

The Aqal: House or Home

Using Retroactive Mapmaking to Document Transient Ephemeral Space in Somali Nomadic Dwellings

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Abstract

Sources note that more than a quarter of the Somali population are pastoral nomads, moving with their cattle in search of water sources and grazing. Their architecture and method of building has adapted to this way of life. The method of building an Aqal (a traditional Somali nomadic home) is an intrinsic part of Somali culture and is kept alive by the nomadic community. However despite this persisting tradition, the Aqals themselves are always temporary. This paper intends to explore the impact this temporality has on the user and their sense of space. Particularly pertaining to the sense of identity and comfort a person can attach to an item that is never exactly the same but still recognisable.

This thesis aims to use indigenous knowledge sharing methods such as oral retelling in the form of extensive open conversational style interviews with the authors mother, Canab Cali, who formerly lived nomadically and worked on constructing elements of the Aqal. There will be an extensive exploration in the extent to which temporality is reflected in other aspects of Somali culture and how the Aqal's ephemeral architecture affirms or rejects common design theories proposed by western authors such as Richard Sennet, Nelson Goodman as well as utilising theories presented by Somali authors such as Maxamed Cartan Xaange and Mohamed Ibrahim Warsame (Hadrawi).

5 Keywords

Ephemerality

Repetition

Transient

Porous

Preservation

Kala Guran (Society) by Maxamed Ibraahin 'Hadraawi' Warsame (2011)¹

Translated by Canab Cali

Seban loo gabbalo deyey,
Gobanimadu noolayd,
Geyigeenna waxa jiray,
Aqal kebed galooliyo,
Googoos ku xidhan yahay,
Oo daawashada guud,
Gunbur togan ka sheed dheer,
Oo gumaro taal taal,
Gudihiisa shuunka ah,
Gogol lagu cawaystiyo,
Salliyada gargaranta ah,
Gunti lagu furtaa jiray;

Waa goorba goorteed,
Kala-guranta sii raac,

Gedgeddoonka noloshiyo,
Hadana gooshkan maanta ah,
Gurmo-go'an dhig laga jaray,
Udub geed xun laga qoray,
Dhirta inan-gumeedka ah,
Aqal-gaabka soo baxay,
Bac guduudan lagu xidhay,
Guro yare ku magac dheer,
Fadhi lagu gurguurtiyo,
Lagu galo dhabbacashada,
Gudihiisa jaqaftiyo,
Gurgur caagadood iyo,
Lagu bilay garaabada;
Gole lagu caweeyiyo,
Ka arradan gob caadkeed,
Marka geeddi lagu jiro,
Lagu qaado garabkiyo,
God waraabahaa jira

¹ Warsame, Mohamed Ibrahim 'Hadraawi'. 2011. *Kala Guran*. MP3. *Longlivesomaliland.com*. Hargeisa, Somaliland.
<https://www.longlivesomaliland.com/Maansadii%20Kala%20Guran%20ee%20uu%20tiriye%20Abwaan%20Hadraawi.htm>.

When the sun was setting,
(I remembered when) Freedom was alive,
In our land there was
A house with a kebed made from Galool,
Wrapped in a beautiful adorned interior mat,
And when you look at it,
It is more visible than the mountains,
And (it was) in many places,
Its interior is beautiful,
(with a) sitting mat to spend the evening on,
Sali matts surrounding it,
(where you can) relieve yourself of outside attire,

Each time has its own time (customs),
Go along with changing of times (society),

The changing of life,
Still the conditions of today (are),
Dhig cut from a deficient Gurmo (tree),
Udub carved from a bad tree,
The Trees that are subpar (in quality),
(and from this) the short (unshapely) house has emerged,
Wrapped in red plastic,
Known widely as 'small roof',
Sit and crawl
And make yourself even smaller to enter the house on your chest (front),
The inside is noisy
With a multitude of plastic bottles,
Decorated with the leftovers of the Khat plant,
A gathering place to spend the evening,
Is lacking so it is not a place for praised people,
After you spend a period of time in it,
You can carry it on your shoulder,
(and you realise) It is a hyena's den

Introduction: The Desert Lifestyle

Somali /so:ˈma:li/ *noun*

Etymology: From the phrase *soo maal* (“go and milk [an animal]”), an imperative pastoral command rooted in nomadic lifeways.

1. A member of an ethnic group native to the Horn of Africa, sharing a common language, culture, and nomadic heritage.
2. The Cushitic language spoken by the Somali people across Somalia and neighboring regions.

‘Nothing is stable in the desert. The wind moves sand dunes, bones landmarks. Roads get buried, tracks get lost, paths do not survive the next gust of wind.’² Since the earliest records of European exploration, the ‘desert’ has always been an unknown entity stretching to fill the peripheries of maps, an unforgiving place not home to anyone but a few transient travelling groups. However, this image as well as being dismissive to the countless groups and tribes which have formed settlements within desert environments has been used to justify acts of ecological warfare such as French Nuclear testing in 1960 in the Algerian Sahara which saw atomic bombs four times the size of ‘Little Boy’ detonated leaving behind hurriedly ‘buried’ atomic waste for people and animals to find.³ In an attempt to counter such colonial narratives, this paper seeks to redefine the notion of ‘desert’ in the Somali context. In the Horn of Africa, the landscape varies from sand dunes in the Northeast, to rocky semi-Arid regions in the West, with it being commonly referred to as the ‘Miyi’ or ‘Baadiyo’. But in Somali culture the Miyi is not just a landscape but a way of life, with governmental surveys constituting that 26% of Somalis live nomadically and 60% of the country’s population are pastoralists.⁴

Nomadism

There is a similar colonial undertone when defining nomadism, the French naturalist and scientist Théodore Monod describes nomads as an ‘ecological success’ who live on the ‘outer edge of the world’s habitable region.’⁵ This infers that the absence of

² Brahim El Guabli, Jill Jarvis, and Francisco E. Robles, “Desert Futures Collective,” in *Deserts Are Not Empty*, ed. Samia Henni (New York: Columbia University Press, 2025), 15–34, <https://cup.columbia.edu/book/deserts-are-not-empty/9781941332740/>.

³ El Guabli, Jarvis, and Robles, “Desert Futures Collective,” 34,

⁴ Marian Warsame Yusuf, “Improving Access to Health Care Services for Pastoral Nomads in Somalia,” *University of Gothenburg*, August 13, 2024, <https://www.gu.se/en/research/improving-access-to-health-care-services-for-pastoral-nomads-in-somalia>.

⁵ Michel Batisse, “Interview with Theodore Monod,” *The UNESCO Courier* 47, no. 1 (January 1994): 4–9, <https://unesdoc.unesco.org/ark:/48223/pf0000096900>.

technology or other markers of ‘civilisation’ denote habitability according to Monod. However, the term ‘habitable’, is scientifically defined as ‘the ability for an environment to support the activity of at least one known organism,’⁶ which is inline with the tenants that define habitability in nomadic lifestyles: does it produce the raw natural materials to sustain myself or my cattle? Nomadism is a mode of life in which a human community is enabled through its dependence on domestic animals, and the cultivation or collecting of plants or plant food, to be void of a permanent abode, being spurred to move throughout the landscape by a variety of basic motivations, namely: water and fodder.⁷ Arguably, the Somali context provides a version of vertical, pastoral nomadism or transhumance, which historian Douglas L. Johnson describes as the seasonal movement of people with their livestock between geographical or climatic regions.⁸ Somali nomadic communities fall under 2 umbrellas: Reer Guuraa and Reer Godaal.⁹ Reer Guuraa describes a nomadic family who move between lands that they do not own, and Reer Godaal is a semi-nomadic family; they move cyclically between their own farms and other un-owned land.

Chapter 1: Methodology

1.1 Nomadic Preservation Methods

The transient nature of nomadic cultures poses the question: what can we use as a constant when investigating an event, object, or a tradition in a fluctuating context? The answer is human memory and oral tradition. This might seem like an added layer of complication as memory is not concrete, it falls victim to time and influence and oral tradition can die out or be revived with patches filled in by rumour and hearsay, but the Somali language was only formally committed to writing in 1972, with an extensive government campaign to teach its reading and writing to rural communities.¹⁰ Therefore, the portability of the life of the pastoral nomad seems poetically suited to the prevalence of unwritten literature, where poems and songs can accompany you to any plain or mountain. B.W. Andrzejewski, a polish linguist and poet himself, travelled to

⁶ C.S. Cockell et al., “Habitability: A Review,” *Astrobiology* 16, no. 1 (January 2016): 89–117, <https://doi.org/10.1089/ast.2015.1295>.

⁷ John L. Myres, “Nomadism,” *The Journal of the Royal Anthropological Institute of Great Britain and Ireland* 71, no. 1/2 (1941): 19, <https://doi.org/10.2307/2844399>.

⁸ Douglas L. Johnson, “The Nature of Nomadism: A Comparative Study of Pastoral Migrations in South-Western Asia and Northern Africa,” *International Journal of Middle East Studies* 2, no. 3 (July 1971): 286–87, <https://doi.org/10.1017/s0020743800001203>.

⁹ Canab Cali, 2) Distance and Travel, interview by Nasra Aden, March 4, 2025.

¹⁰ B.W Andrzejewski, “The Development of National Orthography in Somalia and the Modernization of the Somali Language,” *The Horn of Africa* 1, no. 3 (January 1, 1978): 39–46.

the British protectorate of ‘British Somaliland’ in the 1950s to investigate its linguistics and poetic tradition and noted that ‘a good poet can sow peace and also hatred: he can win friendship by praise and appreciation, deepen an existing feud, or lead to a new one.’ Andrzejewski even draws a direct tie between the seasonal cycle of the nomad and prose, writing that ‘when the first rains come, the whole pattern of life changes... It is particularly at this time that the Somalis turn to their favourite entertainment: the art of alliterative poetry.’¹¹ Therefore, it can be understood that there is a great deal of local history and tradition enshrined in poetry and oral tradition.

Using oral narrative as the primary research methodology for this thesis allows us to build a strengthened and valid counter-narrative. In Somali society literature and prose are not gatekept disciplines reserved for the educated or the elites but it is a universal language shared around campfires and exchanged by travellers at wells, it calls for the human mind to be trusted as it relies on its memorisation for its longevity. This paper uses storytelling supplemented by mapmaking to understand the transient nature of nomadic dwelling in rural Somalia, with the methodology demonstrating the restitution of memory. This paper proposes the Aqal as an epistemic space, one that carries cultural, material, and environmental intelligence embedded in both form and practice. This approach will be manifested through open conversation style interviews with my mother Canab Cali, who spent her childhood and adolescence in nomadic and pastoral settlements. Retroactive mapmaking will help us understand the spatial and sensorial experiences that result in the built form of the Buul, also known as the Aqal, the home of nomadic pastoralists in Somali regions.

I will be referring to my mother as *Hooyo* throughout this paper, the Somali term for ‘mother’ as the closeness between myself, the interviewer, and my mother, the interviewee, is important and necessary. Where in some cases of academic writing this relation might be seen as clouding judgement or impacting findings, here it reaffirms the anti-colonial nature of this paper and represents indigenous methods of knowledge sharing.¹² When Western academics write about topics situated in the contentiously termed ‘Global South’, the writer often falls into the trope of ‘otherising’ by distancing themselves from the subject matter. Egyptian sociologist Mona Abaza termed the phrase ‘Academic Tourism’ when she wrote about the unequal division of labour that emerged in the academic field after the Arab Spring.¹³ Locals, or in other words

¹¹ B W Andrzejewski, “Poetry in Somali Society,” *Journal of African Cultural Studies* 23, no. 1 (June 1, 2011): 5–8, <https://doi.org/10.1080/13696815.2011.581451>.

¹² Mary Kathryn Salazar, “Interviewer Bias,” *Workplace Health & Safety* 38, no. 12 (December 1, 1990): 567–72, <https://doi.org/10.1177/216507999003801203>.

¹³ The Arab Spring was a series of anti-government protests and civil wars started from Tunis on December 18, 2010 and spread across the Arab World, targeting the long term rules of authoritarian rulers, excessive power of police and the Interior Ministry as well as other factors such as unemployment, poverty and inflation.

indigenous academics, artists, activists and intellectuals, were reduced to ‘service providers’ to give credibility to the works of their Western colleagues.¹⁴ The position of this paper is to be ‘interacting’ instead of ‘observing’, and sitting with my mother and learning the methodology and living culture of the Aqal emulates the maternal knowledge sharing channels prevalent in many indigenous cultures, albeit through a different conduit given our geographical distance from one another. It also allows for a blurring of lines, doing away with the rigid formalities that would hinder the exploration required by this architectural historical research topic.

Paul Thompson has described oral histories as ‘the first kind of history’ in his book ‘The Voice of the Past’, which discusses the re-mergence of interest in oral history in England, he cites the democratic nature of oral history in providing ‘a more realistic and fair reconstruction of the past’¹⁵ by allowing for underprivileged groups to stand as witnesses and challenge the established account, thus reconfiguring the social message of history as a whole. It is in this vein that architect and academic Menna Agha used the oral testimonies of Nubian women as the foundational framework for her research article titled ‘Emotional Capital and Other ontologies of the Architect’. In this paper, her positioning is important: she writes from ‘within an African episteme’ to understand the societal appreciation of emotional contributions to spatial production that is found in Nubian society, questioning the gendered notions associated with the architect in western contexts.¹⁶ The story of the Aqal is the story of women, with the act of building undertaken by the women of the family, therefore unveiling voices often hidden in the world of design comes with changing the frameworks for analysis commonly associated with architectural research; instead relying on lived experiences and Somali works. This means that like Agha, the ‘emotional’, which is often discounted will be a valid driver of research and the interviewee will be brought into the written work as an active participant rather than a distant source. Similarly, this thesis seeks to evaluate the methods in which the Aqal and Somali nomadic dwellings challenge western notions of architectural design and understanding, particularly in its ephemerality and temporality.

Abdul Qadirmushtaq and Muhammad Afzal, “Arab Spring: Its Causes and Consequences,” *JPUHS* 30, no. 1 (June 2017), https://pu.edu.pk/images/journal/HistoryPStudies/PDF_Files/01_V-30-No1-Jun17.pdf.

¹⁴ Mona Abaza, “Academic Tourists Sight-Seeing the Arab Spring,” *Jadaliyya* - 2017, جدلية, <https://www.jadaliyya.com/Details/24454>.

¹⁵ Paul Thompson, *The Voice of the Past: Oral History*, Google Books, 4th Edition (1978; repr., United States of America: Oxford University Press, 2017), 7–25, https://books.google.nl/books?hl=en&lr=&id=j-4wDgAAQBAJ&oi=fnd&pg=PP1&dq=voice+of+the+past&ots=HqOm08Hg4o&sig=KwuoTzzEsXJmUbegEWwUG7Axnz8&redir_esc=y#v=onepage&q=voice%20of%20the%20past&f=false.

¹⁶ Menna Agha, “Emotional Capital and Other Ontologies of the Architect,” *Architectural Histories* 8, no. 1 (December 18, 2020): 23, <https://doi.org/10.5334/ah.381>.

There is a noticeable lack of Somali works present in digital archives or databases, this is due to a plethora of reasons. As mentioned previously, with oral retelling being integral to Somali cultural identity, local history was committed to memory by a traditionally educated experts.¹⁷ Following colonization by European forces in the Nineteenth Century, there was an effort by both Europeans and Somalis to transcribe cultural traditions and customs. Muse Galaal, known for his efforts in collecting Somali oral literature and dedication to determining an appropriate orthography for the Somali language,¹⁸ wrote in 1970 the fundamental book, ‘Stars, Seasons and Weather in Somali Pastoral Traditions’, in an effort to write the ‘most valuable cultural aspects and traditions’ of the newly formed Somali Republic¹⁹. In this innovative book he intertwines the traditional nomadic lifestyle with weather-lore and astrology, leaning into the lyricism of Somali poetry and prose to explain unwritten histories and traditions.²⁰ However in 1991 civil war started with the overthrowing of the dictatorial president Siad Barre, this had a devastating impact on Somali libraries and archives within the capital Mogadishu, which Hibaq Nur proposes as a case of ‘bibliocaust’, with the destruction of books and documents held by the Somali National Library lost and destroyed along the lines of inter-clan hatred and perceived political agendas.²¹ Therefore, this paper aims to serve as an archive of indigenous building methods, serving to transcribe methods and memories from local memory. Edward Said explored the implications that theories ‘travelling’ from memory to text have, writing that the theory is ‘to some extent transformed by its new uses, its new position in a new time and place,’²² from which arises questions about the original theory’s fidelity and textual meaning. This paper is an application of Said’s theory however instead of evaluating the complexities brought about by utilising memory as a source, it is an instance of applying textual meaning to formerly intangible concepts. Similar to Said’s method of reflecting on the etymological

¹⁷ Muusa Galaal, *STARS, SEASONS and WEATHER in Somali Pastoral Traditions*, First Edition (Looh Press, 1970), 1–3, https://www.dirzon.com/file/telegram/Somali%20Books/Astronomy_Galaal.pdf.

¹⁸ Muddle Suzanne Lilius, ed., “Variations on the Theme of Somaliness,” in *Proceedings of the EASS/SSIA International Congress of Somali Studies, Turku, Finland* (1998; repr., Turku, Finland: Abo Akademi University, 1998), 442–51, <https://www.africabib.org/rec.php?RID=A00006086>.

¹⁹ After the formerly British Somaliland gained independence from Great Britain on June 26 1960 and Italian Somaliland subsequently gained independence on July 1 1960, the two regions merged to form the independent Somali Republic.

Khayre, Ahmed Ali M. 2016. “Somalia: An Overview of the Historical and Current Situation.” *SSRN Electronic Journal*, April. <https://doi.org/10.2139/ssrn.2771125>.

²⁰ Galaal, *STARS, SEASONS and WEATHER*

²¹ Hibaq Nur, “Bibliocaust of Somali Libraries: Retelling the Somali Civil War,” in *Ifla.org*, (Session 83 - Libraries in times of crisis: Historical perspectives - Library History SIG, 2017) (Session 83 - Libraries in times of crisis: Historical perspectives - Library History SIG, 2017), <https://library.ifla.org/id/eprint/1635/1/083-nur-en.pdf>.

²² Edward W. Said, *The World, the Text, the Critic, SubStance* (Cambridge, Mass.: Harvard University Press, 1983), 226–47, <https://doi.org/10.2307/3684960>.

roots of the word ‘theory’ in his essay, the use of Somali etymology throughout this paper will encourage a deeper understanding and allow for the concepts to combat the transformation that this ‘travelling’ will incur.

1.2 The Craftswoman

By understanding the semantics of the Aqal we can see that it is constant yet ever changing, unique to its circumstances yet instantly recognisable. It represents a form of *ephemeral* architecture. As Anastasia Karandinou says, ‘Architecture is not only about the solid, material elements of space; it is also about the invisible, immaterial, intangible ones.’²³ Posing the questions: How do architects map and examine the spatial qualities that these elements create? How do such elements inform the design process?, we will redirect these questions towards the architecture and making of the Aqal and add a further layer: how do you design for constantly changing spatial qualities? If these changes are spurred by ecological circumstance, human instinct and internal conflict? We will also break down the ‘Architect’ character to that of the ‘Craftswoman’, when referring to the creators of the Aqal. This is a noted distinction as Richard Sennett infers in his similarly titled book, ‘The Craftsman’, that Craftsmanship suggests a way of life and to object standards, whilst also acknowledging that social and economic conditions can stand in the way of the craftsman commitment and aspiration for quality, rather than the linear course of academic education associated with the title of ‘Architect.’²⁴

Architecture has been intertwined with diagrams and notations since at least the 15th century with Leon Battista Alberti being described as the ‘first “digital” architect’, for his use of a numerical script to construct his *Descriptio urbis Romae*, creating a notation based on his survey of Rome which allowed anyone to redraw the resulting map of the city. Thus, characterising architecture as an Allographic art form. Philosopher Nelson Goodman has distinguished between two types of artform: Allographic, that which can be reproduced at a distance from the author by means of notation; and Autographic, that which authenticity depends upon direct contact of the author.²⁵ The craftswomen of the Aqal do not practice a distinct method of notation or pre-planning, they often draw the oval outline of the Aqal directly onto the sand to determine where the Udbo (singular Udub, y-shaped branches that make the peripheral columns of the structure)

²³ Anastasia Karandinou, *No Matter: Theories and Practices of the Ephemeral in Architecture* (Routledge, 2017), <https://doi.org/10.4324/9781315598390>.

²⁴ Richard Sennett, *The Craftsman*, First Edition (London: Penguin, 2008), 9.

²⁵ Stan Allen, *Practice : Architecture, Technique + Representation* (London ; New York: Routledge, 2009), 42–48.

will be placed.²⁶ This diagram is not permanent but a suggestion, as once the skeleton structure has been built, if it skewed or insufficient they simply dig around the Udub and adjust its position. Therefore, this instance of diagramming could be likened more to the marking step in the modern construction process rather than an example of notation. In short, the building method of the Aqal is highly abstract and self-referential. Every aspect of precision is based on the body proportions and subjective decisions of the craftswoman, the Harar pattern is determined by how many xubin (phalanges) she deems appropriate and the rope you use to secure the joints are measured in xusul and taako (middle finger to elbow and handspan),²⁷ illustrated in **Figure 1**. The construction of the Aqal is in line with Nelson Goodman's own opinion that architecture is a 'curious mixture' of autographic and allographic, yet Goodman writes that the end product of architecture is 'not ephemeral' due to the notational language developed in response to it.²⁸ However, this paper argues that the architecture of the Aqal is perfect representation of the art form's continual shuttle between abstraction and concreteness and enriched by the personal poetics of autographic art forms.

Methods of Measurement used when
Constructing the Aqal

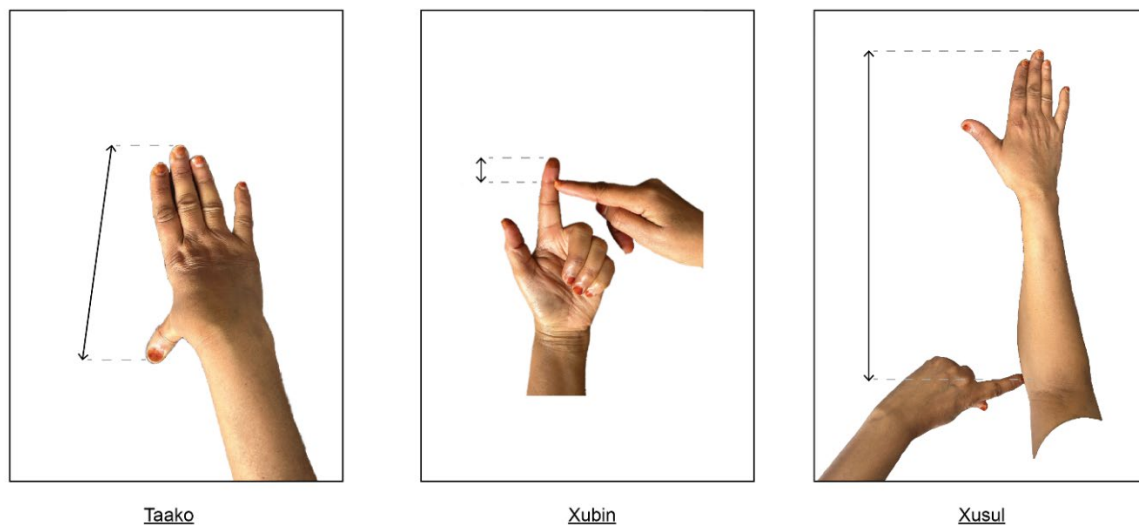


Figure 1 – Hooyo demonstrates the self-referential units of measurements used in building.²⁹

Chapter 2: Material Culture and Spatial Repair

2.1 Building Methodology

²⁶ Canab Cali, 1) Building Methodology and Materials of the Aqal, interview by Nasra Aden, March 2, 2025.

²⁷ Cali, interview, March 2, 2025

²⁸ Allen, *Practice : Architecture, Technique + Representation*, 48.

²⁹ Cali, interview, March 2, 2025

‘Form follows Function’ shaped the utilitarian nature of design that characterised the 20th century, it has subsequently sparked discussion and debate as to its contextual implications. Drawing to question the relationship humans have with the dwellings they inhabit. Eliezer Ntangu Ntieni presents that the relationship between the two concepts is not straightforward, noting that architectural form ‘expresses the way it is organised and exists in the context of the environment and culture’, inferring that form can hold value independent of use.³⁰ This thesis is an affirmation of this notion presenting the form as an intangible cultural artifact. The intertwined nature of these two concepts teaches that to understand one is to understand the other. Therefore, the Aqal’s materiality and building methodology must be examined in order to understand how its ephemerality has translated into its associated living culture.

³⁰ Eliezer Ntangu Ntieni, “Does Form Follow Function? Harnessing Philosophical Perspectives in the Architecture and Design Process,” *Art and Design Review* 13, no. 01 (January 1, 2025): 30–43, <https://doi.org/10.4236/adr.2025.131003>.

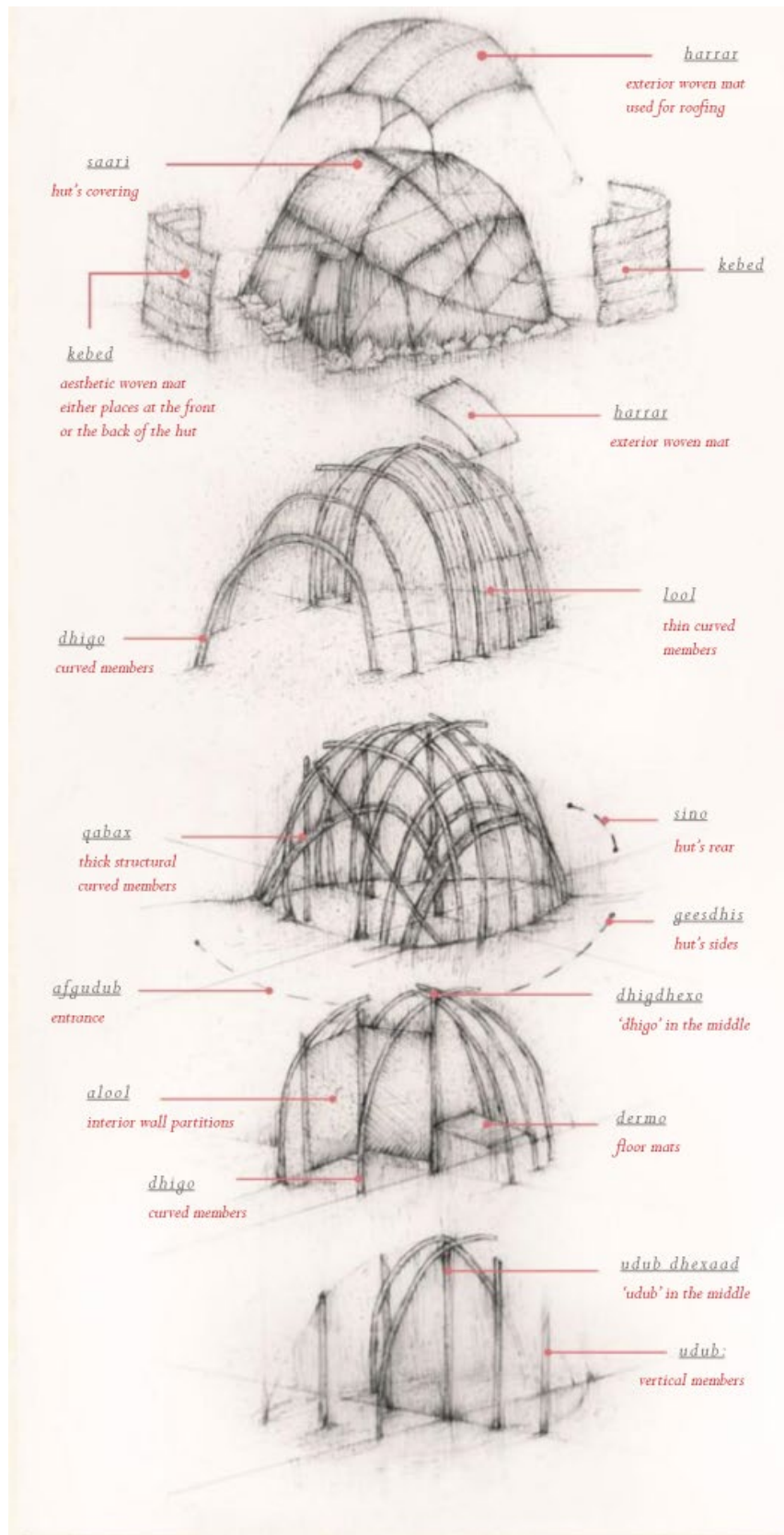


Figure 2 ~ The Aqal's structural compositions and layering.³¹

³¹ Amal Dirie, "Nomadic Passage: Water Conservation and Land Preservation," *Issuu* (Postgraduate Dissertation, 2020), 92, https://issuu.com/amaladirie/docs/dirie_amal.

A Plan of an Aqal

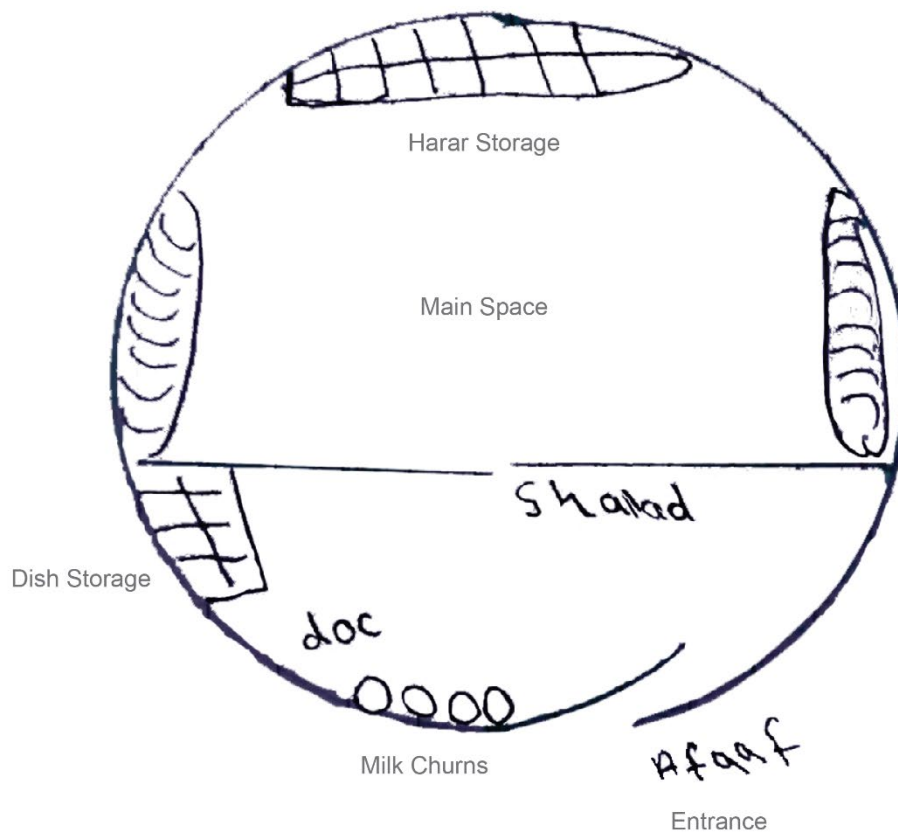


Figure 3 ~ Aqal in plan view, produced by Hooyo during interview and labelled by Author³²

³² Canab Cali, 3) Mapmaking and Recollection, interview by Nasra Aden, March 9, 2025.

The Aqal has 2 distinct building layers: *Godimada*, the structure, and *Heeryo*, the envelope. Construction methods vary across the Horn of Africa, but this paper will be exploring the methodology practiced in the North. The first task is to collect *Udbo* (singular *Udub*), which are thick y-shaped branches and *Dhigo*, (singular *Dhig*) long tree roots. As shown in Figure 4, the *Galool*, *Maraag* and *Sogsog* trees are used to source these components.³³ The *Udbo* are fixed into the ground and the *Dhigo* are bent to form a U-shape supplemented and supported by *Dhuur* (bamboo-like branches sourced from a willow-type tree). The *Dhigo* are connected to the *Udbo* by *Maydhax*, ropes made by chewing and twisted branch fibres. Once the primary structure has been made, the *Xakab/Lool*, made from *Dhuur* branches, run perpendicular to the *Dhigo*, to create a reinforced and smooth surface for the envelope. The envelope is not a singular layer, but multiple *Harar* placed on top of each other before a *Saan*, a pelt made from cattle hide, is finally added as a waterproof layer.³⁴

Native Somali Tree Species



Sogsog
Acacia etbaica



Galool
Acacia bussei



Maraag
Acacia nilotica



Gob
Ziziphus mauritiana

Figure 4 ~ Plant species native to the Somali region all used in the building and maintenance of the Aqal³⁵ produced by Author.

³³ Axmed Cartan Xaange, *Dalkii Udgoonaa* (Mogadishu: Jamhuuriyadda Dimoqraadiga Soomaaliya, Akadeemiyada Cilmiga iyo Fanka , 1984), 55–61, <https://arcadia.sba.uniroma3.it/bitstream/2307/2917/1/Dalkii%20Udgoonaa.pdf>.

³⁴ Cali, interview, March 2, 2025

³⁵ Desmond Mahony, *Trees of Somalia: A Field Guide for Development Workers*, Openrepository.com (Oxfam GB, 1994), 3–4, <https://doi.org/978-0-85598-109-9>.

There is a distinction between the Godimada and the Heeryo; the skeleton structure represents constancy in a continually changing context and the Heeryo symbolise dedication and a dignity for the living. Nineteenth century architectural theoretician Eugène Viollet-le-Duc wrote about this relationship between structure and style, ‘every part of an edifice or construction should have its *raison d’être*’, meaning that the architect must ultimately take into account the elements that will affect the work; science and technology are inseparable from art.³⁶ This brings about a spirituality to the practice of the Heeryo, it is an opportunity for expression and creativity and as the essence of nomadic architecture lies in the creation and not the end product, this provides us with an opportunity to unfurl the creation of the outer visible layer of the Aqal.

As Labelle Prussin explains in her pivotal book, ‘African Nomadic Architecture: Space, Place, and Gender’, Viollet-le-Duc lays down a primary rule regarding the application of materiality – that they should be employed in a manner appropriate to its distinctive physical property.³⁷ The Harar emblemise this notion specifically, as each layer of the Harar is made from a specific sub-species of native wild grass. The *Alool*, which is the innermost Harar visible to the dwellers, is made from *Dareemo*, a softer type of grass found along riverbeds, and the *Kebed*, a heavier panel used as a door to cover the entry way is woven from Gar-goor, a thicker more abrasive grass type.³⁸

Viollet-le-Duc was writing from a time when ornamentation was prioritised over functionality and thus façade materiality was often one-dimensional.³⁹ The Aqal is in opposition to this, the extent of ornamentation featured in the design of the Aqal is found in the Alool and Kebed, both featuring geometric patterns in an assortment of colours as per Figure 5. However, there is even a distinction in the method of colouring, the Alool, utilises strips of old clothing, woven between the fibres. This introduction of non-natural fibres into the building methodology is intentional, the fabric strengthens the weaker Dareemo blades and for the Kebed’s tougher Gar-goor fibres natural black and red dyes produced from the Galool tree are used.⁴⁰ This innovation brings humans

³⁶ Eugene-Emmanuel Viollet-Le-Duc, *The Architectural Theory of Viollet-Le-Duc : Readings and Commentary*, ed. M. F. Hearn (Cambridge, Ma: Mit Press, 1990), 199.

³⁷ Labelle Prussin and Amina Adan, *African Nomadic Architecture : Space, Place, and Gender* (Washington: Smithsonian Institution Press, 1995), 44–46.

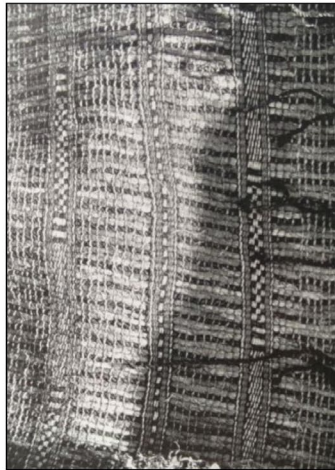
³⁸ Cali, interview, March 2, 2025.

³⁹ Catherine Karusseit, “Victorian Domestic Interiors as Subliminal Space | South African Journal of Art History,” *South African Journal of Art History* 22, no. 3 (January 2007), <https://doi.org/10.10520/EJC93975>.

⁴⁰ Cali, interview, March 2, 2025.

into the cyclical relationship of nomadism and nature, it shows a recognition of the waste as a byproduct of life.

Three Typical Harar Types



Labale



Sadexle



Iskuchoog

Figure 5 ~ The three typical patterns that are expressed on the Alood and Kebed.^{41 42}

The silhouette of the Aqal shows its symbiosis with the terrain's climatology. The Somali peninsula is usually dry, precipitation typically falling in the form of showers or localised torrential rain.⁴³ The rain runs off the domed shape, which is achieved by the manipulation of the wet form of the Dhigo as shown in Figure 6. The intricacy of the Aqal comes from the fact that each component, from the rope to the dye, has its own method of fabrication all made by the craftswomen,⁴⁴ with the knowledge passed down through generations. The Aqal is not just something physically carried on the backs of camels but also in the minds of the Somali women and its maintenance is an activity that marks everyday.

⁴¹ Dirie, "Nomadic Passage: Water Conservation and Land Preservation," 90

⁴² There are three distinct patterns of the Harar: Labale, where the coloured Geedi (horizontal lines of the mat) is two xusul thick; Sadexle, the pattern is three xusul thick, and Iskuchoog, the first 70cm or 2 xusul is vibrantly coloured.
Cali, interview, March 2, 2025.

⁴³ World Bank Group, "World Bank Climate Change Knowledge Portal," [climateknowledgeportal.worldbank.org](https://climateknowledgeportal.worldbank.org/country/somalia/climate-data-historical), 2021, <https://climateknowledgeportal.worldbank.org/country/somalia/climate-data-historical>.

⁴⁴ The Dhigo's arches are formed by wetting and letting the manipulated form dry creating a strengthened form, the secondary Xakab are instead fashioned out of long malleable tree roots and then reinforced by Dhuur and then wrapped in Chil (thinner rope made from animal skin).
Cali, interview, March 2, 2025.



Figure 6 ~ Accacia roots tied around its trunk to create the dome shape for the Dhigo⁴⁵



Figure 7 ~ The silhouette of the completed Aqal, with the Kebed and Harar placed on top.⁴⁶

2.2 The Aqal and Its Living Culture

Conversations with my mother always naturally return to the topic of her childhood, she was born in Cusbaalay, a village approximately 20km from Hargeisa and lived semi-nomadically, moving between her father's farmland in Dhaboolaq and the Ban, towards the South. They owned plenty of cows, sheep, and a few camels, and as a young child it was her responsibility to shepherd sheep and goats. She would leave at dawn with a

⁴⁵ Prussin and Adan, *African Nomadic Architecture*, 35

⁴⁶ Dhugasho. *GURGURKA AQAL-SOOMAALIGA*. March 16, 2020. *Dhugasho.com*. <https://dhugasho.com/2020/03/16/gurgurka-aqal-soomaaliga/>.

cup of fresh hot milk and return in the evening when the cattle had had their fill. Growing up, the drastic difference in our childhood experiences was fascinating, although Hooyo's childhood was shaped by immense responsibility for her family's livelihood, through conducting these interviews I found that we shared the same childish joys. Playing with makeshift dolls and stealing away moments to spend with friends. Hooyo made a point to note during our interviews when we were discussing the significance of the seasons to the nomads movement, that her favourite time of the year was in the Jilaal, when the harvest meant that farms were no longer off limits for grazing and herds mixed together, allowing her to chat endlessly with her friends.⁴⁷

The Somaliland war of Independence (1988 to 1991) marked the end of her nomadic lifestyle, and when the fighting reached Hargeisa on the 31st of May, Hooyo's family fled to Harta Sheekh refugee camp in Ethiopia,⁴⁸ which was at that point known as 'the world's largest refugee camp', hosting over 250,000 Somali Refugees from the Northwestern region.⁴⁹ When she returned to her Aqal and Rabaalin⁵⁰ burned to the ground, her family decided to settle in Cusbaalay. The war marred Hooyo's memory of Cusbaalay, entire families either being killed by government forces or driven to live elsewhere. The dwindling of her family's flock and the landmines that now littered every inch of the landscape, meant that the movement that was definitive of their way of life was void. Interestingly this did not change the materiality of their home.⁵¹ Whereas before the 'permanence' of the Aqal was fixed in the minds and behaviour of those who built it, through the repetitive reassemblage and reconstruction of the architectural elements,⁵² this drastic change in lifestyle gave the quality of permanence directly to the Aqal. Challenging the previously explored notion of 'form follows function', disconnecting the two concepts from one another. This cements the material culture of the Aqal as a cornerstone of cultural heritage rather than a form solely born out of necessity and convenience. It is an acknowledgement and expansion of the term 'nomad,' now families did not move together in their entirety but collaborated with other communities. Men were hired to take the camels to greener pastures during the Gu and

⁴⁷ The dry season stretching from December to March
Canab Cali, 4) Daily Routine of the Guuri, interview by Nasra Aden, March 17, 2025.

⁴⁸ The Africa Watch Committee. "Somalia: A Government at War with Its Own People." United States of America: The Africa Watch Committee, January 1990.
https://www.hrw.org/sites/default/files/reports/somalia_1990.pdf.

⁴⁹ Fernando Protti Alvarado, Mahary Maasho, and John Kilowoko, "'World's Largest Refugee Camp' Closes in Ethiopia | UNHCR," UNHCR, July 1, 2004, <https://www.unhcr.org/news/worlds-largest-refugee-camp-closes-ethiopia>.

⁵⁰ Dismantled Aqal components wrapped up and left on standby for later nomadic travels.

⁵¹ Cali, interview, March 17, 2025.

⁵² Prussin and Adan, *African Nomadic Architecture*, 42

instead of transporting the Aqal with them they stayed with others as guests. The Aqal started to function as an outpost and a home base.



Figure 8 ~ A woman demonstrates the weaving of the Kebed, with its geometric pattern woven line by line.⁵³

2.3 Architecture as a Verb Rather Than a Noun

Guuri /gu:.ri/ *noun*

Etymology: From Somali root *guur* (“to move”).

1. Home; a dwelling or place of residence.
2. Among nomadic communities, refers to a mobile and adaptable concept of home shaped by migration and movement.

The living culture of the Aqal is intertwined with its material culture. The form and functionality of the Aqal seems like it is the complete opposite of a typical European home where all activities take place within the confines of solid walls. The Map depicted in Figure 10, shows Hooyo’s childhood *Guuri* from memory, it introduces the notion that the Aqal is as much its exterior as its interior, it never stands alone. Its spatiality is supplemented by a smaller Aqal known as *Buul Yare*, where the cooking takes place, and *Xeero*, stables for cattle made out of the bramble thorns of the Sogsog tree.⁵⁴ The secondary spaces found in a typical home like, corridors and living rooms are

⁵³ Xaange, *Dalkii Udgoonaa*, 73

⁵⁴ Cali, interview, March 9, 2025.

instead taking place outside, forming the Guuri, whose perimeters are defined by Ood, which is the practice of using Sogsog branches to fence spaces in. This immediately translates the temporality and fluctuating nature of this living space. It reflects the element of uncertainty that persists in nomad's mind, the articulation of boundaries is a process involving a set of transformations in time rather than a simple calculation with a definitive result. No two Oods create the same footprint, this is representative of the logic that set's the Aqal's building process apart: whereas typical western building methods would alter the methodology to ensure the same consistent result, in the nomadic culture the process is constant but produces different spaces with each iteration. There are different markers of success: harmony with the fluctuating context is prioritised over identical spaces.

All the physical components not only need maintenance but also replacement when the branches deteriorate from human and animal use. Thus, the architecture practiced by Craftswomen is never-ending, it's a verb rather than a noun. Sennett exalts the importance of static repair in the methodology of the Craftswoman, writing that 'the simplest way to make a repair is to take something apart, find what's wrong and fix it, then restore the object to its former state'⁵⁵. For nomadic Somalis this is a communal act and families with no daughters received help from neighbours. Hooyo remembers clearly sitting among friends and chewing the fibres of the Galool tree to create the Maydhax (twine) needed to make the joints. In fact, the material culture is so entwined with the living culture that it is a huge portion of the daily life of the mother. When we were outlining the daily schedule of all members of the household, we discussed how weaving the Harar is an activity that is done first at daytime then once again by moonlight.⁵⁶



Figure 9 ~ Two Somali women weaving a Kebed on a makeshift loom all whilst singing work songs.⁵⁷

⁵⁵ Sennett, *The Craftsman*, 200.

⁵⁶ Canab Cali, 4) Daily Routine of the Guuri, interview by Nasra Aden, March 17, 2025.

⁵⁷ Somaliland National Television, *Somali Women Weaving Kebed*, Online Video, *Waaberi iPhone*, accessed April 22, 2025.

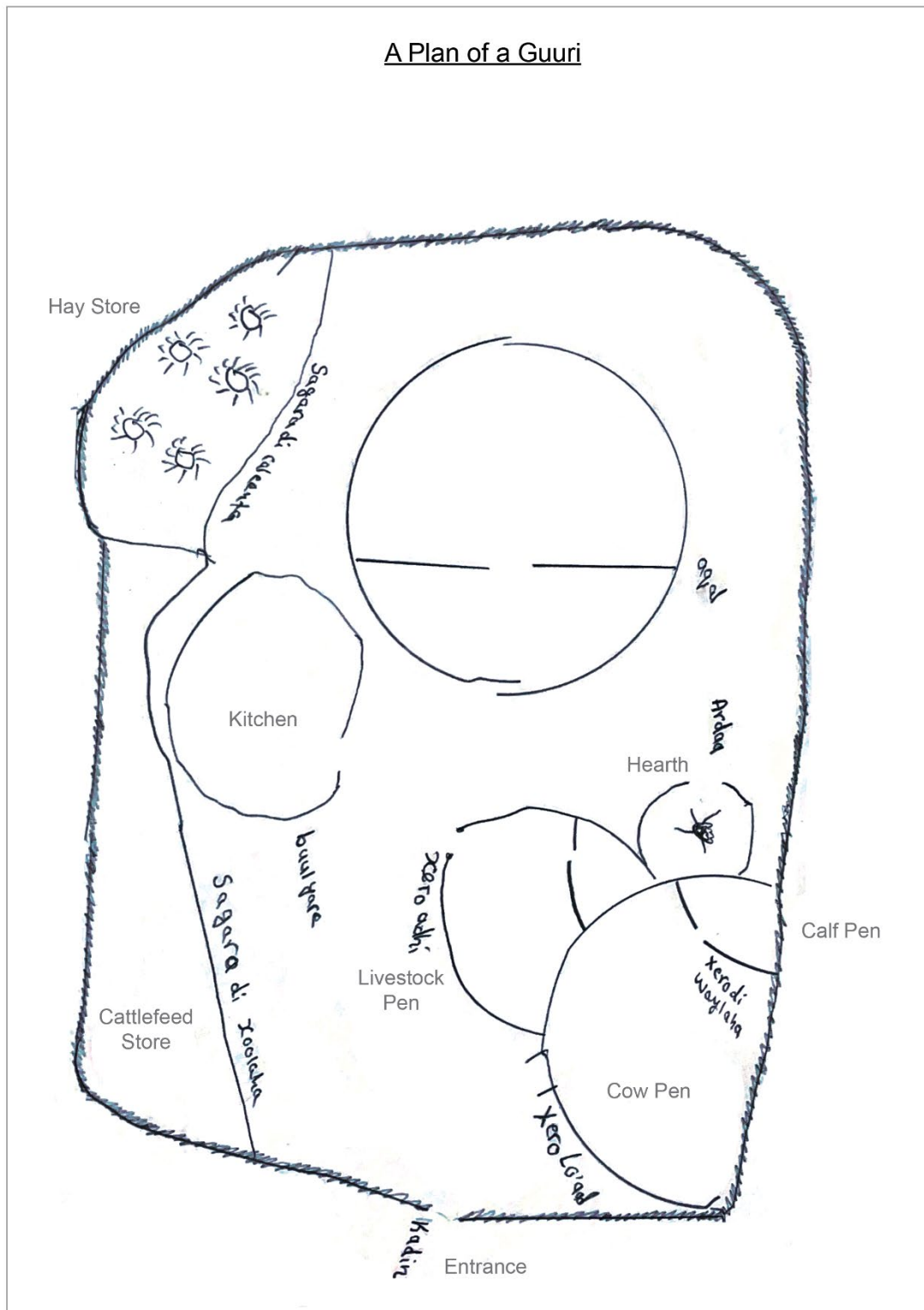


Figure 10 ~ A plan of Hooyo's childhood Guuri.⁵⁸

⁵⁸ Cali, interview, March 9, 2025.

With the Ood creating the most important boundary, the inside outside nature of the Aqal is noteworthy. It is inline with Sennett's opinion that cities should be designed based of people's spatial and sensorial experiences. The Aqal is an example of an 'open form' as it is 'synchronous, punctuated, porous, incomplete and multiple.'⁵⁹ Synchronicity being a key feature of an open form, as it should be able to hold many different activities at the same time. But this provokes the question: how many different activities can be mixed in a synchronous space? The diagram below is an explanation of the synchronicity of the Aqal, deducing that its possibility is due to the designation of roles according to gender and age. Allowing for a more sophisticated division of tasks, for example shepherding the livestock is not a singular task, instead its divided according to ability: the children take the smaller animals and the men take the camels or the men milk the cows in the morning before the children take them out to graze.⁶⁰

2.4 Gendered Landscape and Craft

Hooyo /ho:.jo/ *noun*

Etymology: From Somali root *hooy* ("to return home").

1. Mother; a female parent.
2. Figuratively, a symbol of home, safety, and origin in Somali culture.

The gender dynamics that come into play are unavoidable to notice. The earlier distinction of the 'craftswoman' represents that the design and inception of this built form is seen as 'woman's work'. Not in the patronising manner prevalent in Western discourse, relegating 'women's crafts' like weaving and embroidery as lesser than the 'masculine' artforms of sculpting and painting, but in a manner that identifies and exalts the woman as the creator of the built form that encompasses all social interactions.⁶¹ The dominance of the colour red in figure 12 reflects how women occupy every single space both within and outside the boundary, whereas in contrast men's tasks exist predominantly on the peripheries of the map. This suggests the continuum of the gender division in space and boundaries, from creativity to use. In 'creation', men collect materials and in 'use', they tend to farmwork or shepherding unruly camels – not being involved in the maintenance of the Aqal.

⁵⁹ Richard Sennett, *Building and Dwelling : Ethics for the City* (London Penguin Books, 2019).

⁶⁰ Cali, interview, March 17, 2025.

⁶¹ Maria Teresa Natale, "Women and Crafts," Europeana.eu, June 15, 2023, <https://www.europeana.eu/en/stories/women-and-crafts>.

The routine of the Aqal's maintenance is an affirmation of an underestimated knowledge system, it champions cooperation and a tactile relationship with the material. The arduous task of chewing the plant fibres to create the twine that holds the entire structure together emblemises how the continuity of space extends from the woman's hand to the house, which gets its dimensions from bodily movements, to the wider community, which determines social interaction, to the natural landscape beyond.⁶² Amal Dirie in her dissertation titled, 'Nomadic Passage: water Conservation and Land Preservation', created the below section and plan representing the gendered landscape of the Miyyi and the extent to which the Ood symbolises women's space

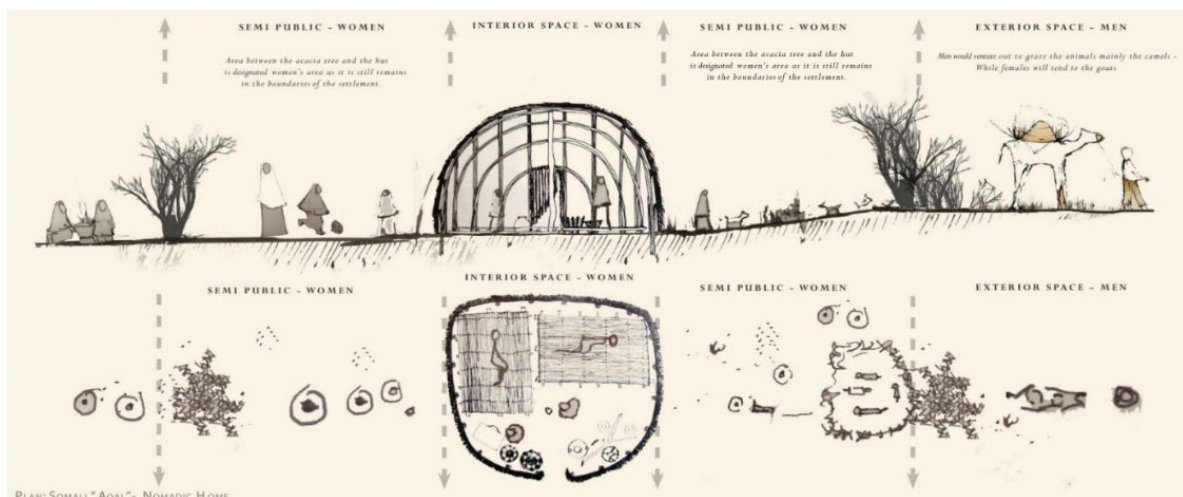


Figure 11 ~ The gendered landscape that contextualises the Aqal, depicted in both plan and section.¹

This contradicts western definitions of 'women's space'. In popular societal discourse the 'place for the woman' was a contentious idea, Victorian gender ideology relegated women to the kitchen and thus architecturally represented this dynamic by designing the kitchen in a narrow gallery at the back of the house.⁶³ In the Aqal we can infer that the physically 'porous' nature of the Ood juxtaposes the important distinction it serves in gender roles within the Guuri. The synchronicity that Sennett refers to is not a quality built into the architecture but a result of societal tradition. In Amina Adan's 1981 paper, 'Women and Words' she uses the medium of prose to explore gender dynamics in Somali prose, she proposes that the intricate relationship the woman has with the building process represents women's standing in Somali nomadic culture i.e. a source of value and means to gain wealth.⁶⁴ As discussed extensively in this paper, the motivations that shape the Aqal are materiality and mobility, there is no direct

⁶² Prussin and Adan, *African Nomadic Architecture*, 42

⁶³ Barbara Miller Lane, *Housing and Dwelling : Perspectives on Modern Domestic Architecture* (London ; New York: Routledge, Impr, 2007), 32–34.

⁶⁴ In terms of bride-price paid to the bride's family by her suitor, in the form of camels, an expensive asset A. H. Adan, "Women and Words: The Role of Women in Somali Oral Literature," *Comparative Studies of South Asia, Africa and the Middle East* 16, no. 2 (September 1, 1996): 81–92, <https://doi.org/10.1215/1089201x-16-2-81>.

economic motivations in the minds of the craftswomen. However, with the value established in the availability of women in a family, in terms of labour provided and economic prosperity to be achieved, it is undeniable that the gender dynamics of the Aqal intersect with economic motivators.

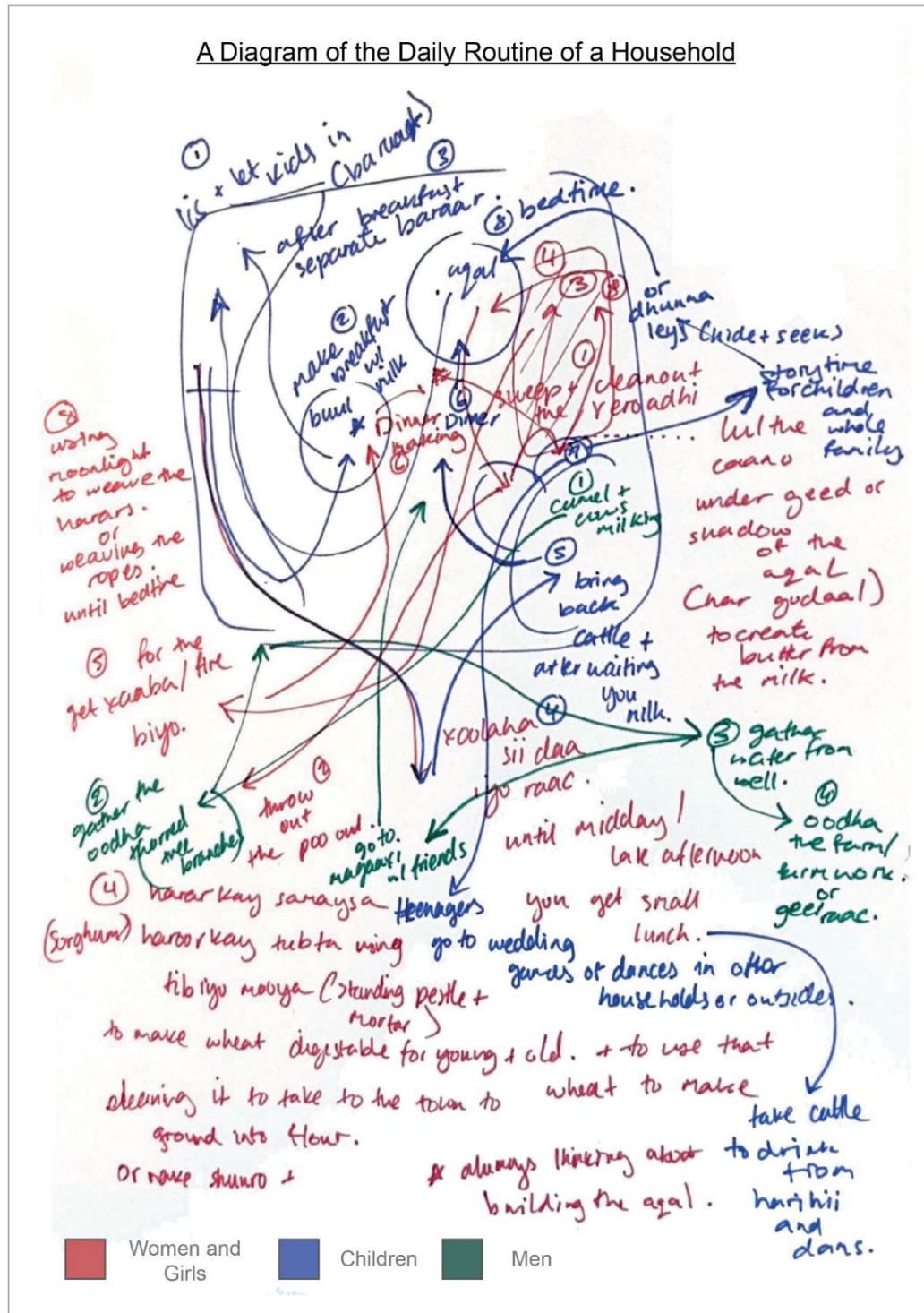


Figure 12 ~ The daily routine of the household mapped over a diagram of the Guuri. Produced by Author.⁶⁵

⁶⁵ Cali, interview, March 17, 2025.

Chapter 3: Temporal Logic of the Aqal

3.1 The landscape

Gobanimo /go.ba.ni.mo/ *noun*

Etymology: From Somali *Gob* (acacia tree native to the Somali peninsula, symbolizing dignity) + *-nimo* (a suffix denoting a state or condition).

1. Independence; the state of being free or autonomous.
2. A broader cultural value in Somali society encompassing honor, self-respect, and social dignity.

Denis Cosgrove explores the map as an interpretation between vision and space, by the end of the Nineteenth Century states produced topographical maps of their territories and colonial possessions, establishing cartography as a significant tool of bureaucracy and social regulation⁶⁶. This immediately draws the connection between mapmaking and landownership, in the Somali nomadic context, specifically for the Reer Guuraa, there is no land ownership. Instead, private property is recognised in livestock.⁶⁷ When one's livelihood is non-static, it means that the boundaries established must reflect this movement, allowing for a broader definition of space which can often not be committed to a medium as permanent as paper. It is understood then that for the nomad, 'home' cannot be understood except in terms of journey 'just as space is defined by movement.'⁶⁸ Therefore, this paper acts as an intervention with interviewing becoming a cartographic act, each conversation tracing not only words but sites, textures, tools, and seasonal rhythms. This is a form of mapmaking.

It might be thought that similar to the transhumance practiced throughout the Horn of Africa, that nation-state borders are not integral to the Somali identity however, that could not be further from the truth as borders and land territory disputes dominate Somali media. The Horn of Africa was not immune to the colonial efforts of European superpowers in the Nineteenth Century, with the land occupied by Somali people being divided up between Great Britain, Italy and France, creating the countries French Somaliland, Italian Somaliland and British Somaliland. After gaining independence on the 26th of June and 1st July respectively, British and Italian Somaliland combined to form the current state of Somalia and French Somaliland subsequently becoming Djibouti. The remaining lands traditionally occupied by Somali peoples were either

⁶⁶ Denis Cosgrove, "Maps, Mapping, Modernity: Art and Cartography in the Twentieth Century," *Imago Mundi* 57, no. 1 (February 2005): 35–54, <https://doi.org/10.1080/0308569042000289824>.

⁶⁷ Adan, "Women and Words," 122

⁶⁸ Prussin and Adan, *African Nomadic Architecture*, 40

given or sold to the neighbouring Ethiopia and Kenya. Borders remain a contentious issue to this day, with Somaliland (formerly British Somaliland) now forming a de facto state, attempting to regain independence from Somalia following a genocide against its native Isaaq clan between 1987 to 1989.⁶⁹ Interestingly, the imposing of borders has not significantly affected the transient nature of nomadic people, in actuality it is factors such as internal conflicts and environmental changes brought on by global warming that have had a greater impact. Hooyo's family is now settled in the Marodijeh province of Somaliland although previously moving throughout the Haud plateau, a region that stretches from the South of Somaliland and modern-day Ethiopia.



Figure 13 ~ Somaliland and Somalia within the context of East Africa⁷⁰

Instead of comparing the bearings on a compass to the scientific markings of a map, nomads gain their sense of direction and spatial knowledge from navigational experience. Figure 15 depicts the 4 typical landscapes that the nomadic family rotates between: the Ban, unowned grasslands; Godaal, pastureland; Guban, sandy savannah towards the East and Ooga, characterised by dense trees. As they have a cyclical relationship with the land, they have a cyclical relationship with the seasons. For Agrarian societies around the world, seasonal changes are marked by rituals or large-scale lifestyle changes. During the Gu, the main spring rainy season, nomads move either move to the Ban or Ooga allowing your cattle to graze from the plentiful grass and vegetation that the rain brings about. The family would remain there for the entirety of the Xagaa, the dry season. After spending half of the year in this landscape, the nomadic family would move once again during the Deyr, second rainy season.⁷¹ This is

⁶⁹ Gérard Prunier, *The Country That Does Not Exist : A History of Somaliland* (London: Hurst & Company, 2020), 113–33.

⁷⁰ Alyson Hurt, *In East Africa, a Bright Spot amid the Anarchy*, October 27, 2010, Online Image, NPR, October 27, 2010, <https://www.npr.org/2010/10/27/130857899/in-east-africa-a-bright-spot-amid-the-anarchy>.

⁷¹ In comparison the 4 seasons of the Northern Hemisphere, Gu – April to June; Xagaa – June to October; Deyr – October to December; Jilaal – December to March.

when the distinction between semi-nomadic and nomadic communities is reflected in their migration patterns as Reer Godaal return to their farms to later harvest them in the Jilaal, the second dry season, and Reer Guuraa move closer to water sources, be those wells or established towns.⁷²

As the non-nomadic traveller would look for fixed landmarks and topological cues for wayfinding, the nomad finds these in the changing of the seasons, again reinstating the aforementioned ‘uncertainty’ that characterised nomadic building methodology as a key driver for movement. Fluctuations in these seasonal periods can have devastating circumstances. When the Jilaal lingers, and the temperature increases with no rain to cool the climate it is known as Kaliil and if the Kaliil extends there is great risk of drought. Droughts are devastating to nomads, whose material wealth is in the form of livestock. Therefore it characterises much of nomadic people’s interaction with faith and astrology, with Galaal noting the common prayer uttered by pastoralists waiting on the first signs of the Deyr’s rain:

‘Toddobaatamaad iyo toobadda Eebbetoona allow ha na seejin’

‘Oh Allah, let us not be without the rains of the seventy days, or your forgiveness.’⁷³

Both Reer Guuraa and Reer Godaal are motivated by ‘biyo iyo baad’, water and fodder. Reer Godaal’s land ownership does not devoid them of this principle, they spend the rainier, cooler portion of the year in the Ooga and Ban to protect their crops and ensure a higher yield in Jilaal.⁷⁴ Baad although meaning cattle fodder can also be taken to mean provisions for the Guuri, introducing material resources as a factor for movement. The abundance of trees in the Ooga means that nomads can travel light, as the Udbo and Dhigo can be replenished and the grasslands of the Ban and Guban providing ample opportunity to collect grass to weave Harar. Cementing the synchronicity of material culture with spatial navigation.

⁷² Canab Cali, 2) Distance and Travel, interview by Nasra Aden, March 4, 2025.

⁷³ Galaal, *STARS, SEASONS and WEATHER*, 72

⁷⁴ Cali, interview, March 4, 2025



1) Ban



2) Godaal



3) Guban



4) Ooga

Figure 14 ~ The landscapes frequented by nomads in the Somali peninsula

3.2 Transportability

The principles underpinning the building methodology and spatial mobility explored in this paper are ones of repeatability and iterative design. Architecture becomes a conversation, wherein the craftswoman uses materials and techniques derived from the same natural world she wishes to communicate with. Thus, the transport system for this transient built form becomes an extension of the architecture. Undoing every knot and unfurling every layer, the nomads tie the collapsed form and its components to saddles on the backs of their camels. Simplifying nomadism to the practice of doing then undoing. The act of repetition is sacred to craftsmanship, 'Skill development depends on how repetition is organised'.⁷⁵ This repeatability as an expression of dedication to a craft presents the Architecture of the Aqal as an expression of balance with nature. The built environment must be in equilibrium with nature, just as the loads placed on the camel must be in equilibrium for it to raise its hindquarters and start the journey. Inferring that just as the self-referential nature of the Aqal utilises human anatomy as its structural system, the transient aspect relies on animal anatomy for its mobility. In a modern era, where environmental consciousness has caused an influx in the popularity of pre-fabricated construction, the glaring issue is the ecological costs of

⁷⁵ Sennett, *The Craftsman*, 38

transporting the components to site, which can offset the methodology's initial environmental benefit.⁷⁶ The transportability of the Aqal shows that the same components of the built environment must be utilised in its transport technology. And it must address the same problems: weather conditions, movement, and limitation of resources.



Figure 15 ~ a. A Somali tent at Kismayo, Somalia 1988 b. The transformation of a tent into its transportable configuration.⁷⁷

⁷⁶ Sara Aghasizadeh et al., "Environmental and Economic Performance of Prefabricated Construction: A Review," *Environmental Impact Assessment Review* 97 (September 1, 2022): 106897–97, <https://doi.org/10.1016/j.eiar.2022.106897>.

⁷⁷ Prussin and Adan, *African Nomadic Architecture*, 46

3.3 Time and distance

Since the ‘home’ of the nomad can only be understood in the terms of journey and fluctuation, the iterative nature of the building practice opens up conversation to continuity of space and how the combination of transport and building technology interferes with this. The simplest way that this can be done via the methodology of mapmaking is by examining footprint. Just as the singular Aqal does not stand alone, the Guuri also exists within its own context. Families live either in two situations: Jabad, living in community, as expressed in figure 18, or Jees, living alone, depicted below in figure 17. Overwhelmingly, both nomadic and semi nomadic people choose Jabad, forming small villages sometimes with shared partition walls, but Reer Guuraa preferred Jees, seeking out the optimal living environment for their cattle.⁷⁸ The most noticeable change from the previous footprint established in this paper, is the absence of the Ood forming the final perimeter of the compound. The boundary between inside and outside has been removed. This characterises the nature of this transient period for the nomad wherein the Ood protects only the most valuable – the livestock. In our conversations of gender dynamics and their relationship with defined space, Hooyo explained that the absence of the Ood did not reflect a change in gender roles, instead it came from an angle of practicality. The absence of the Sagara (Hay/cattle feed store), labelled in figure 10, is a recognition of the temporality of this living arrangement; there was no need to gather hay as the cattle could feed directly from the terrain.⁷⁹ This reaffirms two notions explored in this paper, space and its associated societal traditions achieving permanence in the mind of the user, and the self-sustaining geometry of the individual Aqal. It provides a controllable dimension of space in just its singular form.⁸⁰

⁷⁸ Cali, interview, March 4, 2025.

⁷⁹ Cali, interview, March 17, 2025.

⁸⁰ Prussin and Adan, *African Nomadic Architecture*, 42

A Map of the Guuri After Moving

'When we settled in the Woodland'

Ogada markaanu dagnay

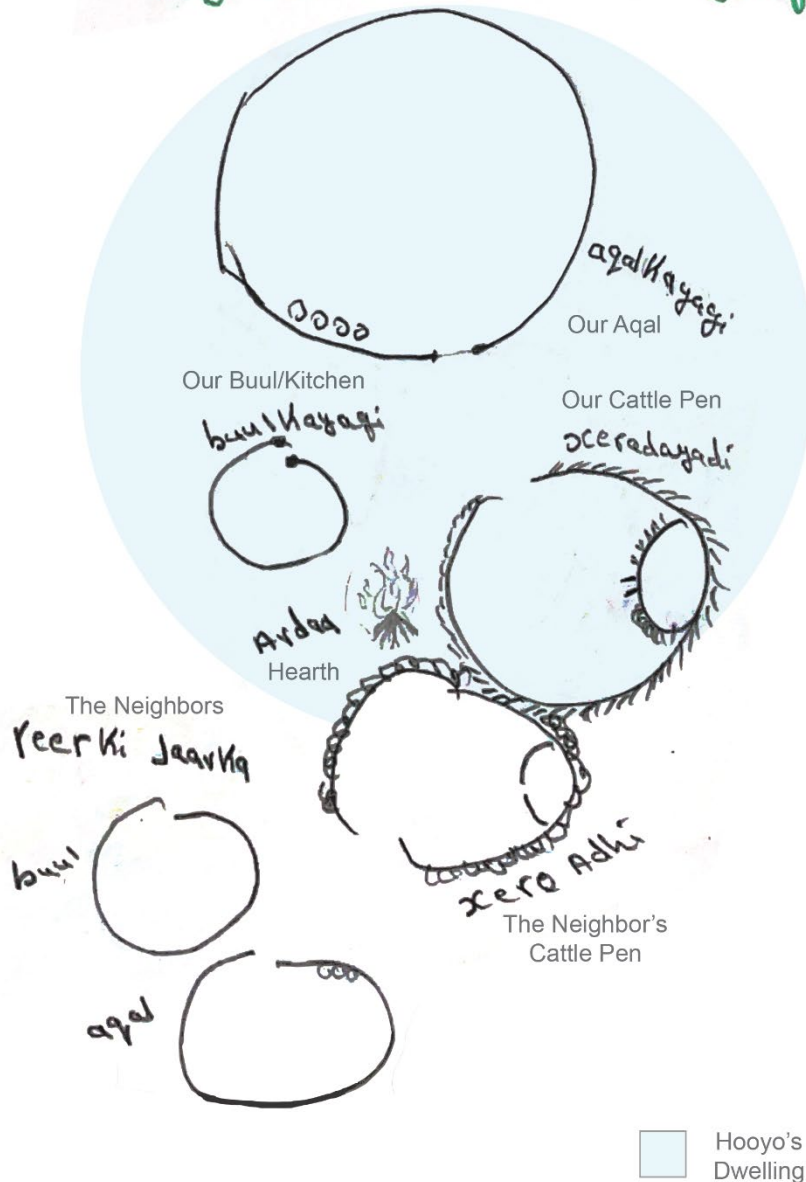


Figure 16 ~ A Map of Hooyo's dwelling after they had moved to the Ban, showing their dwelling situated to their solitary neighbour.⁸¹

Historian Timothy Hyde examines how the architectural significance of the ‘footprint’ transforms in the context of vastness.⁸² The Miyyi is an arid landscape that has an augmented reality of permanence, so ‘footprint’ no longer simply means the dimensions of a dwelling in plan as those can be buried by layers of sand but alternatively means the distance from one dwelling to the other. The footprint is counted in the proximity and the capacity to connect one hub to another. In the Miyyi, time is measured by the sun’s position in the sky and distance is relative to it, making it an unfixed variable. With travel being paramount to nomads, distance is measured in perceived time travelled, the main units being: Barqa, approx. 3 hours of travels or half a morning; Gelin, sunrise to midday (approx. 6 hours); Maalin Socod, a day’s worth (approx. 12 hours); Geedi, sunrise to late afternoon; and Caano Maal, from the first milking of the cattle to the last milking which is after dark.⁸³ These units are entirely self-referential, will a child tasked with taking firewood to her neighbours be walking as fast as a man herding camels to be sold at a market 20km away? This creates a non-linear temporality of space: places hold multiple timelines at once, they are shaped by overlapping pasts, presents, and imagined futures. Space is not neutral but embedded with stories, memories and cultural meanings that do not unfold in a straight line.

This poses the paradox of Architecture: How is something ‘fixed’ when all constant variables are subjective? The Aqal provides an answer in its self-referential building methodology, representing this aspect of Somali nomadic culture directly. Its lack of notation in recording the building process contradicts Goodman’s claim that ‘The meaningfulness of the object is understood to reside in information that has been inscribed through the process of design’.⁸⁴ ‘Inscribing’ does not denote the validity of a form but is a byproduct of oral retelling. The drawing of spatial diagrams in the sand, as practiced by Somali women, is a gesture of authorship often excluded from dominant design discourse, this paper asserts its legitimacy as a method of spatial planning and representation.

3.4 Memory as an archive - nostalgia and architectural revisionism

Hooyo did not grow up in a childhood without technology, her most prominent memories of her late father were him spending his evenings bent over the radio secretly

⁸¹ Cali, interview, March 9, 2025.

⁸² Timothy Hyde, “Architecture Adrift in the Antarctic Desert,” in *Deserts Are Not Empty*, ed. Samia Henni (New York: Columbia University Press, 2025), 341–66, <https://cup.columbia.edu/book/deserts-are-not-empty/9781941332740/>.

⁸³ Cali, interview, March 9, 2025.

⁸⁴ Allen, *Practice : Architecture, Technique + Representation*, 49.

listening to the state-banned broadcast of the Somali National Movement (SNM),⁸⁵ she remembers her older cousins and siblings zealously photographing themselves in their best dress amongst the red, rocky dunes of the Miyi. However, the advent of war meant that these cherished photographs and records were destroyed. Therefore, memory serves as the archive from which she draws the technique and history discussed in the interviews conducted in preparation for this paper. However, as Said's travelling theory explained there is a change that occurs during recollection and remembrance. Svetlana Boym in her book 'The Future of Nostalgia' outlines the 'centrality of space' in the concept of nostalgia, defining it as a 'longing for a home that no longer exists' and that it emerges with 'time-space distancing'.⁸⁶ From this understanding, the concept of nostalgic revisionism emerges, for Boym it is a political tool in constructing a 'Nationalist memory', and for this paper as a way into architectural revisionism. This is a theme explored by the late Somali poet Maxamed Ibraahin 'Hadraawi' Warsame in his 2011 poem 'Kala Guran (Society)'. In this poem, Hadraawi reflects on the utopic nature of his pastoral childhood and how the quality of modern-day nomadic dwellings are subpar and pale in comparison.⁸⁷ Hadraawi was known extensively for his social and political criticism, and was as a result exiled from Somalia by the Siad Barre regime in the 1970s. Therefore, Kala Guran could be seen as a case of nostalgic revisionism as contrary to what the poem might relate, Hadraawi did not grow up as a pastoral nomad. As Abdulkadir Osman Farhis writes in the anthology 'Theorising Somali Society', Hadraawi grew up in a colonial Aden and fled to Somalia following civil war in 1960s Yemen. Kala Guran represents a moment where his political vision is clouded, he remembers not the droughts that marred nomadic life in the early 20th Century but instead a Golden Age, to which modern life does not compare. Farhis theorises that this shift in perspective is seen in many revolutionaries, who experience trauma and 'extreme forms of injustice, violence and cruelty' at an early age and turn to matters of 'peace-building' in their later years.⁸⁸

Hooyo's recollection of Cusbaalay reflects this theory, the map she produced is situated alongside an aerial photo of the village in its current state. Although Hooyo did

⁸⁵ A political organisation from northern Somalia established in 1981 to overthrow Siad Barre's regime, it later changed its goals to being secession and the right to self-determination for northern Somalia. The SNM is accredited with the establishment of Somaliland.

Fatuma Ahmed Ali, "The Somali National Movement," in *Routledge Handbook of the Horn of Africa*, ed. Jean-Nicolas Bach (London: Routledge, 2022), 89–97, <https://doi.org/10.4324/9780429426957-10>.

⁸⁶ Stephen Legg, review of *Memory and nostalgia*, by Svetlana Boym, *Cultural Geographies* (SAGE Publications, January 2004), <https://doi.org/10.1191/1474474004eu296ed>.

⁸⁷ Warsame, *Kala Guran*

⁸⁸ Abdulkadir Osman Farah, "Preventing Socio-Political Public Earthquake 'Dhulgariir,'" in *THEORISING SOMALI SOCIETY Hope, Transformation and Development*, ed. Abdulkadir Osman Farah and Mohamed A. Eno (New Delhi: Authorspress, 2022), 25–26.

briefly return to the village after the war in 1991 she made a point to note that the population never recovered. She approximates that of the 19 original families only 6 remain. Retroactive mapmaking is employed not as illustration but as spatial restitution, reframing memory as an architectural drawing practice; the historical and societal context provided makes each element of this drawing representative of an aspect of analysis.

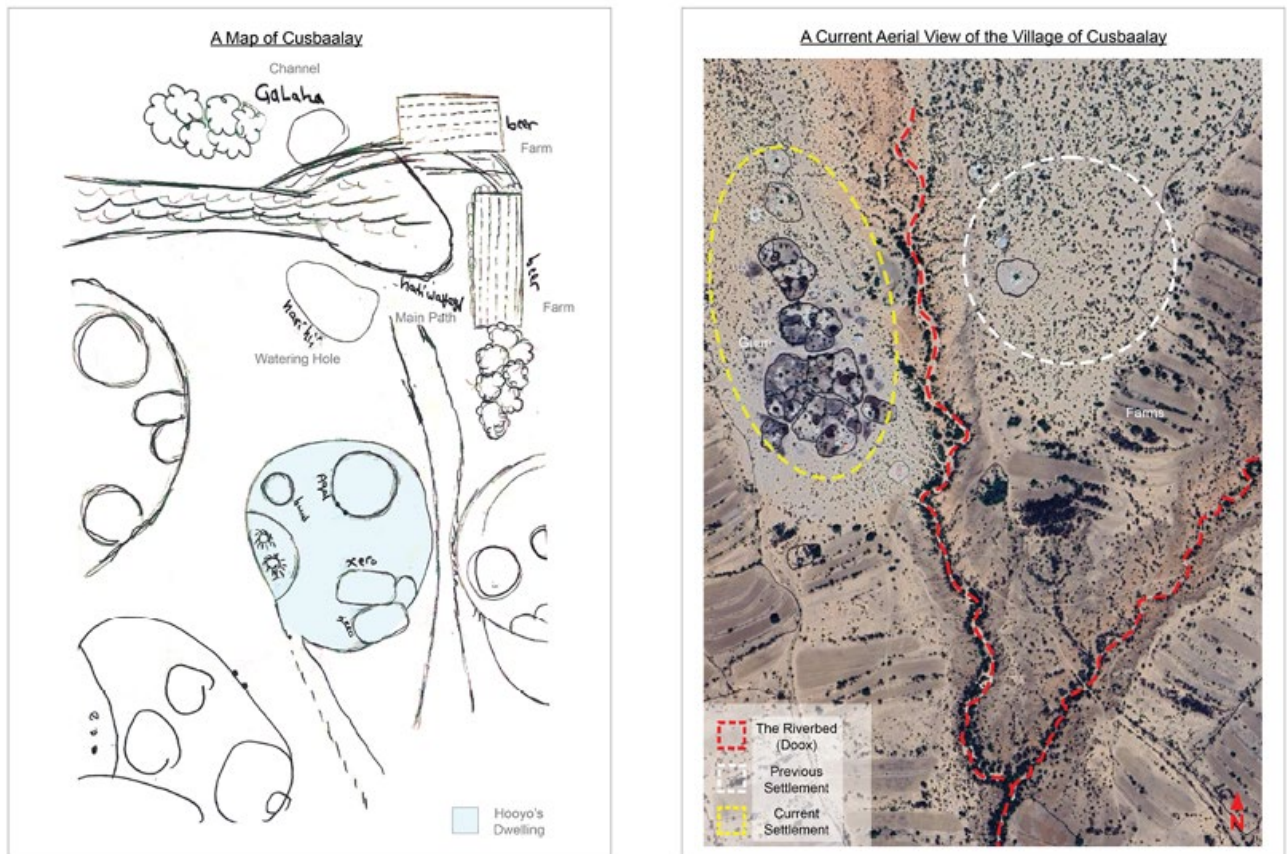


Figure 17 ~ Cusbaalay shown through the medium of retroactive mapmaking and a diagram produced by the author based on aerial photography⁸⁹⁹⁰

It is interesting to note that she chose to depict Cusbaalay in its prime, when it was inhabited by up to 19 families. A study conducted on 'the power of negative and positive episodic memories', explored the power of positive emotional memories in neuroscience and cognitive psychology. It explained that emotional memories are more long-lasting and more accessible than neutral or negative memories as it can be the

⁸⁹ Cali, interview, March 9, 2025.

⁹⁰ Google Maps, Cusbaalay, Online Map, Google Maps, accessed April 22, 2025, https://www.google.com/maps/place/9%C2%B033'29.9%22N+43%C2%B050'48.9%22E/@9.5583213,43.8443431,1213m/data=!3m2!1e3!4b1!4m4!3m3!8m2!3d9.558316!4d43.846918?entry=tту&_ep=EgoyMDI1MDQxNi4xIKXMDSoASAFQAw%3D%3D.

brain's mechanism to soothe bad moods and influence future behaviour.⁹¹ The only prompt given for mapmaking was to depict how Cusbaalay looked in her mind's eye, there was no specification for the desired time or location, however, given the context of our conversations of transhumance, Hooyo situated herself in childhood. Not only does the level of occupation situate the map in time, but so does the Doox. Doox, is a valley that turns into a river with rainfall, in Hooyo's recollections of Cusbaalay it is a dominating character - as translated by its size in the map. Hooyo explained how she drew the Doox as she last remembers it, but that it has since cut through the village rendering her father's farm unworkable. The erosion of land into the riverbank goes hand in hand with Hooyo's lamentation of abandonment, with fewer people to till the land, indigenous practices to curb erosion by digging troughs in farms to redirect water for irrigation are unable to be implemented, causing rainwater to gather and gain momentum.⁹² The aerial image of present day Cusbaalay supports Hooyo's observation, the Doox, which starts in journey in the mountains to the north of Hargeisa, has now cut through and surrounded the village. This lack of continuity in the fabric of the landscape became unbearable for the pastoral community, their cattle not being able to effectively cross the 2-metre drop of the Doox.

By juxtaposing satellite imagery with hand-drawn maps, this thesis highlights the tension between digital mapping and lived cartography; where proximity is emotional, not measured, and territory is understood through footsteps, grazing cycles, and social connection. The map features a clear exaggeration in the positioning of recognisable nodes. A journey of several hours is condensed down to a few moments, the watering hole seems within eyesight of the house and the farm appears only a few more steps away. This is a retrospective perception of time and distance, miniaturising the scene and expanding the boundary to encompass a larger locus.⁹³ Again this calls to emotional attachment to space and the nostalgic revisionism that occurs to memory with every recollection. Although this could cause doubt into the source methodology of this paper, it instead strengthens key tenants being examined. As previously mentioned, the written aspect of this exploration into the ephemerality of Somali nomadic building practices is an opportunity to apply textual meaning to constantly 'travelling theory' but the act of mapmaking explores how theory is changed when solely represented by its spatial qualities via notation. It welcomes memory as a spatial author, tracing not only where space was, but how it was felt, repeated, and

⁹¹ Samantha E Williams, Jaclyn H Ford, and Elizabeth A Kensinger, "The Power of Negative and Positive Episodic Memories," *Cognitive Affective & Behavioral Neuroscience* 22, no. 5 (June 14, 2022): 869–903, <https://doi.org/10.3758/s13415-022-01013-z>.

⁹² Cali, interview, March 9, 2025.

⁹³ Alon Hafri, Shreya Wadhwa, and Michael F. Bonner, "Perceived Distance Alters Memory for Scene Boundaries," *Psychological Science* 33, no. 12 (October 7, 2022): 2040–58, <https://doi.org/10.1177/09567976221093575>.

transformed over time. This proposes an answer to the question of designing for and mapping the intangible qualities of space. By inviting memory and human error as a participant rather than a hindrance, the personal poets of architecture can be utilized to enrich the built form. The maps were produced in an environment of curiosity where ‘mistakes’ or discrepancies were accepted as indicative of underlying truths. Architecture is not an expression of the binary: truth or false; static or transient; permanent or temporary; inside or outside; autographic or allographic. The Aqal shows that it is an interpretation of the in between and an exploration of the actors that drive its continual becoming.

Conclusion: Memory as Resilience

*‘Baranbarshaalley, buul shaeeray
Ma Maataan ba kuu helay,*

*Geedba, Geedka u dheer laga garaacyeey,
Galool mudhay mullaax looga diiryeey*

*Naagaan daahaaga ridan docodalooleey,
Wan loo dilay dugaag gurayeey,*

*Aqalaan jirin jiiddooy,
Jabtooy jawdo waarooob,*

You with your delighted designs, enhance my house as a cover,
Today I have my sisters to aid me,

From the tallest tree your fibre comes
You are the fibre of the highest Galool

The woman without you in her house
Her slaughtered animals will be eaten by the beasts,

She tries to pull a non-existent curtain,
Hark, Certainly the thunder is the sound of rain.’⁹⁴

⁹⁴ Arlene Fullerton and Amina Adan, “Handicrafts of the Nomadic Women of Somalia,” 1986, 10–12, <https://arcadia.sba.uniroma3.it/bitstream/2307/1353/1/Handicrafts%20of%20the%20nomadic%20women%20of%20Somalia.pdf>.

Sung by women while weaving the Kebed, it speaks to the symbiosis that the craftswoman has with her craft, the song praises the Kebed directly, personifying it as the women's great protector from wild animals and harsh weather. If anything, this work song captures the nuances of this thesis: when compiling the memoir of her mother Hawa Jibril, the famous Somali female poet, Fadumo Ahmed Alim made a point to note the restorative qualities 'the sharing of poems' had on exiled Somali women in Canada.'⁹⁵ In Somali culture poetry is not an endeavour of the individual, it is spoken allowed and calls for a response from the listener, and so the restitution of memory becomes a community enterprise. This frames memory and emotion as a valid framework to examine architecture, it allows building practice not just to survive but to exist in motion, each recollection mimicking the iterative design undertaken by the craftswomen.

This paper is just one step in a wider journey of understanding, as it's findings have provoked further queries. Particularly in the effect of tilt shift, the reduction of perceived distance whilst preserving other scene properties, demonstrated in Hooyo's retroactive mapmaking. What spatial properties cause boundary transformation in recollection? In an increasingly climate conscious world it also provides answers in how to adapt architectural practice: through recognising indigenous pedagogies and alternative methods of authorship. By acknowledging the still gendered landscape of Western architecture and craftsmanship, designers can look to communities where those dynamics are subverted and understand how that enriches design.

Oral storytelling in Somali culture functions not only as communication but as a form of spatial continuity, transferring knowledge across generations through rhythm, repetition, and shared memory. It bridges the archival gap identified in the availability of Somali educational and cultural material in digital and physical databases. Rather than rely on formal archives, this project constructs its own methodology through memory, spatial practice, and oral narrative, deducing a traditional archive. In doing so, it challenges dominant architectural historiography and calls for new methods of restitution. Since this paper was an exploration of linguistics as well as spatiality, the bibliography is an output of the research undertaken in this process just as the maps are. It is representative of the effort required to uncover marginalised voices and work against the grain of the colonial frameworks that are still applied to explorations of building methodologies and environments. Therefore this paper is a contribution to the growing collective of works by Somali authors. The Kebed work song also symbolises my personal experience in implementing this methodology, just as the verses are sung as a call and response between the women, this paper became an opportunity for connection between the native mother and her diasporic child. It became a community

⁹⁵ Faduma Ahmed Alim, *Saa Waxay Tiri Maansadii Iyo Qaayihii Xaawa Jibriil | and the She Said the Poetry and Times of Hawa Jibril*, First Edition (Toronto: Coach House Printing, 2008), 113.

effort, with discussions of childhood, culture and technique reaching family and friends around the world.

Glossary of Somali Terms

Aqal – Traditional Somali nomadic dwelling, typically oval-shaped and portable.

Alool – The innermost decorative mat layer of the Harar inside the Aqal, woven from Dareemo grass and often decorated with strips of fabric for strength and color.

Baad – Cattle fodder or provisions; also signifies material supplies necessary for nomadic life.

Ban – Unowned grasslands frequented by nomadic families during rainy seasons for grazing livestock.

Barqa – A unit of time equivalent to approximately three hours or half a morning.

Buul Yare – A smaller structure adjacent to the main Aqal, typically used as a cooking area.

Caano Maal – A time unit meaning 'from first milking to last milking of the day'.

Deyr – One of the two rainy seasons in the Somali calendar, typically following the dry season. It marks a period of increased mobility as vegetation returns, supporting nomadic grazing cycles.

Dhig – Long, flexible tree root used to form the curved ribs of the Aqal's skeleton; plural: Dhigo.

Doox – A seasonal riverbed or valley that fills with water during rains..

Dhuur – Bamboo-like branch used to reinforce the Aqal's structure, especially the roof ribs.

Galool – A native acacia tree, known for its symbolic and practical value; its bark and fibres are used in construction and dye-making.

Gelin – A half-day unit of time, roughly from sunrise to noon; used in measuring distances through time-based perception.

Gob – An acacia tree; also used metaphorically to denote dignity, honor, and strength — root of Gobanimo.

Gobanimo – From Gob (acacia) + -nimo (state/condition). Independence or freedom, with broader connotations of dignity, self-worth, and social autonomy.

Godimada – The structural skeleton of the Aqal, comprising Udub, Dhigo, and Dhuur components.

Gu – The main rainy season, initiating nomadic movement toward grazing-rich regions like the Ban or Ooga.

Guuri – Home; derived from the verb guur ('to move'). In the nomadic context, it refers to a mobile, adaptable concept of dwelling shaped by movement and transience.

Guban – Eastern region of sandy savannahs, one of four primary ecological zones frequented by Somali nomads.

Harar – Woven mats forming the outer and inner coverings of the Aqal, layered for insulation and decoration.

Heeryo – The envelope or outer layer of the Aqal, made of layered Harar and covered with Saan for waterproofing.

Hooyo – Mother; derived from the root hooy ('to return home').

Jilaal – One of the Somali dry seasons, typically marking the time after harvest when farms become accessible for grazing.

Jees – A solitary dwelling or homestead, as opposed to Jabad; preferred by more mobile nomads seeking better grazing lands.

Jabad – A clustered nomadic settlement or village; characterized by shared walls and proximity among multiple Guuri.

Kaliil – A period of excessive heat during dry seasons, indicating delayed rainfall and often associated with drought risk.

Kebed – A thick mat or panel used as a door or entry covering on the Aqal, often woven with Gar-goor grass and dyed with natural pigments.

Lool/Xakab – Thin reinforcing rods placed perpendicular to Dhigo ribs, helping to hold the form of the Aqal.

Maalin Socod – A unit of time equal to one full day of walking.

Maydhax – Twine made from chewed plant fibres, typically Galool, used to tie structural joints in the Aqal.

Miyyi/Baadiyo – Terms used interchangeably to describe the rural, arid, and pastoral landscapes of the Somali region.

Ood – A boundary fence made from Sogsog branches, enclosing the perimeter of a Guuri.

Ooga – Densely wooded region, one of four seasonal landscapes used in nomadic cycles, providing material for rebuilding.

Reer Guuraa – Fully nomadic Somali families who move cyclically through unowned land, guided by water and pasture availability.

Reer Godaal – Semi-nomadic Somali families who move seasonally between their own farmland and surrounding areas.

Saan – Cattle hide pelt used as the final, waterproof layer on the Aqal.

Sogsog – A thorny, flexible native tree; its branches are used for building fences (Ood) and animal pens (Xeero).

Taako – A unit of body-based measurement, equivalent to a handspan.

Udub – Y-shaped structural branches forming the perimeter columns of the Aqal; plural: Udbo.

Xeero – Animal pen, typically for cattle or goats, constructed using thorny branches of Sogsog.

Xubin – Phalanges or finger joints; used metaphorically in construction to refer to units of body-based measurement.

Xusul – Forearm measurement, from the middle finger to the elbow; used in building processes for scaling components.

Bibliography

- Abaza, Mona. "Academic Tourists Sight-Seeing the Arab Spring." *Jadaliyya* - 2017, جدلية. <https://www.jadaliyya.com/Details/24454>.
- Adan, A. H. "Women and Words: The Role of Women in Somali Oral Literature." *Comparative Studies of South Asia, Africa and the Middle East* 16, no. 2 (September 1, 1996): 81–92. <https://doi.org/10.1215/1089201x-16-2-81>.
- Agha, Menna. "Emotional Capital and Other Ontologies of the Architect." *Architectural Histories* 8, no. 1 (December 18, 2020): 23. <https://doi.org/10.5334/ah.381>.
- Aghasizadeh, Sara, Amir Tabadkani, Aso Hajirasouli, and Saeed Banihashemi. "Environmental and Economic Performance of Prefabricated Construction: A Review." *Environmental Impact Assessment Review* 97 (September 1, 2022): 106897–97. <https://doi.org/10.1016/j.eiar.2022.106897>.
- Ali, Fatuma Ahmed. "The Somali National Movement." In *Routledge Handbook of the Horn of Africa*, edited by Jean-Nicolas Bach, 89–97. London: Routledge, 2022. <https://doi.org/10.4324/9780429426957-10>.
- Alim, Faduma Ahmed. *Saa Waxay Tiri Maansadii Iyo Qaayihii Xaawa Jibriil | and the She Said the Poetry and Times of Hawa Jibril*. First Edition. Toronto: Coach House Printing, 2008.
- Allen, Stan. *Practice : Architecture, Technique + Representation*. London ; New York: Routledge, 2009.
- Alvarado, Fernando Protti, Mahary Maasho, and John Kilowoko. "'World's Largest Refugee Camp' Closes in Ethiopia | UNHCR." UNHCR, July 1, 2004. <https://www.unhcr.org/news/worlds-largest-refugee-camp-closes-ethiopia>.
- Andrzejewski, B W. "Poetry in Somali Society." *Journal of African Cultural Studies* 23, no. 1 (June 1, 2011): 5–8. <https://doi.org/10.1080/13696815.2011.581451>.
- Andrzejewski, B.W. "The Development of National Orthography in Somalia and the Modernization of the Somali Language." *The Horn of Africa* 1, no. 3 (January 1, 1978): 39–46.

- Barbara Miller Lane. *Housing and Dwelling : Perspectives on Modern Domestic Architecture*. London ; New York: Routledge, Impr, 2007.
- Batisse, Michel. "Interview with Theodore Monod." *The UNESCO Courier* 47, no. 1 (January 1994): 4–9. <https://unesdoc.unesco.org/ark:/48223/pf0000096900>.
- Cali, Canab. 1) Building Methodology and Materials of the Aqal. Interview by Nasra Aden, March 2, 2025.
- . 2) Distance and Travel. Interview by Nasra Aden, March 4, 2025.
- . 3) Mapmaking and Recollection. Interview by Nasra Aden, March 9, 2025.
- . 4) Daily Routine of the Guuri. Interview by Nasra Aden, March 17, 2025.
- Cockell, C.S., T. Bush, C. Bryce, S. Direito, M. Fox-Powell, J.P. Harrison, H. Lammer, et al. "Habitability: A Review." *Astrobiology* 16, no. 1 (January 2016): 89–117. <https://doi.org/10.1089/ast.2015.1295>.
- Cosgrove, Denis. "Maps, Mapping, Modernity: Art and Cartography in the Twentieth Century." *Imago Mundi* 57, no. 1 (February 2005): 35–54. <https://doi.org/10.1080/0308569042000289824>.
- Dhugasho. *GURGURKA AQAL-SOOMAALIGA*. March 16, 2020. *Dhugasho.com*. <https://dhugasho.com/2020/03/16/gurgurka-aqal-soomaaliga/>.
- Dirie, Amal . "Nomadic Passage: Water Conservation and Land Preservation." *Issuu*. Postgraduate Dissertation, 2020. https://issuu.com/amaladirie/docs/dirie__amal.
- El Guabli, Brahim, Jill Jarvis, and Francisco E. Robles. "Desert Futures Collective." In *Deserts Are Not Empty*, edited by Samia Henni, 15–34. New York: Columbia University Press, 2025. <https://cup.columbia.edu/book/deserts-are-not-empty/9781941332740/>.
- Eliezer Ntangu Ntieni. "Does Form Follow Function? Harnessing Philosophical Perspectives in the Architecture and Design Process." *Art and Design Review* 13, no. 01 (January 1, 2025): 30–43. <https://doi.org/10.4236/ad.2025.131003>.

- Farah, Abdulkadir Osman. “Preventing Socio-Political Public Earthquake ‘Dhulgariir.’” In *THEORISING SOMALI SOCIETY Hope, Transformation and Development*, edited by Abdulkadir Osman Farah and Mohamed A. Eno, 25–26. New Delfi: Authorspress, 2022.
- Fullerton, Arlene, and Amina Adan. “Handicrafts of the Nomadic Women of Somalia,” 1986, 10–12.
<https://arcadia.sba.uniroma3.it/bitstream/2307/1353/1/Handicrafts%20of%20the%20nomadic%20women%20of%20Somalia.pdf>.
- Galaal, Muusa. *STARS, SEASONS and WEATHER in Somali Pastoral Traditions*. First Edition. Looh Press, 1970.
https://www.dirzon.com/file/telegram/Somali%20Books/Astronomy_Galaal.pdf.
- Gérard Prunier. *The Country That Does Not Exist : A History of Somaliland*. London: Hurst & Company, 2020.
- Google Maps. *Cusbaalay*. Online Map. *Google Maps*. Accessed April 22, 2025.
https://www.google.com/maps/place/9%C2%B033'29.9%22N+43%C2%B050'48.9%22E/@9.5583213,43.8443431,1213m/data=!3m2!1e3!4b1!4m4!3m3!8m2!3d9.558316!4d43.846918?entry=tту&g_ep=EgoyMDI1MDQxNi4xIKXMDSOASAFAQAw%3D%3D.
- Hafri, Alon, Shreya Wadhwa, and Michael F. Bonner. “Perceived Distance Alters Memory for Scene Boundaries.” *Psychological Science* 33, no. 12 (October 7, 2022): 2040–58. <https://doi.org/10.1177/09567976221093575>.
- Hurt, Alyson. *In East Africa, a Bright Spot amid the Anarchy*. October 27, 2010. Online Image. *NPR*. <https://www.npr.org/2010/10/27/130857899/in-east-africa-a-bright-spot-amid-the-anarchy>.
- Hyde, Timothy. “Architecture Adrift in the Antarctic Desert.” In *Deserts Are Not Empty*, edited by Samia Henni, 341–66. New York: Columbia University Press, 2025.
<https://cup.columbia.edu/book/deserts-are-not-empty/9781941332740/>.
- Johnson, Douglas L. “The Nature of Nomadism: A Comparative Study of Pastoral Migrations in South-Western Asia and Northern Africa.” *International Journal of*

- Middle East Studies* 2, no. 3 (July 1971): 286–87.
<https://doi.org/10.1017/s0020743800001203>.
- Karandinou, Anastasia. *No Matter: Theories and Practices of the Ephemeral in Architecture*. Routledge, 2017. <https://doi.org/10.4324/9781315598390>.
- Karusseit, Catherine. “Victorian Domestic Interiors as Subliminal Space | South African Journal of Art History.” *South African Journal of Art History* 22, no. 3 (January 2007). <https://doi.org/10.10520/EJC93975>.
- Khayre, Ahmed Ali M. “Somalia: An Overview of the Historical and Current Situation.” *SSRN Electronic Journal*, April 28, 2016. <https://doi.org/10.2139/ssrn.2771125>.
- Labelle Prussin, and Amina Adan. *African Nomadic Architecture : Space, Place, and Gender*. Washington: Smithsonian Institution Press, 1995.
- Legg, Stephen. Review of *Memory and nostalgia*, by Svetlana Boym. *Cultural Geographies*. SAGE Publications, January 2004.
<https://doi.org/10.1191/1474474004eu296ed>.
- Lilius, Muddle Suzanne, ed. “Variations on the Theme of Somaliness.” In *Proceedings of the EASS/SSIA International Congress of Somali Studies, Turku, Finland*, 442–51. 1998. Reprint, Turku, Finland: Abo Akademi University, 1998.
<https://www.africabib.org/rec.php?RID=A00006086>.
- Mahony, Desmond. *Trees of Somalia: A Field Guide for Development Workers*. *Openrepository.com*. Oxfam GB, 1994. <https://doi.org/978-0-85598-109-9>.
- Myres, John L. “Nomadism.” *The Journal of the Royal Anthropological Institute of Great Britain and Ireland* 71, no. 1/2 (1941): 19. <https://doi.org/10.2307/2844399>.
- Natale, Maria Teresa. “Women and Crafts.” *Europeana.eu*, June 15, 2023.
<https://www.europeana.eu/en/stories/women-and-crafts>.
- Ntieni, Eliezer Ntangu. “Does Form Follow Function? Harnessing Philosophical Perspectives in the Architecture and Design Process.” *Art and Design Review* 13, no. 01 (2025): 30–43. <https://doi.org/10.4236/adr.2025.131003>.

- Nur, Hibaq. "Bibliocaust of Somali Libraries: Retelling the Somali Civil War." In *Ifila.org*, 2017. <https://library.ifla.org/id/eprint/1635/1/083-nur-en.pdf>.
- Qadirmushtaq, Abdul, and Muhammad Afzal. "Arab Spring: Its Causes and Consequences." *JPUHS* 30, no. 1 (June 2017).
https://pu.edu.pk/images/journal/HistoryPStudies/PDF_Files/01_V-30-No1-Jun17.pdf.
- Said, Edward W. *The World, the Text, the Critic. SubStance*. Cambridge, Mass.: Harvard University Press, 1983. <https://doi.org/10.2307/3684960>.
- Salazar, Mary Kathryn. "Interviewer Bias." *Workplace Health & Safety* 38, no. 12 (December 1, 1990): 567–72. <https://doi.org/10.1177/216507999003801203>.
- Sennett, Richard. *Building and Dwelling : Ethics for the City*. London Penguin Books, 2019.
- . *The Craftsman*. First Edition. London: Penguin, 2008.
- Somaliland National Television. *Somali Women Weaving Kebed*. Online Video. *Waaberi iPhone*. Accessed April 22, 2025.
<https://www.tiktok.com/@waaberiphone/video/7238548376805969179?q=hees%20kebed&t=1745162354464>.
- The Africa Watch Committee. "Somalia: A Government at War with Its Own People." United States of America: The Africa Watch Committee, January 1990.
https://www.hrw.org/sites/default/files/reports/somalia_1990.pdf.
- Thompson, Paul. *The Voice of the Past: Oral History*. *Google Books*. 4th Edition. 1978. Reprint, United States of America: Oxford University Press, 2017.
https://books.google.nl/books?hl=en&lr=&id=j-4wDgAAQBAJ&oi=fnd&pg=PP1&dq=voice+of+the+past&ots=HqOm08Hg4o&sig=KwuoTzzEsXJmUbegEWwUG7Axnz8&redir_esc=y#v=onepage&q=voice%20of%20the%20past&f=false.
- Viollet-Le-Duc, Eugene-Emmanuel. *The Architectural Theory of Viollet-Le-Duc : Readings and Commentary*. Edited by M. F. Hearn. Cambridge, Ma: Mit Press,

1990.

Warsame, Mohamed Ibrahim 'Hadraawi'. *Kala Guran*. MP3. *Longlivesomaliland.com*.

Hargeisa, Somaliland, 2011.

<https://www.longlivesomaliland.com/Maansadii%20Kala%20Guran%20ee%20uu%20tiriye%20Abwaan%20Hadraawi.htm>.

Williams, Samantha E, Jaclyn H Ford, and Elizabeth A Kensinger. "The Power of Negative and Positive Episodic Memories." *Cognitive Affective & Behavioral Neuroscience* 22, no. 5 (June 14, 2022): 869–903.

<https://doi.org/10.3758/s13415-022-01013-z>.

World Bank Group. "World Bank Climate Change Knowledge Portal."

climateknowledgeportal.worldbank.org, 2021.

<https://climateknowledgeportal.worldbank.org/country/somalia/climate-data-historical>.

Xaange, Axmed Cartan. *Dalkii Udgoonaa*. Mogadishu: Jamhuuriyadda Dimoqraadiga Soomaaliya, Akadeemiyada Cilmiga iyo Fanka , 1984.

<https://arcadia.sba.uniroma3.it/bitstream/2307/2917/1/Dalkii%20Udgoonaa.pdf>.

Yusuf, Marian Warsame. "Improving Access to Health Care Services for Pastoral Nomads in Somalia." *University of Gothenburg*, August 13, 2024.

<https://www.gu.se/en/research/improving-access-to-health-care-services-for-pastoral-nomads-in-somalia>.