

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 long 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

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 [*ffjósbaðstofa*]. 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 torbæirnir væru, líkt og hér, stundum lítið annað en útgrafnir hólur og í raun náskyldir hinum grænlenzku íglúum hvað lögum og skipulag varðaði (einn sambylisseimur 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. Hördustu 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 almyrkvad varð. Séra Árni fálmaði eftir tréverki, fann loks hurðarhringinn og svipti þessu fortjaldi frá veruleik, sem hann hafði heyrt um enn ekki séð, sjálfu sigurveyki íslenskrar fátæktar; hinni íslensku fjósbaðstofu. Hurðarsnærið strekktist yfir höfði hans og steinninn 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.