Aktas, Bilge

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Vernacular Design Examples to Study Climate’s Role on Design Decisions: an Example of Nomadic Yörüks in the Turkish Mediterranean

Bilge Merve Aktaş
Design Department, Aalto University, Finland

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Abstract
This paper presents vernacular design examples to investigate the relationship between design and climate. The paper aims at understanding ways in which design can collaborate with other elements to produce naturally compatible artefacts, systems or experiences. Considering the current climate crises and growing changes, we need to develop an understanding that does not exploit the natural resources but incorporates with them. To study this co-operation, this paper studies textile crafts, more specifically felted artefacts, of Yörüks (or Yoruks, Yuruks), a nomadic Turkic clan in the Mediterranean coast of Turkey. I examine the ways in which climate, mobile lifestyle and accessible materials actively affect design decisions of the Yörüks. Yörüks way of living could be an example to think further how to correspond to climate while developing artefacts.
1. Introduction

Design is a way of thinking with several mediums to seek for possibilities that develop new understandings while solving problems (Brassett & Marenko, 2015). Design thinking is usually applied to generate new possibilities for existing problems. As design researcher Richard Buchanan (1992) argues, design thinking enables re-interpreting existing signs, things, actions, and thoughts, thus transforming people into innovators (Brown & Wyatt, 2010). These approaches assign a changemaker role to design to overcome our current extreme crises and propose better options.

Currently, the climate crisis has reached a point that requires immediate actions from multiple perspectives. One of these perspectives is changing the ways of engaging with natural environments in a way that does not exploit the natural resources but rather incorporates with them. This approach includes rethinking our daily habits in nature-compatible ways and employing natural resources in regenerative ways. Considering the design’s interpretative role, I believe studying the climate and human encounter from the design perspective can provide renewed ways of making artefacts. Studying climate and human encounter from the design perspective can also re-build our relationship with natural surroundings based on climate specific features.

In order to investigate the relationship between design and climate, this paper examines vernacular design examples of a nomadic community in the Turkish Mediterranean, namely Yörüks. Vernacular design is similar to folk designs and refer to the artefacts produced by locals based on everyday needs.
Living in tents and moving around during the year, Yörüks have developed ways to incorporate with the climate to survive. Climate-specific thinking is reflected in their living habits and artefacts. As a nomadic community Yörüks have been living in felted tents for centuries and mainly generating their livelihood through natural resources. In this paper, by examining the main aspects of the Yörük way of living, I will present an example of how to develop artefacts that are compatible with the climate and natural environment.

Considering the close contact that the makers of these artefacts build with material and their having no formal background in design, this essay could have been positioned as part of craft studies as well. However, in my perception, design and craft are interwoven and they share fundamental commonalities such as idea generation for specific needs, careful making with material inspiration and evolvement through time (Aktaş & Mäkelä, 2017). Also, by positioning this study as part of the design studies, I aim to present historically relevant examples of site-specific product development to renew our understandings for the future of design and its employment in seeking for possibilities. Considering the dramatic changes in the climate and unforeseeable future, these examples can build grounds for adopting new methodologies for designing under unstable conditions. The Yörük example presents how to work with changing elements and conditions, such as climate and location while developing our design intentions. To study the elements that can affect our design decisions, this study examines how several elements such as animals, materials, functionality, are entangled with the design intentions.
Next, I will first present the concept of vernacular design and how our design decisions are actively affected by our surrounding. Then, I will present Yörüks and their lifestyles. Finally, I will present some of the factors that Yörüks consider while making artefacts to present how these elements are entangled in order to live in nature-compatible ways. These entangled elements are presented as an example of the relationship between design intentions and generating living habits.

2. Vernacular Design and Its Connections to Climate
The relationship between climate and design has been usually examined from the sustainability perspective with the concept of climate responsive artefacts to produce environmental-friendly products and goods. The fields that employ climate responsive methodology usually aim at reducing energy use in buildings or spaces. Typically, climate responsive designs examine ways in which designers can generate models that cooperate with various weather types and the changing climate.

One way of studying climate and design relationship is by studying vernacular design examples. Architectural historian Thomas Hubka (1979) elaborates on the concept of vernacular/folk design in order to examine designs by people with no former design education and how they design their living spaces. He argues that vernacular designers start their processes with the unchanging and later accommodate the change. I believe, studying vernacular examples can enable researchers and designers to truly understand local conditions. The vernacular examples also show the solutions with no requirement of sophisticated technology.
Therefore, these examples can provide methodologies for site-specific design (Bodach, Lang, Hamhaber, 2014; Nguyen, Tran, Tran, Reiter, 2011; Upadhyay, Yoshida, Rijal, 2004). However, vernacular examples contain both advantageous and disadvantageous situations. Accordingly, rather than following these examples as they are, vernacular examples should be re-interpreted with current possibilities to generate better results (Nguyen et al., 2011).

Similarly, this study examines how the Yörüks have developed their artefacts with accessible resources. This understanding of developing artefacts regarding existing conditions enables us to examine how to attune to our surrounding and how it actively affects design decisions. In a way, by interweaving the conditions and what they provide, Yörüks have developed a nature compatible lifestyle that incorporates the surrounding conditions and materials without exploiting them. By examining this interwoven thinking a similar approach can be applied to the larger design field. Considering the urgent need to start using natural resources wisely, we have to understand how to co-operate with the environment without forcing human needs. Sociologist Andrew Pickering (2005) perceives this co-operation as a necessity and argues for the coupling of human and the nonhuman which generates the evolvement of knowledge and practice.

To understand how we can co-operate with nonhumans to make design decisions, the active affection of nonhumans should be understood. In order to understand how nonhuman entities can actively affect human decisions, political scientist
Jane Bennett (2010) proposes the concept of vibrant matter. Bennett argues that things have independent power in their own existences which enable them to perform differently under various conditions. In a sense, similar to the vernacular design examples, we need to understand the changing and effecting power of our surrounding to best adapt to the environment rather than changing the environment to our own needs. Considering that natural materials evolve based on the climate, studying material and design relationship can inform studying the relationship between design and climate. Accordingly, this essay examines not only the lifestyle that the climate proposes but also the natural materials, more specifically wool, to make everyday artefacts. By doing so, this essay presents an example of developing design decisions with available materials and living by joining the flux of nature.

As anthropologist Tim Ingold (2010) argues, the world never stops its becoming, but rather we should join its flux and fluidity. Ingold argues that while making, we also follow the flow of the material and work with the material to emerge an artefact. This essay discusses one way of, namely Yörük way, joining in the flux of the world. By focusing on design, climate and material, this essay argues that these elements are interwoven, and they may actively affect design decisions. To discuss this interwoven structure design and its extensive landscape in a comprehensive manner, this essay applies Ian Hodder’s (2012) conceptualization of entanglement, within which he argues that “social world of humans and material world of things are entangled together by the dependence and dependencies that create potentials further investments and entrapments”.
Building upon the entanglement formulation of Hodder (2012) and the idea of co-evolvement, climate and design are studied as entangled that shape our everyday understandings and lives, and accordingly our practices and thinking. This study specifically examines the influences of the climate over the material, living habits and accordingly designing of everyday utilitarian and nonutilitarian artefacts. The conceptualization of entanglement involves many other social and material units that are influenced by each other while actively affecting each other. Therefore, studying what the climate provides as material and how this material can affect design decisions can help us develop an understanding for climate and design relationship. The next section will first briefly describe the Yörük community and discuss the ways that the climate, the material and the living habits affect developing the artefacts.

3. Yörüks in relation to the climate, the material and designing

To study climate responsive design examples, this essay examines nomadic groups in the Turkish Mediterranean, namely Yörüks, and evolvement of textile artefacts in their everyday life. More specifically, this essay examines felted artefacts. This examination is developed from reviewing literature about Yörüks. The academic texts that include Yörüks as cases are examined with a focus on climate, material and design related information to deeply understand how climate has informed the design intentions.
To build this discussion, ten articles about contemporary Yörük practices are examined. Several more studies from political and historical perspectives are excluded to preserve the focus. The ten articles are from various fields: folklore, livestock research and botanic studies (Table 1). In fact, the topics of these articles already point at the significant aspects of the Yörük way of living. These aspects can be categorised in two

<table>
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<td>Meral Akan</td>
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<td>Sarıkeçililer</td>
<td>Hilmi Dulkadir</td>
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<td>Collaborative Long-Term Ethnography and Longitudinal Social Analysis of a Nomadic Clan in Southeastern Turkey, 2006</td>
<td>Ulla Johansen and Douglas R White</td>
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<td>The Yörüks: Their Origins, Expansion and Economic Role, 2014</td>
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<td>The Transhumance Activities and Problems of the Mersin-Arslanköy Yörüks, 2018</td>
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<td>Folk Food and Medicinal Botanical Knowledge Among The Last Remaining Yörüks Of The Balkans, 2017</td>
<td>Anely Nedelcheva, Andrea Pieroni, Yunus Dogan</td>
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<td>Silvopastoralism in Turkey’s Mountainous Mediterranean Region, 2003</td>
<td>Uçkun Geray and Sezgin Özden</td>
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<td>The Identity of Women in The Sub-Culture of Nomadic Yuruks, 2009</td>
<td>Erdal Aksoy</td>
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<tr>
<td>The Mountain-Based Culture of the Taurus Yörüks: Cultural and Economic Approaches</td>
<td>Sezgin Özden and Erdoğan Atmiş</td>
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Table 1. The list of the reviewed articles. These articles provided the main information for the discussion.
main fields: material culture and relationship to the natural environment (Figure 1). Therefore, this essay examines the relationship between material culture, more specifically textile artefacts, and natural environment, more specifically climate.

![Diagram showing the relationship between nomadic life style of Yörüks, endemic vegetation, animal breeding, folk artefacts, climate, and vernacular design.]

**Figure 1.** The two main categories of the reviewed articles are the relationship to the natural environment, namely endemic vegetation and animal breeding, and material culture, more specifically folk artefacts. These two categories constitute the main discussion of this paper, which is the relationship between design decisions and climate.

In these articles, sections about climate, living habits, and craft making were specifically studied. Since these discussions were usually embedded in the main article, the study required deconstructing the texts and then reconstructing the information in a more refined and narrational way. Based on the information gathered from these articles, next, I will first briefly describe the Yörük lifestyle, then I will discuss the main effecting factors of this lifestyle.

3.1. Yörüks
Historically, nomadic Yörüks have been migrating across southern Turkey with no permanent settlements.
However, since the 17th century the state image has gained more power in Turkey, and to provide formal education to Yörüks and due to security reasons, they were asked to settle down (Dulkadir, 1991). Therefore, over the past two centuries, various Yörük groups followed three ways: some groups have permanently settled down, some have maintained a semi-nomadic life where they travel across Mediterranean coast during the summer time and re-settle-down during the winter, and finally a small part has been maintaining a completely nomadic life (İnalcık, 2014; Johansen & White, 2006; Karagel & Üçeçam-Karagel 2011). Currently, only two clans remained as nomadic, while many other groups have permanently or partially settled down (Dulkadir, 1991). Although living in the mountain generates human traces, such as walking paths and food consumption for animal breeding (Harunoğlu & Polat, 2018), Yörük way of living is still argued to be nature compatible in various ways, such as maintaining tree ecology (Geray & Özden, 2003), and developing food and medicine from wild plants (Nedelcheva, Pieroni & Doğan, 2017).

While on the move, Yörüks usually stay in one place for a day or two and then continue moving (Dulkadir, 1991), however, occasionally, they spend several months in one place in their tents as well (Aksoy, 2009) (Figure 2). Typically, despite settling down close to city centres, nomads have limited access to resources to correspond everyday needs as they hike amongst the Toros Mountain range in the Mediterranean coast. Due to this limitation, despite originally being self-sufficient (Geray & Özden, 2003), for many years Yörüks have utilized goat and sheep breeding for trade purposes as well. They participate in
economic activities through animal products and craft artefacts (İnalçık, 2014). The endemic vegetation and landforms of the Toros Mountains provide suitable circumstances for sheep breeding which have been the main source of income and food generation for Yörüks (Geray & Özden, 2003). Sheep breeding also constitutes the main resource for generating wool for weaving, knitting and felting to produce shelter and garments. Correspondingly, Yörüks have been associated with their talent in handicrafts, especially in textile ones, including weaving and felting (Akan, 2017; İnalçık 2011, 2014).

3.2. Mediterranean Climate
Considering that Yörüks maintain a (semi)-nomadic lifestyle, the climate forms a crucial aspect of the decisions they make during the move while maintaining their nomadic lifestyles.
The Turkish Mediterranean climate offers hot long summers by the sea coast and cooler summers, and snowy winters in the inland where high Toros Mountains lay parallel to the coast. Although transhumance is commonly preferred by the residents of the Mediterranean region, Yörüks have been moving also as a continuation of their long-lasting traditional way of living. Yet, similar to residents, Yörüks stay in one place longer during the winter time due to short winters in the Mediterranean region. The climate and the landscape are suitable for sheep breeding.

3.3. Sheep Breeding and material generation
Sheep breeding is an identical Yörük practice, although it is not unique to them. Since sheep breeding provides food supplies for them, material resources for their utilitarian and nonutilitarian artefacts, and goods for their trade activities, they are strongly attached to their animals. From the sheep, Yörüks have been generating wool to practice textile crafts for their own usage and to gain a living by trading handmade artefacts in cities. Textile crafts such as rug weaving and felting, have been significant Yörük practices that are an inseparable part of Yörük way of living as historian Halil İnalcık (2011) states. Wool is a light and easy to process material: Yörüks shear their sheep in spring and autumn, the wool is then cleaned and carded to be ready to work with. Once the wool is ready, it can be spun for knitting or weaving, or it can directly be felted.

3.4. Design Decisions and Artefacts
Textile artefacts, both woven and nonwoven, constitute a significant part of the Yörük material culture.
Making soft textile furnishings provide several benefits: the raw material (wool) is available, the production does not require an established workshop and the soft artefacts can be foldable, stackable, and light by the nature of the material. Especially as a result of living in nature and not having structures to protect themselves from cold or insects, floor coverings, both woven and felted rugs, composed a significant part of Yörük material culture. Felted artefacts and woven fabrics generate covers of the tents, as well as the soft furnishings of Yörük houses. The home is decorated with textile furnishings, such as floor coverings, cushions and beds, containers and carrying pouches, saddle felts for the horses, bags, and finally decorative elements (Dulkadir, 1991).

The most important benefit of the textile products comes from the material features: wool is an insulation material that can be used in various weather conditions. Since Yörüks construct same living spaces, namely tents, both in summer and winter, the tents need an insulating material which should also be easy to carry and assemble. In Hubka’s terms, Yörüks should accommodate to change with their unchanged artefacts. Therefore, the tents have wooden structures covered with felt sheets, or sometimes with woven rugs. This way, the material enables a certain comfort in various weather types. Inside the tents, rugs cover the floor to protect people from the insects and to keep the ground warm. The seating area is decorated with low chairs and cushions made of felt or woven fabrics. As they move during the majority of the year, their artefacts should be easy to carry. Thus, Yörüks utilize their already accessible material, namely wool, to produce all their artefacts.
They not only weave but also felt, which has a firmer structure and provides a better insulation structure. In the next section, I will specifically discuss the felt artefacts and examine their connections to climate to discuss the entangled factors. Felting produces a nonwoven textile that is based on entangling wool in flat or three-dimensional forms. With the help of warmth and soap’s acidic reaction, and following their flexible and elastic nature, wool fibres are entangled in intended forms that can be resulted in artefacts like shelters, cloaks, rugs, and cushions (Burkett, 1979). The tight entanglement of fibres provides a closed surface that offers a suitable structure to protect from cold weather, rain and beetle-like animals. On the other hand, the rawness and simplicity of felt as a material can reflect the simplistic thinking of Yörüks in utilitarian purposes in a sustainable way. Besides utilitarian use of felt, it has also been an income generator: until the last century, the majority of felted artefacts utilized amongst the country were produced by Yörüks (İnalçık, 2011). Felt making or felted artefacts are not specific of nomadic Yörüks or nomadic tribes, in fact they do not exist only in the Turkish Mediterranean. Yet, the coming together of these elements, namely felting, nomadic living and Mediterranean climate, form an interesting part of design entanglement in which climate proposes resources, materials and accordingly affect design practices.

4. Entangling climate, material and design
The genial Mediterranean climate enables a nomadic life to Yörüks who own no land property. This nomadic life develops living habits specific to Yörüks while proposing materials to maintain their utilitarian needs.
Accordingly, this encounter of Mediterranean climate, Yörüks, material and living habits result in designing felted artefacts.

Figure 3. Some of the conditions that Yörüks have and how these conditions affected their design decisions. Most of these decisions are in fact affected by several conditions.

The conditions that Yörüks live with have informed their design decisions (Figure 3). However, most of their conditions in fact reciprocally affect each other. For instance, the climate helps them live as nomads. Therefore, the design decisions are made through the entanglement of several conditions. In a sense by entangling the features of the climate, everyday needs, accessible resources and creative thinking, Yörüks have managed to create an identity for themselves while maintaining their wellbeing. Therefore, studying these multi-layered interactions as entanglements can address implicit reasons for designing that can be re-evaluated and re-applied in the future. Understanding these decision-making processes can illuminate our need for nonhuman participants in constructing our lives. For instance, in Yörük felts, felted shelters are not
solely a result of designer’s/maker’s pre-intention, but rather it is an intentional response to what nature provides to them and requires from them to survive. As Hubka (1979) suggests, while studying vernacular design examples, the examination focuses on the changing and unchanging and the relation between these. In this paper, the changing is weather and space the Yörüks settle down temporarily, and unchanging is their artefacts and goods to live with. Following, Bennet’s (2010) concept of vibrant matter, both the changing and unchanging have their performative power within their independent or collaborative existences.

Figure 4. Entanglement of felted artefacts, inspired by Hodder and Doherty, 2012. The elements that are not in the focus of this essay is marked with grey to increase the readability. Illustration by the author, 2018.
Therefore, as this paper suggests, elements like climate and material, and other entities that are related to them such as living habits and material, gain active roles to affect our design decisions.

Within this context, Figure 4 illustrates the factors that reciprocally affect design decisions of Yörüks that result in soft felted furnishings. Although the initial perception of this discussion may appear as linear, beginning with the climate, which leads to material through sheep breeding, and then to design, I discuss them as an interwoven structure because all these elements have been evolving together. These relationships are not based on step-by-step development but rather a co-evolvement through time. For instance, if Yörüks could not have managed to breed sheep and make textiles, they might have changed their nomadic lives. Studying this landscape as an entanglement enables to illustrate the co-evolvement aspect of the design landscape. Inspired by Ian Hodder and Chris Doherty’s (Hodder, 2012) illustration, Figure 4 illustrates the interwoven structure of the elements demonstrating one-way and two-way dependencies. In the illustration, the straight line refers to a two-way dependency: both elements at both ends depend on each other. The dashed line refers to one-way dependency: the plain end depends on the end with the bullet point. For instance, sheep breeding affects felt making since the material is generated through sheep breeding. In return, felt making can affect sheep breeding as well since people will need more wool to make artefacts and based on their needs they may increase the number of the animal they breed.
Therefore, between sheep breeding and felt making a two-way dependency exists (straight lines). Differently, the material affects the making space since it requires a certain organization of space for suitable ways of practicing. However, the making space can exist on its own without requiring a material or practice. Therefore, the relationship between material and making space creates one-way dependency (dashed lines).

The concept of entanglement enables understanding the interwoven relationships of design elements from the larger perspective since it enables drawing the extensive landscape connections. Analyzing the relationships in the figure illustrates that decisions of making are not isolated from our interactions with other elements. Naturally, humans may have more influences as their intentions initiate processes yet, realizing that our intentions may depend on nonhuman elements may provoke new ways of relating our existence to other entities. For instance, when the figure is studied, the climate’s power as an influence explicitly reveals that design has direct and indirect dependencies on climate. This active re-forming relationship can re-teach us to design in nature compatible ways.

5. Connecting Past to Future
Although this study is conducted within the frame of a long-living nomadic culture, the current practices of Yörüks rarely involve handicraft making while the number of unsettled people has been decreasing for a long time. Therefore, the example to start this discussion may seem like a historical one. However, examining previous experiences can provide a basis to renew current understandings and hopefully behaviours.
Our everyday product scenarios have been changing, the way we relate our lives to our tangible artefacts and intangible culture can remain similar. Therefore, understanding the interwoven structure of long-standing practices can provide ways for reshaping tomorrow’s design practices by re-learning from previous interactions within the design field to understand the current and future ones. Understanding the relationship between environment and designed artefacts can propose new ways of coexisting. This shift can propose renewed relationships between people and the environment in a way that can result in changing the future in nature compatible ways. Considering the climate change and its crucial effect in our everyday lives, development and promotion of nature compatible design practices gain more importance than ever. This discussion is to understand what kind of next steps we can take in the design field with materials and approaches that attune to the changing climate and naturally renewable resources. In a world that changes faster than ever, designers are obliged to develop new ways of existing as well as co-existing. This approach can ultimately advocate considering climate as an active factor for developing artefacts. Therefore, this discussion can be further elaborated as a part of post-humanist debate since it promotes a non-human-centred way of studying our design practices.
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