architectural historian Winfried Nerdinger writes to justify the "invention of tradition" within German architecture at the turn of the century. Nerdinger claims that the "turn to regional architectural forms and traditions was also a reaction to the massive destruction of historical built fabric in the course of industrialization and

opposite
Guðjón Samúelsson, Parish seat, 1929–30.
Þingvellir, 2018.

[20] "Torfið og steinsteypan áttu ekki samleið".



Guðjón Samúelsson, School in Laugarvatn, 1929–32. Elevation and ground floor. Courtesy of Atli Magnus Seelow.

opposite
Guðmundur H. Þorláksson and Sigurður Guðmundsson, Farm at Korpúlfsstaðir, 1925. Courtesy of Þjóðminjasafn Íslands/National Museum of Iceland.

urbanization" (Nerdinger 2012, 73).[21] The effects of urbanization on the Icelandic landscape might not have been as pervasive as in other European countries, and certainly Icelandic industrialization occurred much later than on the continent. Nevertheless, these rapid processes affected Icelandic society to the point that, for some years, its architects strongly believed that it was possible to build the shapes of a turf farm – or a Nordic farm in general – in concrete, thus eternalizing this structure as the symbol of a national history.

The design of farmhouses on a national scale

> The Bank of Iceland opened a department for providing loans for rural house-building. Here the farmers could obtain long-term loans at a low rate of interest, and with small capital repayments, but only on condition that good, substantial houses were built, the regulations requiring double walls of reinforced concrete […] Only really first-class houses could be considered […] (Halldór Laxness 1946, 445).

Until the late 1920s, Icelandic rural buildings were either the target of scarce financial loans by the Ministry of Iceland, which provided farmers with intermittent help and usually no guidelines regarding construction, or they were a much-debated topic among

[21] "Die Wendung zur regionalen Bauformen und Bautraditionen war auch eine Reaktion auf die enorme Zerstörung von historischer Bausubstanz im Zuge der Industrialisierung und Urbanisierung […]".

architects, engineers, and building experts, whose technical advice did not fully reach the countryside. The challenges posed by rural farmhouses had two main objectives: to find an architecture which could fit well into the Icelandic landscape, and to establish a combination of building techniques which could suit Iceland's amateur craftsmanship, sustain the harsh weather, and be compatible with its poor economic conditions. As seen earlier, these topics had been tackled by engineers, architects, and construction experts. Despite the ongoing debate in the journals, their suggestions were not directly applicable to rural Iceland: an intermediate step for the transfer of knowledge was needed.

Rural policies started changing in the mid-1920s, when new laws began to establish more structured and convenient loans for agricultural purposes, including the reconstruction of farmhouses and the construction of new buildings. In 1925, the already existing "Agricultural subsidy of Iceland" [Ræktunarsjóður Íslands] was expanded and soon followed by the "Building and Settlement Subsidy" [Byggingar- og landnámssjóður] in 1928, specifically published to target the renovation of farmhouse constructions (Steingrímur Steinþórsson 1942, 262–64). Projects for new buildings were better sustained financially, as they benefitted from longer-term loans and lower interest rates. The loans were granted by a specific department of the Agricultural Bank of Iceland [Búnaðarbankin Íslands], founded in 1929, and reflected the growing political power of the agrarian and liberal Progressive party.

Guðmundur H. Þorláksson and Sigurður Guðmundsson, Farm at Korpúlfsstaðir, 1925.
The farm in 2019.

At the core of Jónas Jónsson's efforts was one of the greatest tasks that Icelandic politicians had faced since the late 1910s – the increasing growth of the fishing industry and of urban settlements in general, which prompted the majority of the rural Icelandic population to flee from the countryside to the coast (Gunnar Karlsson 2000, 287–91). His focus on rural Iceland was surely the result of his conservative views, which aimed at supporting the countryside rather than the expanding towns. At the same time, his attention to the development of rural areas fostered a widespread circulation of technical knowledge throughout the island. For example, he suggested that young students learn about concrete construction in rural schools, so that concrete cast stones could be used for the building of farmhouses (Jónas Jónsson 1931, 204). Most importantly, Jónas Jónsson was one of the main voices behind the parliamentary bills relating to agricultural and building subsidies.

opposite
Guðmundur H. Þorláksson, Headquarters of the fishing company Alliance, 1925.
Reykjavík, 2019.

Despite the presence of affordable loans for farmers, the major problem was to make sure that this financial help was actually spent on the construction of enduring farmhouses, in order to avoid the recurring need to reconstruct farming estates each generation. As already mentioned, building experts were scarce in the countryside, and technical exper-

tise travelled slowly and with difficulty. In order to overcome this obstacle, the Agricultural Bank established a technical office, with the task of providing guidelines and help to the grantees. First known as Teiknistofa Búnaðarbankans [Technical Office of the Agricultural Bank] and Teiknistofa Bygginga- og landnámssjóðs [Technical Office of the Building and Settlement Subsidy], it was later called Teiknistofa landbúnaðarins, here translated as "Technical Office of the Agricultural Agency". The effects of the office and the bank subsidies on the Icelandic countryside were immediate and outstanding. Between 1929 and 1931 alone, approximately 200 concrete farms were built around the country, a quarter of the total of concrete houses built between 1910 and 1931. By 1941, the number of concrete farmhouses had increased by more than one thousand (Steingrímur Steinþórsson 1942, 267–73). [22] The years between the office's establishment in 1929 and the mid 1940s were not only remarkable for the sheer number of concrete farmhouses that started appearing in the rural

[22] These numbers derive from three reports on Icelandic rural buildings carried out in 1910, 1931, and 1941. The report of 1910 was developed by parliamentarian Páll Zóphóníasson (1886–1964). Real estate evaluations followed in 1931 and 1941. When it came to building materials, the percentages were approximately: 74% turf, 24 % timber, 2% stone and concrete (1910); 56,5% turf, 27,5% timber, 16% concrete (1931); 34,2% turf, 32% timber, 33,8% concrete (1941).

landscape: the way in which the farmhouses were designed and built was also a matter of debate and evolved over time. The first building expert to lead the office was Jóhann Franklin Kristjánsson (1885–1952), who trained as a carpenter in Akureyri and then as a master mason in Norway (*Nýja dagblaðið* 1934; Seelow 2011, 428). He knew and admired Guðmundur Hannesson's expertise on concrete construction: evidence can be found in a 1908 letter he sent to the doctor asking for advice on how to cast the concrete structures for a community hall.[23] In 1914 Jóhann Kristjánsson was entrusted with the task of giving advice and guidelines on rural construction, and he eventually became the director of the technical office between 1929 and 1937. For almost a decade, he was the main source of construction advice for the building of concrete farmhouses. He published several articles on concrete construction, with explanations referring to the building sites he had directly worked on (Jóhann Fr. Kristjánsson 1915; Jóhann Fr. Kristjánsson 1917a; Jóhann Fr. Kristjánsson 1917b). At the same time, he produced drawings of farmhouses at the technical office: mostly applied to different projects in several parts of the country, and usually undergoing many transformations as they were built. Today, nearly all the drawings issued by the technical office are held in the National Archives of Iceland.[24]

Ásbrandsstaðir farmhouse. Built after 1920. Vopnafjörður, 2019.

To some extent Jóhann Kristjánsson's designs embraced Guðmundur Hannesson's farmhouse proposals and expanded on them at a national level; at times he also followed some traditionalist examples deriving from the continent, possibly from Råvad's influence. This first generation of standard farmhouses was characterized by a number of recurring elements: they were two- or three-stories high, with pitched roofs and sometimes a prominent entrance with a staircase, and a high cellar under the first floor. In some cases, these farmhouses would mirror the image of the "gabled" turf farm, according to Jónas Jónsson's "farmhouse style", with a row of two or three pointed gables on the main, usually southern, façade (Jónas Jónsson 1926c; Jónas Jónsson 1927).

Although most of the drawings were only produced at a 1:100 scale, without specific details and sections, it is evident that the projects included a great variety of materials: all of the vertical structures were in concrete, conceived as double walls, filled by a layer of turf padding; slabs on the first floor were in concrete, presumably slightly reinforced; the slabs on the second or top floor and the roofs were, instead, built in timber, usually protected

[23] Lbs. 2209, 4to. Bréf til Guðmundar prófessors Hannessonar (1907–1908), Letter from Jóhann Fr. Kristjánsson (Litlu Hámundarstaðir, 28th January 1908).

[24] ÞÍ, Byggingastofnun landbúnaðarins, Teikningar, BB/1 and following. A notebook dated 1929–38 shows the list of recipients of the "delivered projects" designed by the technical office. Each recipient would receive one or more project proposals for a farmhouse. See: ÞÍ, Byggingastofnun landbúnaðarins, BA/002 – Teikningaskrár (1929–90).

Advertisement of the Technical Office of the Building and Settlement Subsidy. *Tíminn* 13, no. 15 (1929): 58.

by a layer of corrugated iron or cardboard, and at times covered by a turf layer so that grass could grow on the outside. An example of such a roof, grass-covered on top of concrete, can still be seen on a building in downtown Reykjavík, in what was the house of Jóhann Kristjánsson himself (Jónas Jónsson 1926b, 156; Hörður Ágústsson 2000, 366 and 371). Despite the widespread circulation of these projects around Iceland, they had several drawbacks, which resulted in a general state of dissatisfaction among their inhabitants. Most farmers considered such projects as too big and expensive, thus many farmhouses were left unfinished and with rough concrete surfaces. The completion of a farmhouse would cost approximately 17–20'000kr. (Steingrímur Steinþórsson 1942, 275). On top of that, the application of the guidelines promoted by the technical office was not mandatory: as a result, most projects were distorted to follow amateurish building practices (*Nýja dagblaðið* 1934, 2; Ágúst Steingrímsson 1938, 274).

The growing presence of such flawed concrete constructions left a mark on their first inhabitants, to the point that they became a recurring topic in Halldór Laxness's most popular novel *Independent People*. Laxness wrote in detail about the frenzy generated by the great variety of subsidies addressed at modernizing Icelandic agriculture. According to Laxness's characters, the arrival of modernity in rural Iceland, with its noisy building sites full of cement mixers and timber formworks, was not necessarily a promise of a better life. On the contrary, it generally left behind ugly, cold buildings which did not live up to people's expectations:

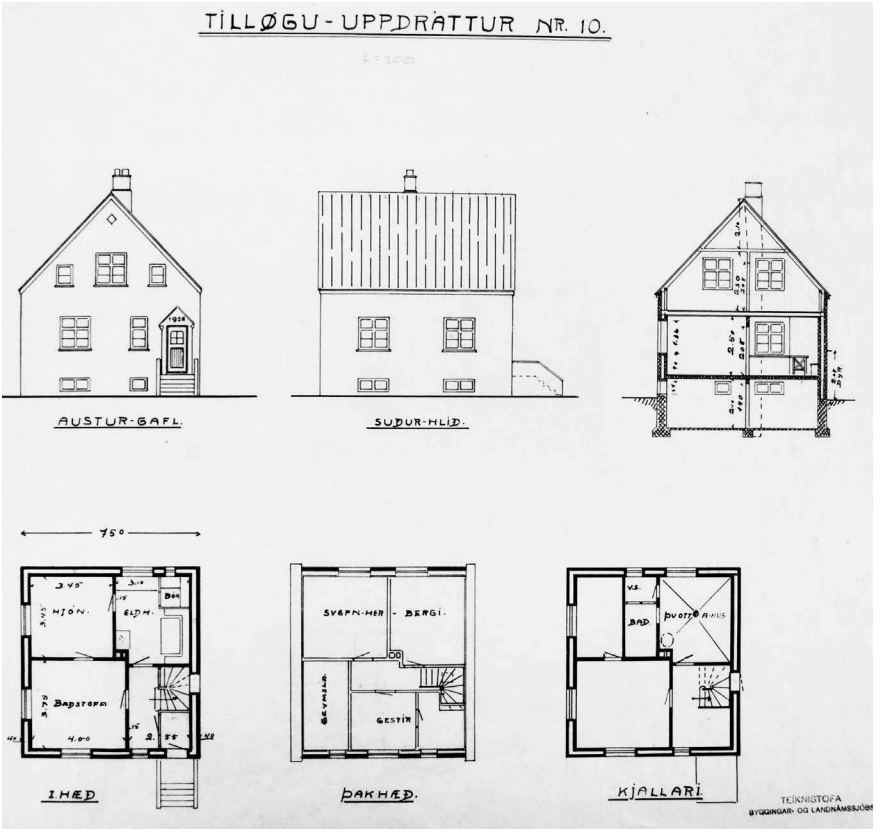
> […] for there was a great excitement and much afoot on the croft these days, the smell of wood and cement, the tapping of the hammers and the churning rattle of the mixer, workmen by the score, carts and horses, sand and gravel. […] So Bjartur's house stood in the moulds all that summer, a most depressing object to meet the eye, travellers passing that way missed the friendly old grass-grown turf cottage, for it lay out of sight behind this formless, gaping monstrosity, which reminded one of nothing so much as the havoc and devastation left in the trail of a hurricane. […] Bjartur was now spending his second winter in the house he had built. It

> was the worst house in the world and unbelievably cold. […] The walls of the room sweated with damp and were covered with a veneer of ice during frosty weather. The windows never thawed, the wind blew straight through the house, upstairs there was snow lying on the floors and swirling about in the air (Laxness 1946, 426 and 448).

> In the evening Ásta took her children down to the brook and stood staring in wonder at this ugly house with the sharp corners, the impressions left on the concrete by the boards in the moulds, the dabs of cement on some of the windows, the broken panes of others, and the holes that had been dug in the earth all around. New though it was, it reminded one of the ruins of a building shelled in the war (Laxness 1946, 468).

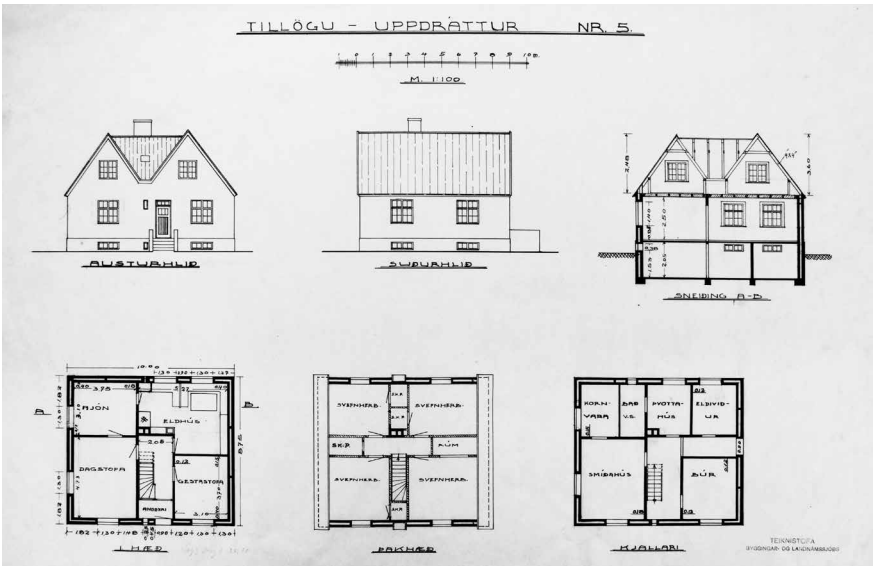
The growing number of half-built farms, thus prone to quick decay, redefined the duties of the office in 1938: not only would it provide farmers with drawings of farmhouses, stables, and related spaces, but a grantee could not receive a loan unless the drawings were followed properly, or unless the office approved an external project (*Alþingistíðindi* 1937, 216–25; Þórir Baldvinsson 1937a; Steingrímur Steinþórsson 1942, 274). A slow development of the projects filed by the office began during the 1930s, thanks to the contribution of a new collaborator: Þórir Baldvinsson (1901–86), trained as an architect in 1924–26 in San Francisco at the School of Architecture of the University of California. He was one of the many Icelanders who left Iceland for North America, and then decided to return to Iceland after the economic crisis in 1929 (*Morgunblaðið* 1980). First as assistant, then as leader of the technical office from 1937, he worked with a twofold aim: to exert more control on the building works carried out in rural areas and to reduce construction costs as much as possible. Since 1938 the office's projects had become mandatory, and yet it was still extremely difficult to follow all the building works in the country's remotest areas closely (Steingrímur Steinþórsson 1942, 274).

In order to offer the greatest amount of technical expertise to those building in the countryside, the technical office published a sixteen-page booklet on concrete construction, entitled *Steinhús. Nokkrar reglur um gerð steinhúsa í sveitum* [*Concrete Houses. Some Rules for Building Concrete Houses in the Countryside*] (Teiknistofa Landbúnaðarins 1938). The booklet was not signed by a specific author, yet some of its content had already been published by Þórir Baldvinsson as articles in the *Tíminn* journal (Þórir Baldvinsson 1937a; Þórir Baldvinsson 1937b), which was the newspaper affiliated to the Progressive Party (Gunnar Karlsson 2000, 306). The text contained advice on the choice of building site, the collection and preparation of building materials, how to build the foundations and vertical structures, timber slabs and the roofing system, etc. For example, in order to use turf as an insulating layer, it had to be cut one year before, left to dry during the summer, stacked in winter and used as building material the following spring (Teiknistofa Landbúnaðarins 1938, 4). The booklet



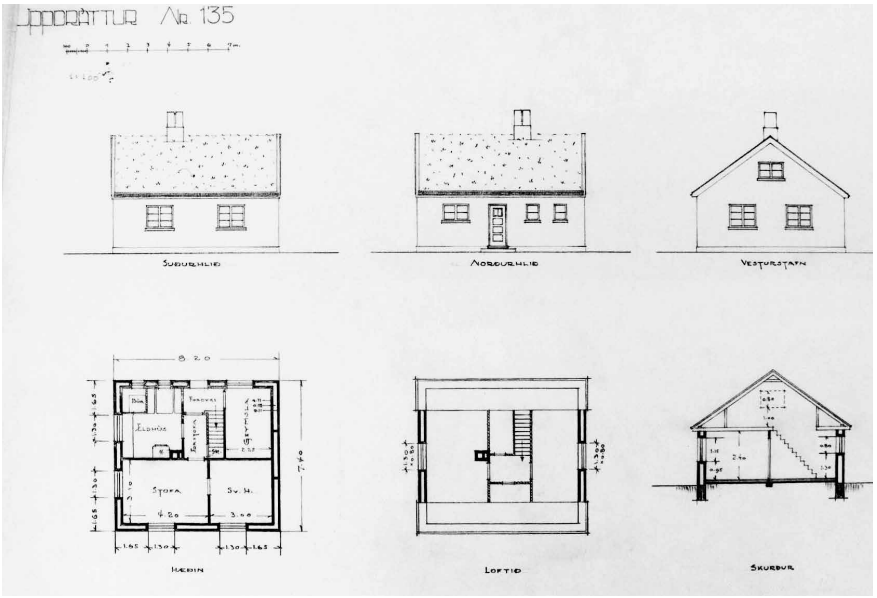
Design proposal number 10. ÞÍ, Byggingastofnun landbúnaðarins. Teikningar, BB/1,Teiknistofa bygginga- og landnámsjóðs, 1929–30.

opposite
Farmhouse in Arnarstapi. Snæfellsnes peninsula, 2019.



Design proposal no. 5.
Þí, Byggingastofnun landbúnaðarins. Teikningar, BB/1, Teiknistofa bygginga- og landnámsjóðs, 1930.

Design proposal no. 135.
Þí, Byggingastofnun landbúnaðarins. Teikningar, BB/4, Teiknistofa bygginga- og landnámsjóðs, 1930.



opposite
Farmhouse at Straumur.
Hafnarfjörð, ca. 1930–40. Courtesy of Þjóðminjasafn Íslands/National Museum of Iceland.

Jóhann Fr. Kristjánsson's house in Fjólugata 25, 1923.
Reykjavík, 2019.

Farmhouse at Blikastaðir, Mosfelssbær. Photo by Árni G. Eylands, ca. 1918–25. Courtesy of Þjóðminjasafn Íslands/National Museum of Iceland.

opposite
Farmhouse in construction at Fornihvammur. Photo by Geir Geirsson Zoëga, 1927–30. Courtesy of Þjóðminjasafn Íslands/National Museum of Iceland.

was directly addressed to builders, as the cover rhetorically asks: "Has the craftsman read this text?".[25] For perhaps the first time in Icelandic architectural literature, construction advice was accompanied by precise technical drawings representing sections of concrete and timber structures. The drawings and texts fully described the double concrete walls suggested by Jón Þorláksson and Guðmundur Hannesson at the beginning of the century. The concrete was cast between the outer formworks and the inner turf layer, and the two sides were held together by 8mm iron rods. A concrete mix ratio of 1 : 3 : 5 was suggested for the lower walls; a stronger ratio of 1 : 2 : 3 was instead suggested for the cornices and the walls above corner windows (Teiknistofa Landbúnaðarins, 1938, 5–7 and 9). In order to lower the building costs, it was also recommended that the concrete be cast with care, so that its outer surface was smooth enough to not require any additional finishing. Two concrete sections of 11cm enclosed an 18cm layer of turf padding. The concrete walls were connected to the timber beams through 10mm iron rods, and the roof was covered by a layer of cardboard and one of corrugated iron (Teiknistofa Landbúnaðarins 1938, 13).

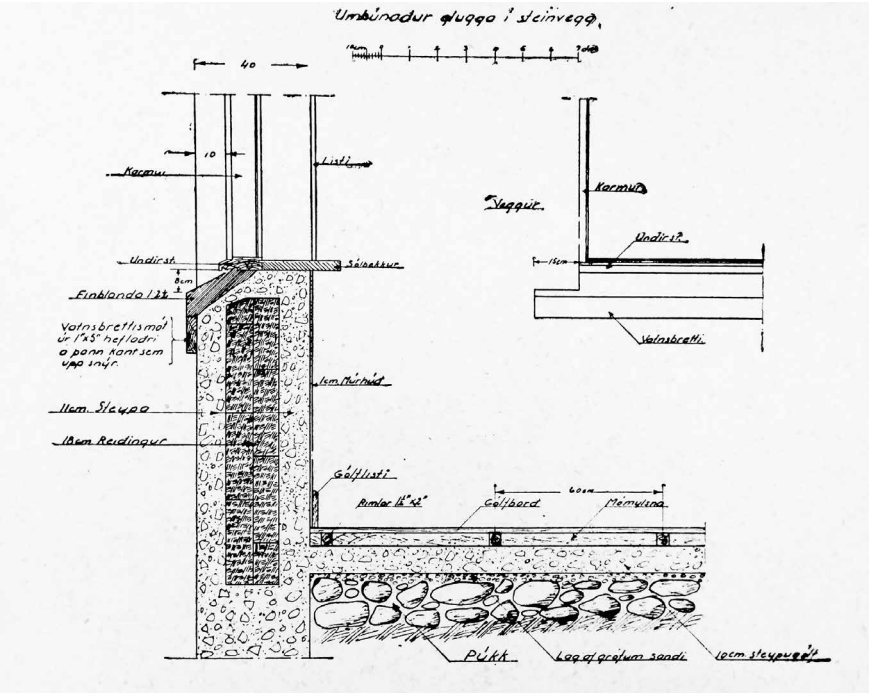
The decrease in building costs was the second goal of the technical office during the 1930s and until the mid-1940s. The economic crash of 1929 and the worldwide depres-

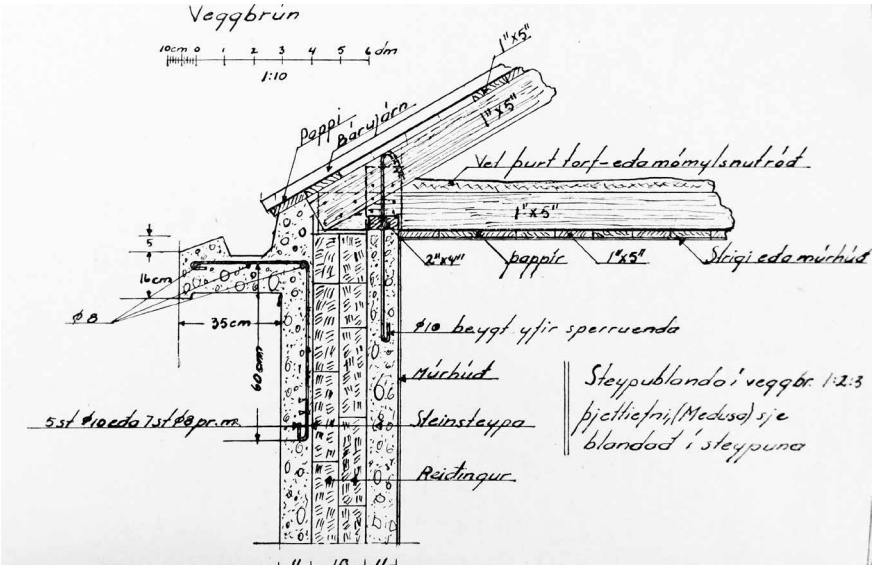
[25] "Hefir smiðurinn lesið þetta rit?".

sion which followed had a severe impact on the Icelandic economy, halting most of its fishing and agricultural exports. The economic downturn lasted until the early 1940s, when a new flow of exports to Britain was prompted by the ongoing world war (Gunnar Karlsson 2000, 308–12). The general state of depression had harsh effects on the Icelandic building industry, and greatly influenced the works of the office and its projects. In what appeared to be in opposition to the ongoing modernization of building techniques, the sudden scarcity of foreign materials – primarily, cement and timber – generated a renewed interest in turf construction, which started appearing in some projects put forth by Þórir Baldvinsson and his assistants. For a few years, turf was rediscovered as a potential means for building in the countryside: not only was it integrated within concrete walls as an insulating layer, but it was also applied to whole structures, farmhouses and warehouses alike. At times, the old turf farm was kept standing next to the new one as a separate warehouse or stable; otherwise, thick turf walls were located on the northern façade for insulating purposes.

Þórir Baldvinsson claimed that in order to build long-lasting turf farms it was necessary to change the traditional layout: instead of the nineteenth century "gabled" house with parallel roofs and gables, the new turf house would be more similar to the medieval "longhouse", with two perpendicular roofs so that snow and rain would not pool in the valleys of the roof and damage the structure (Þórir Baldvinsson 1939). Many projects by the technical office employed turf in different ways, usually placing concrete structures side by side with turf and

Teiknistofa landbúnaðarins, *Steinhús*, 1938. Section of a double concrete wall and timber roof.

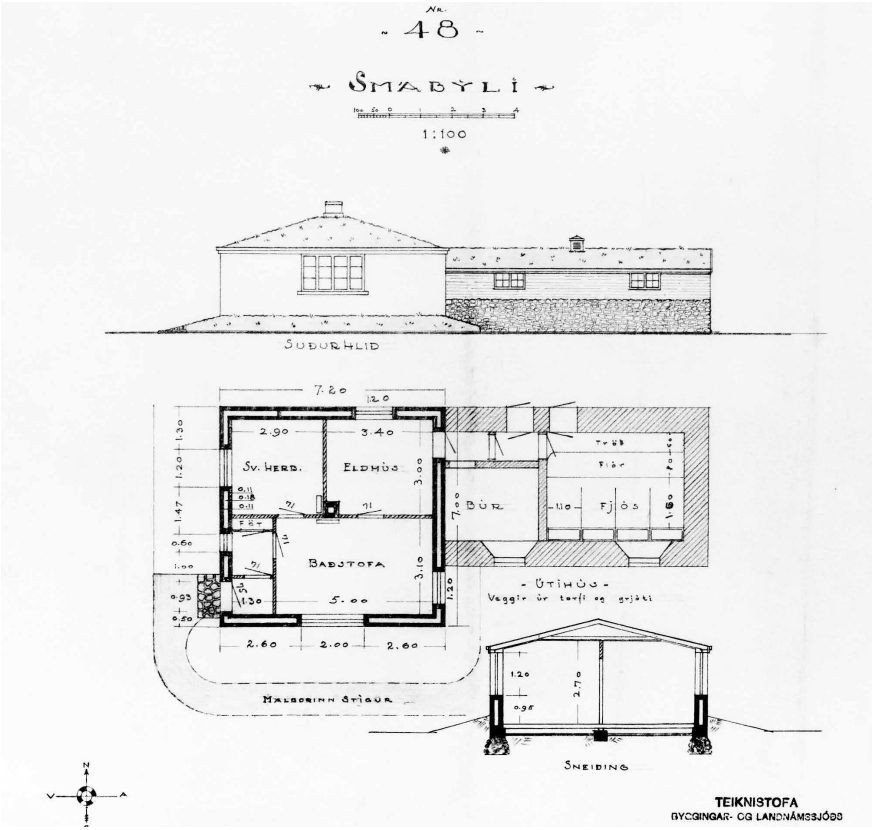




gravel walls, as experiments of an impossible hybridization between the vernacular and the modern. For the first time in history, turf farms were designed and drawn in detail before being built, not treated as spontaneous processes anymore, but with the dignity of any other kind of modern construction. These experiments were born out of necessity, due to the scarcity caused by the economic depression: therefore they soon faded away when the Icelandic economy started improving. By the mid-1940s Icelandic exports had increased once again, and Iceland was entering a new age of economic growth, together with full political independence. Turf fell back into the realm of the forgotten burdens of the past: traditional turf farms decreased in number until they became ruins or were occasionally safeguarded as part of the historical heritage.

Turf experiments lasted for a brief period: a new kind of concrete farmhouse emerged from the 1930s and became a building standard for decades to come. Under the supervision of Þórir Baldvinsson the average farmhouse was transformed: the new projects envisaged low buildings, usually without a cellar and only one-storey high, far from the traditionalist models praised throughout the 1920s (Þórir Baldvinsson 1931; Jónas Jónsson 1933a; Jónas Jónsson 1933b). The new farms often featured corner windows and were topped by less pointed roofs. By so doing, the overall costs decreased by a quarter of the cost of Jóhann Kristjánsson's former projects. Between 1936–38 the average cost had been reduced to approximately 8500kr for each dwelling (Steingrímur Steinþórsson 1942, 276). As Þórir Baldvinsson wrote in an essay published in 1939, echoing Guðmundur Hannesson's words: "With the disappearance of turf farms, the ancient building culture came to an end. […]. New building materials resulted in new building forms" (Þórir Baldvinsson 1939, 30).

The presence of a centralized technical office for the construction of farmhouses in Iceland could be compared to several similar experiences taking place throughout Central and Northern Europe in the first half of the twentieth century. In Sweden, starting from 1915, some schools promoted courses on rural building techniques, with a focus on materials, hygienic issues, and architectural design (*Arkitektur* 1915). Similarly, many handbooks with advice on rural construction were published in Sweden in the first decades of the twentieth century, with the purpose of disseminating technical knowledge on construction issues to farmers and builders in the countryside (Gramén 1916; Wærn Bugge 1938). Contemporary rural projects, subsidized by loan programs, also emerged in the Nordic countries and in the Baltic States, such as Finland and Estonia (Åkerfelt 2019). The Estonian case is strikingly similar to the Icelandic one. Once Estonia declared its independence in 1918, the newly established government promoted subsidies for building in rural areas. A *bureau* was established for the development of standardized projects (L'Heureux 2010).



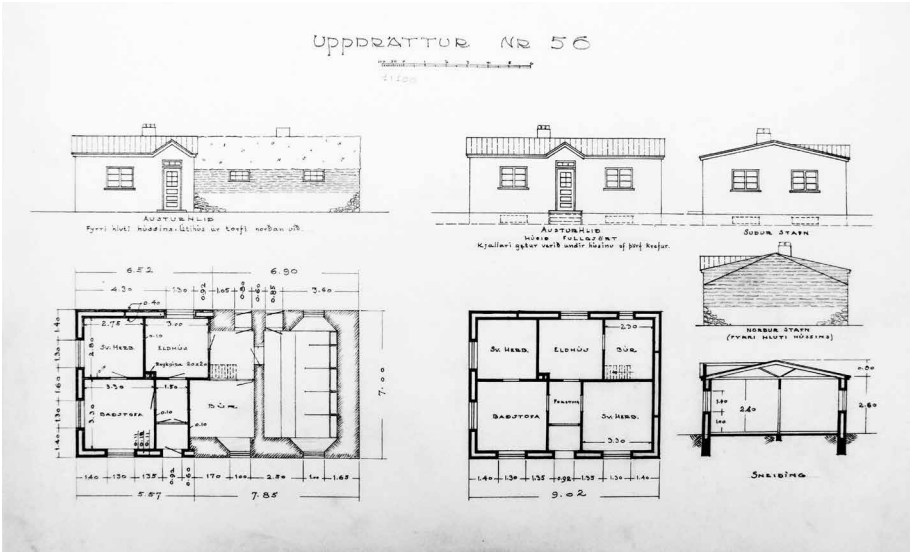
Design proposal no. 48.
ÞÍ, Byggingastofnun landbúnaðarins. Teikningar, BB/2, Teiknistofa bygginga- og landnámsjóðs, BB/2.

opposite
Design proposal no. 56.
ÞÍ, Byggingastofnun landbúnaðarins. Teikningar, BB/3, Teiknistofa bygginga- og landnámsjóðs, BB/3.

Farmhouse in Kálfaströnd, 1936–40.
Courtesy of Minjasafnið á Akureyri/Akureyri Museum.

However, the main model and source of inspiration for Icelandic experts was obviously Denmark, due to the strong political, social, and cultural ties that linked the two countries before the declaration of independence of Iceland in 1944. In 1899 the Danish government issued a law for establishing small state farms, supported by long-term loans to be used for rural buildings, machinery, and farming (Brorsen, Johansen, and Møller 2002, 16–17).[26] In the same period architectural contests were held to find the best layouts and materials to build in the countryside. Many publications were devoted to drawings and designs of farmhouses (Klein 1893; *Kgl. Byggeplaner til Bøndergaarde og til Huse med og uden Jord* 1895; Lorenzen 1909; Sjællands og Fyns Stifts Udstykningsforening 1914). In 1919 it was decided that each building project had to be approved by a commis-

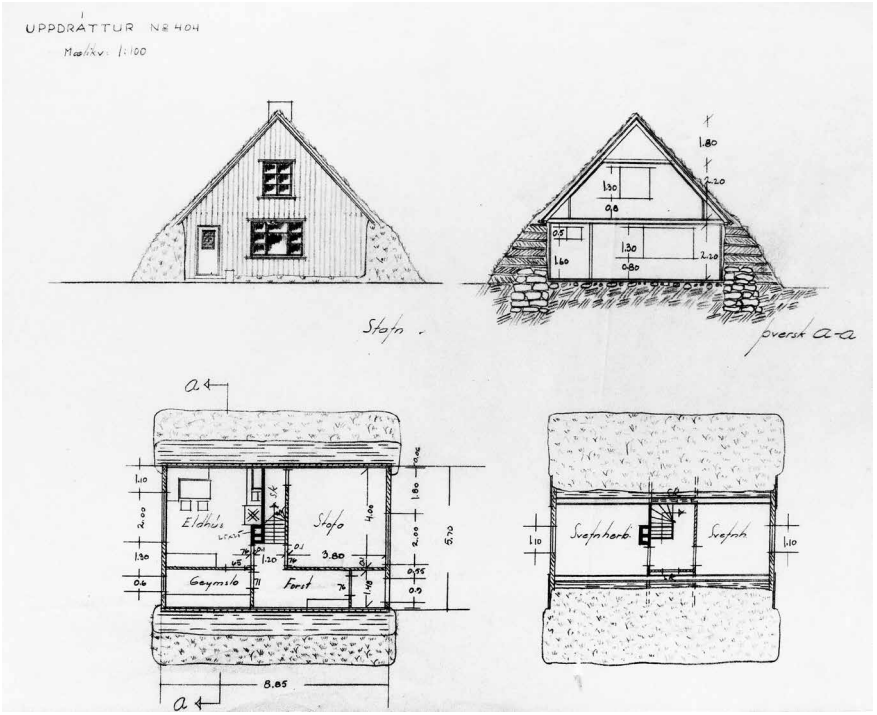
[26] Law 24/3/1899 on Provision of Land for Farmers. [Lov om Tilvejebringelse af Jordlodder til Landarbejdere]. State farmsteads were usually referred to as Statshusmandsbrug.

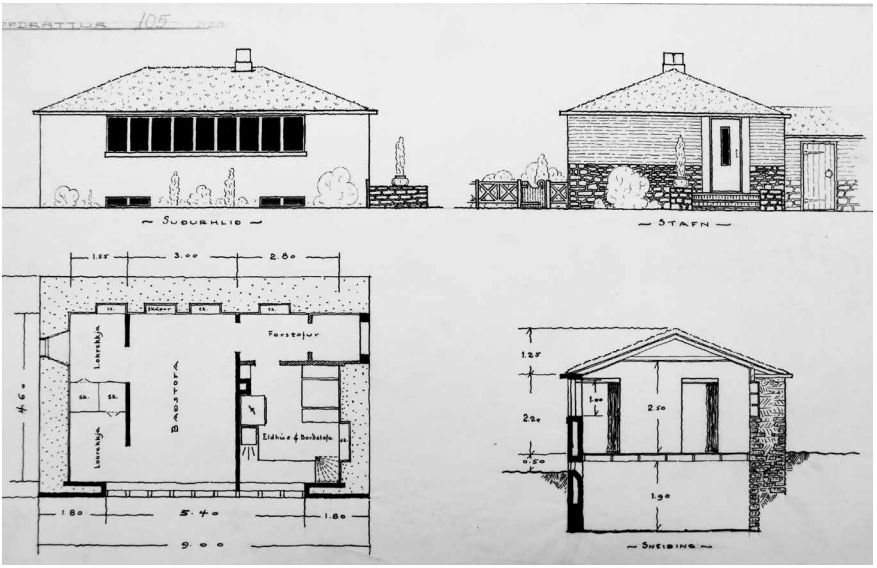

UPPDRÁTTUR NR 56
AUSTURHLIÐ
Fyrri hluti hússins. Útlínur ur torfi norðan við.
AUSTURHLIÐ
HÚSIÐ FULLGERT
Kjallari ætlar verið undir húsinu af þrí hlutur.
SUÐUR STAFN
NORÐUR STAFN
(FYRRI HLUTI HÚSSINS)
SNEIÐING
SV. HERB.
ELDHÚS
BÚR.
BAÐSTOFA
6.52
6.90
7.85
5.87
9.02

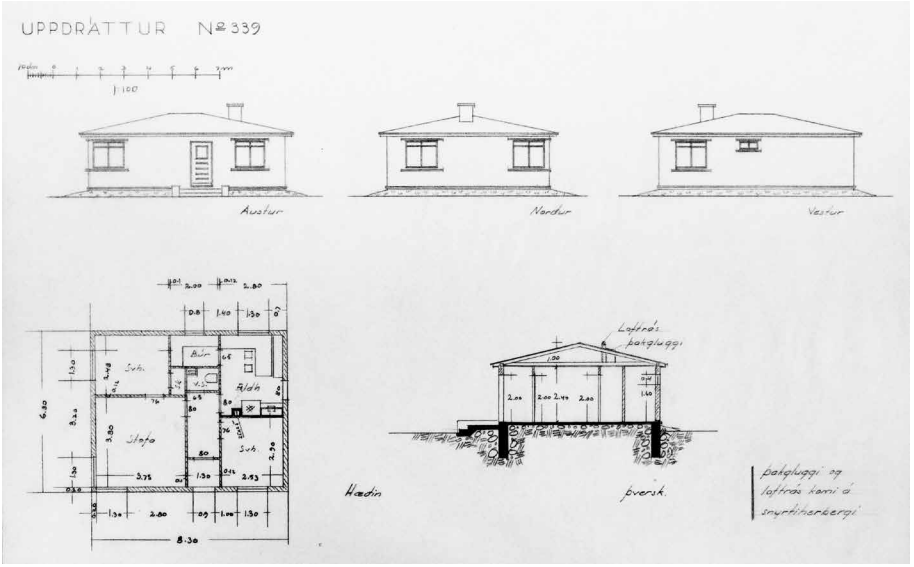
Design proposal no. 404.
Þí, Byggingastofnun landbúnaðarins. Teikningar, BB/10, Teiknistofa bygginga- og landnámsjóðs, 1930–39.

Design proposal no. 105.
Þí, Byggingastofnun landbúnaðarins. Teikningar, BB/4, Teiknistofa bygginga- og landnámsjóðs, 1930–39.

opposite
Design proposal no. 339.
Þí, Byggingastofnun landbúnaðarins. Teikningar,BB/19, Teiknistofa bygginga- og landnámsjóðs, 1930–39.






UPPDRÁTTUR Nº 339
Austur
Norður
Vestur
Bað
Svh.
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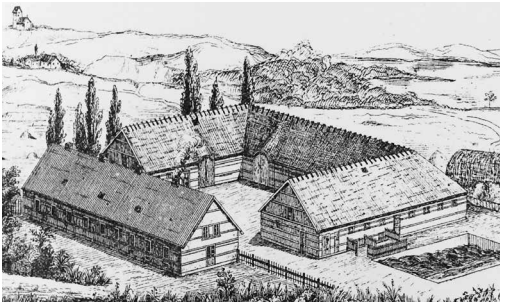
Loftrás
þakgluggi
Hæðin
þversk.
þakgluggi og
loftrás komi á
suðurhliðarbergi

Farmhouse at Hólar, Eyjafjarðarsýsla, 1950–60. Photos by Aðalgeir Ólafur Jónsson. Courtesy of Minjasafnið á Akureyri/Akureyri Museum.

opposite
Farmhouse at Gerðhamrar, Dýrafjörður, ca. 1930. Courtesy of Þjóðminjasafn Íslands/National Museum of Iceland.

sion. The architects in charge of evaluating and offering standardized drawings were part of Landsforeningen Bedre Byggeskik, a national architectural society officially founded 1915 with the aim of improving and promoting Danish building traditions. Among the architects active in the Society was Peder Vilhelm Jensen-Klint (1853–1930). The rural commissioners were Ejnar Mindedal Rasmussen (1892–1975) and Marius Pedersen (1888–1965). The latter was a consultant for Statens Jordlovsudvalg, the Danish commission for the use of agricultural land, between 1922 and 1959 (Wiil 2016, 173–79). A few clues help us understand to what extent Icelandic rural policies were influenced by Danish models. On the one hand, the Danish Society Bedre Byggeskik must have been well known among building experts and architects. In 1915, a few years before becoming Iceland's State architect, Guðjón Samúelsson drew up a project for an Icelandic farmhouse. The design was greatly influenced by Danish rural architecture, perhaps by some designs published in August Klein's *Danske landbrugsbygninger* (Klein 1893, plate I). His farmhouse design was criticized by Guðmundur Hannesson because it was too similar to Danish traditional buildings and not suitable for the Icelandic countryside (Guðmundur Hannesson 1915). In 1924, Guðmundur Hannesson explicitly mentioned the Bedre Byggeskik Society in one of his articles (Guðmundur Hannesson 1924). Furthermore, it was also evident that the Icelandic Progressive Party was interested in Denmark's law for agricultural land use. In 1936, the Icelandic member of Parliament Bjarni Bjarnason (1889–1970) claimed he was interested in the work by Statens Jord-



August Klein, *Danske landbrugsbygninger*, 1893. Plate 1.

Guðjón Samúelsson, Project for a farmhouse. Guðmundur Hannesson, "Kringum bæin," 1915

lovsudvalg (*Tíminn* 1936). Two Bedre Byggeskik publications are part of the National Library collection: *Boligbogen: Tegninger og beskrivelser til smaa enfamiliehuse* and *Bygmesterbogen: Optryk af arbejder og artikler fra Bedre Byggeskiks aarsskrifter* 1918–1928, both written by Danish architect Harald Nielsen (1886–1980). The influence of Bedre Byggeskik on Icelandic architects is particularly evident, not only in the design of farmhouses, but also in many residential buildings built in Reykjavík between the 1910s and the 1930s. The Icelandic architectural trend *steinsteypuklassík*, usually translated as concrete classicism, owes much to Bedre Byggeskik's traditional projects for domestic architecture (Seelow 2011, 91–94).

opposite
Concrete farmhouse ca. 1925–32. Photos by Hallgrímur Einarsson. Courtesy of Minjasafnið á Akureyri/ Akureyri Museum.

The presence of many texts concerning standard models for rural housing in the collection of the National Library of Iceland highlights the crucial importance of this topic for Icelandic builders and politicians in the first half of the twentieth century. However, the peculiarity of the Icelandic experience regarding standardized drawings for farmhouses mainly concerns construction issues. The legacy of the Technical Office of the Agricultural Agency was strongly influenced by the preferred building material chosen for these buildings, which was concrete. Thanks to the impressive number of designs issued by the office and to the increasing availability of an infrastructural network, concrete technology could finally spread easily throughout the countryside, under the eyes of construction experts. Eventually, this technology replaced and eradicated turf vernacular architecture, transforming turf construction into a reminder of ancient living conditions.

Conclusions

Concrete farm, set of the short movie *Síðasti bærinn*. Dýrafjörður, Westfjords, 2016.

The Technical Office of the Agricultural Agency was by far the single most influential architectural office in the country, releasing more projects than the State architect's studio and affecting the lives of thousands of citizens throughout the island.[1] By the mid-1940s the office had issued more than a thousand drawings, and in 1947 it opened a branch in the northern town of Akureyri. (*Dagur* 1947) The office kept on working under the name of Byggingastofnun landbúnaðarins until the early 1990s, when it was closed. The physical influence of the technical office is still visible today, such as active farmhouses, countryside dwellings, or ruins in the landscape. In 2011–14, the research project *Eyðibýli á Íslandi* conducted a census of all the abandoned rural buildings of Iceland: the majority of these constructions were built according to the technical office's drawings (Gísli Sverrir Árnason, and Sigbjörn Kjartansson 2011–14).

Today, both the inhabited farms and the concrete ruins characterize the rural landscape of Iceland, constituting a tangible reminder of the drastic changes that have taken place in the country since the early twentieth century. The many deserted farmhouses in concrete often serve as a playground for architects to experiment with renovation projects. In 2019, Studio Granda restored a concrete farm and stables dating back to the early 1980s, engaging in an unusual restoration project in which the imperfections of the rural concrete were kept and highlighted as a distinctive feature of the whole building.[2] In 2021, Studio Bua transformed an abandoned farmhouse at Hlöðuberg into an artist's studio.[3]

The heritage of the Icelandic concrete age, especially in the rural countryside, has quickly become part of the Icelandic cultural geography: it has frequently been portrayed by photographers, film-makers and, most of all, by many Icelandic novelists. The presence of hun-

[1] A 1963 publication on the Rural Society of the Suður-Þingeyingur county shows dozens of pictures of farmsteads with their inhabitants: most farmhouses are recognizable projects issued by the Technical Office of the Agricultural Agency (Haukur Ingjaldsson, Jón Sigurðsson, and Steingrímur Baldvinsson, 1963).
[2] "Drangar Renovation / Studio Granda," Archdaily, 24 September 2019, https://www.archdaily.com/925031/drangar-renovation-studio-granda?ad_medium=office_landing&ad_name=article, last accessed 04/02/2022.
[3] Hlöðuberg Artist's Studio, https://www.studiobua.com/hloduberg-artist-studio, last accessed 04/02/2022.

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dreds of concrete ruins all over the island emerges in the photographs collected in *Metamorphosis* by Sigurgeir Sigurjónsson, in which the natural Icelandic landscape is juxtaposed with ruins, buildings and construction sites (Sigurgeir Sigurjónsson 2017). *Abandoned Farms* is the title of a photographic project by Nökkvi Elíasson, who has portrayed dozens of deserted farms all over the country (Nökkvi Elíasson 2004). The dramatic story told in the short film *Síðasti bærinn* [*The Last Farm*], directed by Icelandic director Rúnar Rúnarsson in 2004, revolves around a small concrete farmhouse at the very end of the Dýrafjörður fjord in the Westfjords.

opposite
Viðborðsel farmhouse
Sveitarfélagið Hornafjörður, 2016.

Literature is the field where the reavolution in the building tradition that occurred in the early twentieth century is most visible. Decades after Laxness's novels, many Icelandic authors still mention the social changes brought about by modern concrete dwellings. Einar Már Guðmundsson's novel *Fótspor á himnum* [*Footprints in Heaven*] is a nostalgic and disillusioned hymn to those who lived in the years when Reykjavík was still divided between turf farms and unliveable concrete basements (Einar Már Guðmundsson 1997). The destruction of traditional farms and their replacement by concrete farms is mentioned by Bergsveinn Birgisson in his novel *Svar við bréfi Helgu* [*Reply to a Letter from Helga*]:

> Yet we watched the old turf farmhouses of Hörgár Parish being cleared away by bulldozers upon the arrival of cement. It's one thing to believe in and devote oneself to progress, Helga, and another to start despising the old ways. The old turf farms are all gone now because they reminded people of cold and damp and what people so mercilessly call 'hayseedism'. But what culture do people have who say such things? It's only when folk turn their backs on their own history that they become small (Bergsveinn Birgisson 2013, 77).[4]

Since the construction of the farmhouse at Sveinatunga in 1895, rural areas had been a testing ground for solving Iceland's most long-lasting hurdle – how to build warm, enduring, modern housing at the lowest prices, with local manpower and materials, that could sustain the cold weather and fit into its harshly beautiful landscape. This process was characterized by passionate debates on tradition and by the fear of losing the distinctive features of vernacular architecture. It is interesting to note that, despite its late economic and technological development, the Icelandic countryside was no less quick to adopt construction novelties than the urban environment of Reykjavík. Decades of planned farmhouses fulfilled the dreams of Guðmundur Hannesson and of Iceland's first engi-

[4] The original text goes: "Við sem sáum burstabæjunum í Hörgárhrepp rutt í burt af jarðrýtum þegar sementið kom. Það er eitt að trúa á og tileinka sér framfarir, Helga mín, annað að byrja að fyrirlíta hið gamla. Gömlu torfbæirnir eru allir horfnir núna því þeir minntu fólk á kulda og sagga og það sem menn svo miskunnarlaust kalla molbúaháttt. En hvaða menningu eiga þeir sem tala svo? Þegar menn snúa baki við sögu sinni, þá fyrst verða þeir litlir". (Bergsveinn Birgisson 2010, 66).

neers, who longed for a radical transformation of Icelandic construction techniques. Thanks to the subsidies of the Agricultural Bank and to the projects of its technical office, the age of concrete could finally blossom in the Icelandic countryside, bringing with it a rural version of modernity to all corners of the island.

By following the transformations occurred in Icelandic rural buildings since the early nineteenth century and until the 1940s, it becomes clear how the increasingly dense network of economic trade and scientific exchange radically transformed the Icelandic society from within. The quick eradication of turf houses across the country was the result of many factors which contributed to contemporary Icelandic history. On the one hand, the modernization of rural buildings was fostered by several figures who took part in many debates on the press or in the political arena. The background of these actors was very eclectic –

they were builders, politicians, medical doctors, engineers – and their positions condensed the different stances of the Icelandic society. On the other hand, the arrival of concrete as a building technology radically transformed local building techniques. Cement and concrete, some of the most influential products of the second industrial revolution, changed Iceland's building traditions for good. Not only did concrete bring Icelandic construction closer to the contemporary European debates on architecture and building techniques, but it also wiped out the long-lasting knowledge on turf houses in a matter of a few decades. The outcome of this development was undoubtedly a success regarding the local living conditions; yet, at the same time, this process contributed to a tragic loss of expertise and cultural experience which had been shared for centuries among the inhabitants. In Iceland's complex natural territory, building materials played a key role in the transformation of its built environment. They contributed as crucial factors to the development of its architectural history and will most likely continue to influence its future transformations.

opposite
Concrete farm with side turf wall.
Skógar, South Iceland, 2019.

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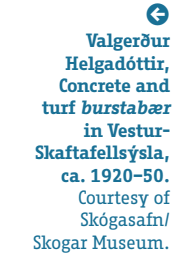

Valgerður Helgadóttir, Concrete and turf *burstabær* in Vestur-Skaftafellsýsla, ca. 1920–50. Courtesy of Skógasafn/ Skogar Museum.

Note: Icelandic authors have been listed alphabetically following the order of their first name, the last name usually being a patronymic [–son, –dóttir]

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