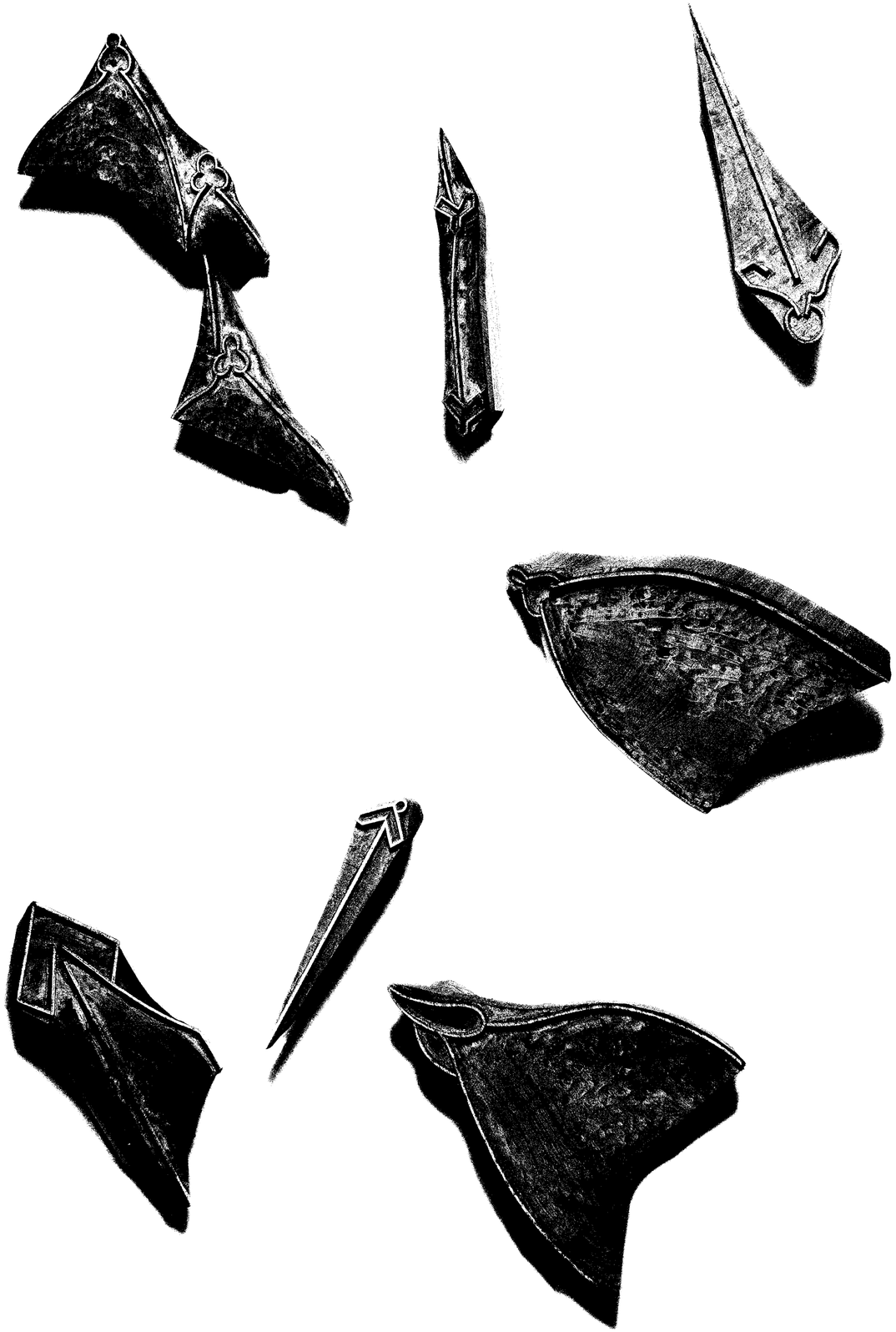

This publication accompanies the installation titled Two Thousand Years of Non-Urban History, at the 2019 Oslo Architecture Triennale under the theme "Enough: The Architecture of Degrowth".

The exhibition is on view from September 26 to November 24, 2019 at The National Museum – Architecture (Nasonalmusjeet – Arkitektur) in Oslo, Norway.

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Images on cover:
Human with mace (?) riding bull, Hemma Plateau, Van Berg et al., 2004.
Ain Al Rahha, Sitra, Bahrain, 1950s. Photo courtesy of Abdulhameed Abdulghaffar.

Image on back cover:
Hala Kaiksow’s Qanat tapestry. Photo by Dilmuni Couple, 2019.

Civil Architecture, 2019

The narrative of the oil economy has overwritten previous traditions of landscape and territory. This is evident in the long spans of highways that disinterestedly cut across the Arabian desert, the vast reclamation of the sea along the Gulf coast, and the clearing away of agricultural land to build cities. The idea of landscape has become synonymous with the urgent need to subdivide, plan, and develop property as the de facto engagement with territory. Technocratic solutions to the problems of living in an arid climate have replaced practices entrenched in land knowledge, and the availability of desalinated water and imported food has oriented the economy towards rent-based urban development, backed by oil revenues.

As a happy partner in this transformation, architectural and urban discourse on the Gulf is predominantly centered on the integration of its cities into the global economy, reproducing a generic built environment as a form of global currency (albeit with the addition of some Arabic arches or the occasional mashrabiya). In the cases that architectural theory looks for pre-oil precedents in the Gulf, research then focuses on the growth of the small fishing and pearling towns along the coast[1]. Given the small size and ad hoc nature of Gulf urbanism before the twentieth century, this area of investigation focuses primarily on traditional homes, mosques, and the study of urf, the heuristic spatial practices of local tribes that resulted in the clustering of courtyard typologies. These cases are useful as architectural precedents, but less so for a planning study of formal operations and policy. They also offer little in the way of organizing the territorial relationships between the city as a place of trade and habitation and the productive rural landscapes that sustain city life. Looking at cases like Muharraq, Dubai, Doha, or Kuwait City offers insight into the political dynamics of small towns but provides few formal strategies

1 Books like John Yarwood's, *Al Muharraq: Architecture, Urbanism, and Society in a Historic Arabian Town* (1996), for example.

(beyond, perhaps, organic alleyways) and even fewer that have been applied by a planning body.

This investigation of incremental urban accumulation in Gulf towns, as a study of planning, is different from the word for planning in Arabic, which is takhteet, or line-making: the drawing of lines and applying them to land. The reality of the Gulf mat city is that its most legitimizing factor was that it was not planned. Rather, it was the product of various adjacent families living under the auspices of a tribal regime that guaranteed autonomy to its inhabitants. The city was a space of co-existence without agonism. Although the proximities in which life occurred might be on an urban scale, the political consequences produce a dense agglomeration of tribes in complete autonomy. The city was not the space of planned political coexistence, but a place that guaranteed safety and the ability to do business without interference. One, however, need only look beyond the Gulf city to its peripheral territories to find ample examples of formal planning practices in the region.

For the Oslo Architecture Triennale we presented three cases of "non-urban planning" in the Gulf countries. As instances that predate the aggregations of Gulf courtyard homes, this triptych spans several thousand years and consists of the desert

kites, the water channels (qanat/aflaj) that fed agricultural areas, and the fish traps along the coast. These examples are instances where a series of applied forms are inscribed into, or constructed onto, the topography by a community. The lines cover kilometers of territory with the expressed aim of creating a collective infrastructure. These interventions, although different in location and function, are collectively a series of lines that cover kilometers of territory with the expressed aim at creating a cohesive infrastructure. In contrast to the laissez-faire practices of town making, these lines were drawn based on an a priori configuration, tested over thousands of years, with a shared set of cultural and political planning practices that governed their construction and use. Rules over planting, hunting, water distribution, and even the careful land subdivision reveal not an unplanned Gulf city, but rather a deliberate and painstaking application of planning as part of both formal and political processes. In this regard, the landscape of the Gulf is far more planned than its cities and, its social structures far more urban.

Aerial Image of Hidd, Bahrain. (Date Unknown, likely 1951). Serjeant, R.B. (1968) Plate 1. Courtesy Royal Air Force.

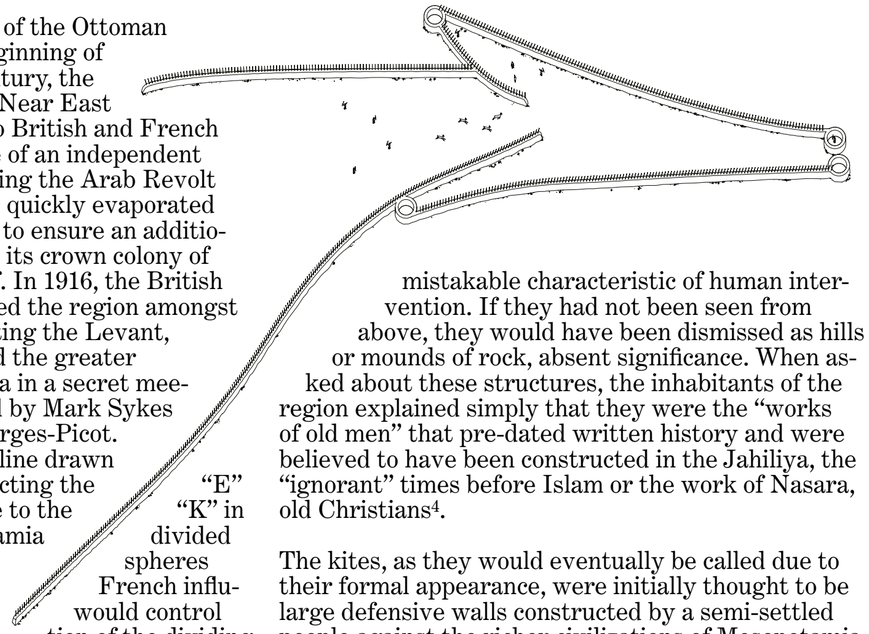


Figure 1.: The trapping method of the desert kites.

With the collapse of the Ottoman Empire at the beginning of the twentieth century, the territories of the Near East became subject to British and French rule. The promise of an independent Arab state following the Arab Revolt against the Turks quickly evaporated as Britain sought to ensure an additional trade route to its crown colony of India via the Gulf. In 1916, the British and French divided the region amongst themselves, splitting the Levant, Mesopotamia, and the greater Arabian Peninsula in a secret meeting administered by Mark Sykes and Francois Georges-Picot. A single straight line drawn over a map connecting the "E" in Acre, Palestine to the "K" in Kirkuk, Mesopotamia divided the region into spheres of British and French influence[2]. Britain would control the southern portion of the dividing line (Palestine, Mesopotamia, Transjordan, and Eastern Arabia) and France would govern the north (Lebanon, Syria, and the Sanjak of Alexandretta). With the establishment of the British Mandate, aerial reconnaissance missions were deployed by the Royal Air Force (RAF) to survey the newly acquired territory[3]. Topographical and geological surveying ensured British hegemony over these lands as new aerial and land-based travel routes were mapped and resources were appraised, contributing to a new body of territorial knowledge.

In 1920, while attempting to determine the best aerial route from Cairo to Baghdad, flight-lieutenant Percy Maitland of the RAF noticed a suspicious series of ordered stone, clustering across several kilometers of the Jordanian desert. These lines were similar in form to cave paintings, but were scattered across the arid landscape, extending from the inner deserts of Arabia to the Negev(Figure 2). These lines had the unmistakable characteristic of human intervention. If they had not been seen from above, they would have been dismissed as hills or mounds of rock, absent significance. When asked about these structures, the inhabitants of the region explained simply that they were the "works of old men" that pre-dated written history and were believed to have been constructed in the Jahiliya, the "ignorant" times before Islam or the work of Nasara, old Christians[4].

The kites, as they would eventually be called due to their formal appearance, were initially thought to be large defensive walls constructed by a semi-settled people against the richer civilizations of Mesopotamia and the Mediterranean[5]. However, the colonial administrators could not explain their prevalence and their locations within waterless and barren portions of the peninsula. Even the well-traveled political officer and archeologist, Gertrude Bell (who advised the British in matters of the partition), saw little to report, regarding the kites. With archeological focus dedicated to the urban settings of empire, the geoglyphs were ignored until the 1970s. Archeologists conducted geomatic mappings[6] to date these configurations, with some dating back to the Neolithic period while others were constructed as late as 200 CE. Upon further analysis, the agreed upon hypothesis was that they had formed a large hunting infrastructure, built over generations by those with an acute knowledge of the territories they inhabited.

Formally, these structures consisted of long guiding walls that converged towards an apex enclosure. These walls were made from stones found within the area and stacked in rows ranging 0.5 to a kilometer in length and 1 to 2 meters in height; a feat that could have only been achieved with a concerted communal effort(Figure 3). The traps became a constructed topography, guiding animals into a narrow throat that ended in an enclosure or a pit, sited on the crest of a ridge or hill. Once caught in the pits, the gazelle and antelope would be easy prey for the hunters(Figure 1). To provide support to this theory various sources were cross-referenced, including historical text and imagery that depict the hunts and describe the numerous components of these desert kites.

2 Sykes-Picot negotiations, "Evidence of Lieutenant-Colonel Sir Mark Sykes, Bart.," M.P. Meeting held at 10 Downing Street, on Thursday, December 16, 1915, at 11:30 am.
3 Maitland, "The Works of the Old Men in Arabia," *Antiquity* 1, no. 2, (June 1927): 197-203.
4 Ibid.
5 Ibid.
6 David Kennedy, "The Works of the Old Men in Arabia: Remote Sensing in Interior Arabia," *Journal of Archaeological Science* 38, no. 12, (2011): 3185-3203.

Figure 2.: Extent of desert kites across the Middle East.

In the Epic of Gilgamesh, a hunter complains about Enkidu who disrupts his hunt in the steppe:

> He is the strongest on the steppe
> The pits which I dug he has filled in again;
> The traps which I set he has torn up
> He helps the game and animals of the steppe
> to escapee out of my hand
> And does not allow me to catch the game of
> the steppe

Numerous Assyrian texts also mention the capture of animal herds in a pit, with numerous references to the hunt using trappings like the ones scattered across the region. In terms of visual sources referenced, an annotated illustration of Safitic rock art in the Jordanian desert illustrates what is unmistakably a desert kite, with hunters and dogs herding gazelles along the kite's arms into the enclosure(Figure 4). The accompanying text reads, "By Mani'at, and he built for Hani, and he drew a picture of the pen (or enclosure) and the animals pasturing by themselves"[7].

Various typologies are existent depending on their relative locations and range in form from the spandrel shaped iterations seen within Harat Ash-Sham area in the Syrian steppe to the barbed, multi-pronged versions within the lava fields of Khaybar in modern-day Saudi Arabia(Figure 5). In addition to the desert kites, burial mounds following the same construction methods of this infrastructure would be found nearby in the form of pendants and wheels oriented along the axis of the sun path[8].

The significance of these structures provides a greater understanding of the relationship between early inhabitants of Arabia to their territory. While the region was previously dismissed as an inhospitable portion of the peninsula with no significance as a trading route, these structures reveal an embedded knowledge of the land and its resources. In terms of materials, the kites within the Harrat Ash-Sham Clustering have used an amount of stone equivalent to half the volume of the Pyramid of Cheops[9], an engineering feat indicative of the significance of such kites to the livelihood of its builders within the area. The desert kites were oriented with their arms directed towards grazing pastures and topographical lowlands where water would accumulate during the rainier season[10]. This allowed the inhabitants of these lands to anticipate the congregation of antelope or gazelles and to chase these large herds towards the traps. The long chains with overlapping guiding walls that formed across the landscape also spoke to an understanding of animal-migratory patterns and the

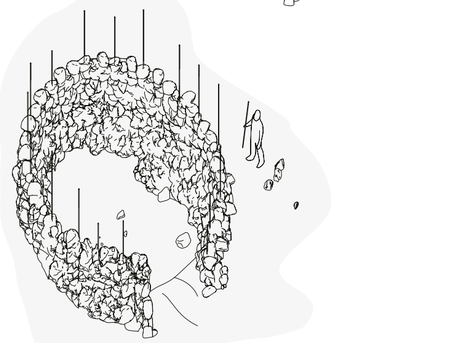


Figure 3.: The construction technique of the desert kite enclosure made of local stone.

7 Svend Helms and Alison Betts, "The Desert 'Kites' of the Badiyat Esh-Sham and North Arabia," *Paléorient* 13, no. 1 (1987): 41-67.
8 Ibid.
9 Stephan Kempe and Ahmad A. Al-Malabeh, "Distribution, Sizes, Function, and Heritage Importance of the Harrat Al Shaam Desert Kites: The Largest Prehistoric Stoneworks of Mankind?" (2012).
10 Ibid.

The desert kites of Harrat Al Khaybar in Saudi Arabia, from the People of Pangea series by Moath Alofi, 2018. Courtesy of the artist.

best seasons to hunt game. Most of these structures are oriented north, in anticipation of the spring migration from the southern portion of the peninsula to the Mediterranean[11].

These inscribed forms built over generations represent an exercise in planning at a vast scale that was previously unimaginable. They occur at the moment of settlement, heralding the transition from a nomadic to a semi-pastoral lifestyle. The agreement on the forms of these lines and their implementation is planning in its earliest form as shown by this vast network of traps. The desert kites are not just lines of subdivision or demarcated borders, but a sequence of territorial markers and indicators of various human and nonhuman activities within a registered space. As a communal effort the desert kites are far more ambitious and instructive than the collection of homes that formed most early towns in the region. This infrastructure also runs counter to the colonial intent behind delineation and demarcation; the kites present an understanding of geography separate from the need to propagate national boundaries, taking advantage of natural vectors through the peninsula rather than enforcing tribal or political lines. The kites as a series of lines are not abstractions of political or colonial understandings of the land, but a reminder that a line as a physical intervention can play a role in reinforcing a meshwork[12] of overlapping ecologies and territorial information.

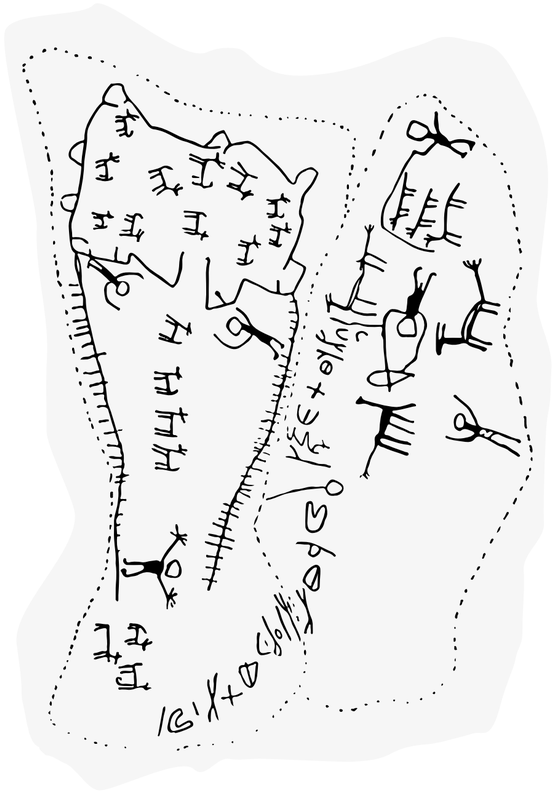


Figure 4.: Saftic rock art illustrating the trapping techniques of the desert kites.

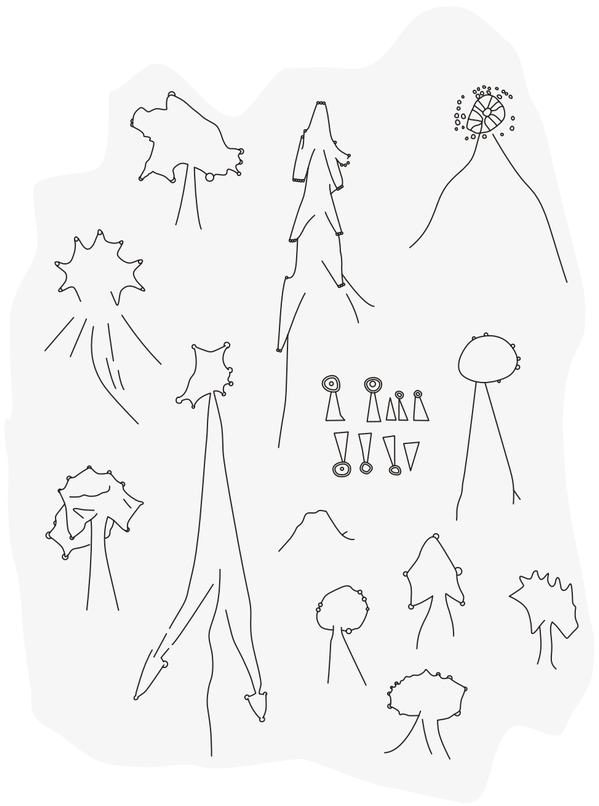


Figure 5.: The distinct typologies of the desert kites seen across Harrat Al Khaybar in modern- day Saudi Arabia.

11 Amelia Carolina Sparavigna, "Stone structures in the Syrian Desert," (2011).

12 See Timothy Ingold, *Lines: A Brief History* (London: Routledge Classics 2016).

The desert kites of Harrat Al Khaybar in Saudi Arabia, from the People of Pangea series by Moath Alofi, 2018. Courtesy of the artist.

At low tide in Bahrain, one can walk from the coast into the sea and not get their chest wet for at least thirty minutes. The combination of shallow waters and an extensive coastline means the shores of the Gulf play host to a variety of aquatic life. Fish, shrimp, and dugongs all take advantage of this shoreline to feed, before returning to deeper waters with the tide. This coastline, combined with gentle currents and a warm climate, makes the sea an easy source of food and the Gulf amenable to the practice of constructing fish traps (weirs). Fish traps have existed worldwide for millennia, built along coastlines in lakes and in rivers. There is evidence of their use in the Gulf, dating back over three thousand years[13] and globally for approximately nine thousand. As opposed to other similar technologies, like the now forgotten desert kites, the fish traps are still used in the region, with nearly two thousand in the Gulf today(Figure 1)[14]. Whereas the desert kites steadily declined (with the advent of agrarian practices, nomadic pastoralism, and animal husbandry as primary methods of food production for the peninsula's inhabitants), the "fish kites" remain in use partially because they continued to develop. These lines in the water did not develop formally, as they have not drastically evolved in shape over time, but by accumulating the same legal and economic status as arable land[15]. Although they have seen steady decline in the past fifty years due to environmental damage of the coastline, increased regulation of water bodies, and proscription in several countries, the fish traps endure as an instructive case of shoreline planning for small-scale food security.

As an archipelago, which sits just above the water, Bahrain's coasts and natural bays have been the location of thousands of traps prior to the twentieth century. Bahrain has nearly seven hundred fish traps around the island's northern, eastern, and western shores(Figure 2)[16], which amounts to nearly half the number of fish traps in the Gulf[17]. Given that Bahrain was primarily an agrarian and pearl diving economy prior to the discovery of oil, the creation of fishing weirs is a natural extension of the practice of farming both land and sea—particularly for those who chose not to pursue life at sea as pearl divers. This catalogue has documented fish traps from around Bahrain, in Nabih Saleh, Hidd, and Karranah. Although these examples bear extremely close similarity to fish traps all over the region's coastline.

Fish traps exist in the realm between architecture and furniture. They are far larger than scaled-up domestic objects and they are designed and built by teams of supervised workers. But they are neither walls nor enclosures; they exist on neither land nor sea but rather in the area between and are a combination of tectonic construction and woven tapestry. Although seemingly simple devices, the relationship between location, tide, and the form of the trap make them more complicated to construct than one would expect; particularly in pre-modern times when the traps were made entirely from woven palm branches and rope. The creation of a fish trap or hadhra (plural: hudhoor)[18] in Arabic, begins with a rassam (drawer/line-maker)[19] also known as ustadh al hadrah (foreman[20]. This rassam would begin by deciding the location of a fish trap, then sketching the appropriate form in sand depending on site, orientation, and available funds for construction. The location of a fish trap is in an area called the satwa. The satwa is a muddy interstitial zone close to the shoreline that becomes land during low tide and sea at high tide. Once a location and size is determined, the foreman prepares the materials for the trap. These would be palm fronds stripped of the leaves and coir/coconut rope. Further north, near Kuwait and Iraq, the traps were made using marsh reeds. Construction commenced at low-tide, beginning with the point at the head of the trap, the sirr, with the various wings and enclosures built thereafter. From the head, the rassam placed the palm fronds into the earth along the outline of the trap, using rocks to help fix the fronds in place, in areas where the tide was particularly strong. The size of the first enclosure between the wings, known as the hawsh or courtyard, is such that fish, feeding

13 Dalal Al-Abdulrazzak, "In the Wake of the Dhow: Historical Changes in the Marine Ecology and Fisheries of the Persian Gulf," PhD Diss., (University of British Columbia, 2015): 43.
14 Ibid, 46.
15 R.B. Serjeant, "Fisher-Folk and Fish-Traps in al-Bahrain," *Bulletin of the School of Oriental and African Studies* 31, no. 3, (1968): 489.
16 مناطق تواجد الحضور في مملكة البحرين [Trans: Location of *Hudhoor* (fish traps) and their location in the Kingdom of Bahrain], Ministry of Work and Municipality Affairs and Urban Planning Directorate of Marine Control, 2019.
17 Al-Abdulrazzak, 46.
18 *Hadhra* is the singular form of fish trap in Arabic, *Hudhoor* plural. The origin of the word means enclosure or bounded space.
19 Fuad Khuri, *Tribe and State in Bahrain*, (Chicago: University of Chicago Press, 1980), 54.
20 Serjeant (1968), 495

Nabih Saleh, Bahrain fish trap installation. Photo series by Dilmuni Couple, 2019.

along the shoreline, would enter the trap and be unable to leave at low tide. Once the palm branches were in place, creating the basic frame for the enclosure, the foreman and his team began tying the trap mesh to these fronds, creating the final trap walls, which were between six and nine feet in height. The construction of a trap would take between a few days and two weeks, depending on the number of assistants available to the builder and the size of the trap(Figure 3). The trap would be rebuilt at least once a year, to remove barnacles and algae, which over time would grow and begin to wear away the fish trap as well as scare off fish[21]. Depending on the strength of the wind and the tides, as well as the corrosion of the materials used in the trap walls/mesh, the walls of the weir would be replaced more often, between two and four times a year.

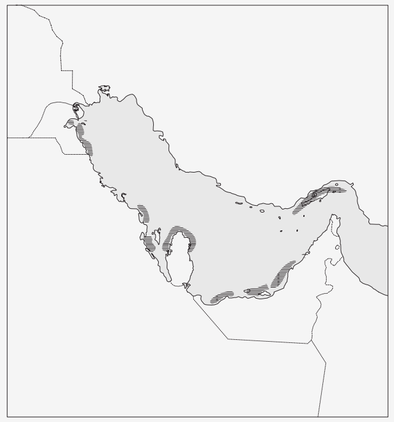


Figure 1.: The use of fish traps (Hadhrat) along the coast of the Gulf.

Today, the process of constructing the weirs has been made simpler by the advent of metal and PVC pipes for support, and metal mesh or chicken wire for the walls. Instead of palm branches, metal pipes are placed into the earth and then chicken wire or metal mesh is tied to these pipes to construct the trap. These traps are more durable, although still susceptible to rusting and salt corrosion, and would have to be replaced and cleaned once or twice a year. When the trap is constructed, it can be checked twice a day at low tide and fish are removed using a small hand net (salya) and a woven bag (jirab)[22].

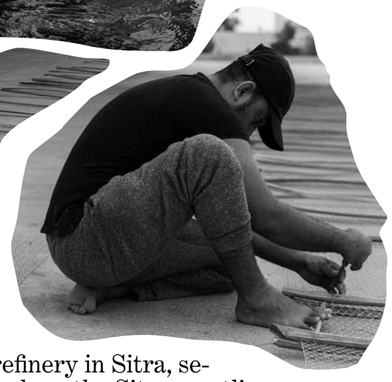
Bahrain's coastline has four main types of fish traps, each corresponding to local expertise in the villages around the island, as well as the relationship of the trap to the coastline and the movement of the tides and fish in the area(Figure 4). The decision to construct a fish trap came from either a person looking to own a fish trap for personal use (which could be the rassam himself, or someone else in the village), or someone who has the capital to build the trap for the purpose of renting it out or selling it[23]. In Islamic law, "right to use" is the basis of property ownership. This means land can be claimed as long as it is worked but otherwise the sea or land is free to whoever will work it. In the case of fish traps, the satwa area, where these traps are built, belongs to no one and is considered the shared property of the village. Anyone could choose to build a fish trap, provided they had the means to do so and that their fish trap did not adversely affect another nearby trap. Once the trap is built, the fish-trap owner has the right to use the land for the trap in perpetuity, so long as it remains in use. The owner would not own the sea around the trap, but common practice forbids people from fishing near the entrance of the fish trap or stealing fish from inside. The owner of the fish trap does not own the land around the trap, and while the land within belongs to the owner of the trap, ownership is only reserved for the right to use, repair, sell, and trade the fish trap (not to build a house or reclaim the land)[24] [25]. As opposed to British property law, the land in the fish trap is not the basis of ownership but the continued usage and maintenance of the trap.

Given the consistency of the weather in the Gulf, both fish-trap yields and the costs of their construction and maintenance are relatively predictable. Thus, overtime these farms in the sea were treated as such, as property that can be bought, sold, and speculated upon. Deeds for the sale, rent, and inheritance of fish traps have been in use in Bahrain for several hundred years, in a manner similar to those of farmlands or houses. The relative stability of the investment in this area between land and sea is further underscored by the fact that despite their temporary nature, fish traps were eligible for incorporation into waqf, or religious endowment fund. In these cases the awqaf (plural: waqf) trust would manage the fish trap and its rent would either be split between them and the inheritors of the fish trap or be used entirely by the awqaf for various religious uses (repair of mosques, investments, events, etc.). Given that fish are plentiful in the waters around Bahrain and were not an exportable good like dates or pearls, the ownership of fish traps was typically not taxed[26] [27], and the income was rarely equal to that of farms[28]. Therefore, although they could be traded, inherited, and rented, many were still built for sustenance; constructed by the head of a household along with his children or

21 Ibid.
22 Ali Al Bin, personal interview with author, July 29, 2019.
23 Serjeant (1968), 49
24 Serjeant (1968), 497: These laws would differ slightly from place to place in the Gulf; in Kuwait for example one could only build the *hadhra* next to their property, so they would have to own land near the shoreline.
25 Serjeant (1968), 495.
26 Khuri, 53.
27 Some fish traps near private properties were being taxed, although this practice was done on a personal basis and abolished in 1932 by the ruler. "File 8/9 Annual Report of the Bahrain Government for 1350 A. H." [43r] (90/206), British Library: India Office Records and Private Papers, IOR/R/15/2/307, in Qatar Digital Library <https://www.qdl.qa/archive/81055/vdc_100025548103.0x00005b> (accessed June 11, 2019)
28 Khuri, 55: Shrimp fish traps in Sitra would yield much higher profits and thus more rent than the typical fish trap.

Figure 2.: Location of current fish traps along the coast of Bahrain.

Installing the fish trap walls. Nabih Saleh, Bahrain . Photo series by Dilmuni Couple, 2019.



Installing the fish trap walls. Nabih Saleh, Bahrain. First step of fish trap construction in Nabih Saleh, Bahrain. Palm fronds are tied to chicken wire to help stabilize the walls of the trap Photo series by Dilmuni Couple, 2019.

friends, or by a rassam and his team, with the catch given freely to the owner's extended family.

With the advent of the modern state, the laws concerning land use and right began to change the legality of the traps. Qatar banned the fish traps in 1994 and in Kuwait it became forbidden to own the shoreline and to construct these enclosures. Saudi Arabia, Bahrain, and the UAE implemented laws regulating shoreline use and fish-trap construction. Despite this there is continued use of fish traps in the Gulf, although in many cases, they are illegally constructed along the coast. In the case of Bahrain, the hudhoor exist in a state of legal limbo. In 1931, the British advisor to the Bahraini government issued a set of administrative reforms that were made at the start of the new ruler's reign. Alongside the standardization of property laws, land titles, awqaf, and maritime laws that were occurring, there was a proclamation issued on the legality of fish traps[29]. The proclamation issued by the Bahrain Land Settlement Department required the registration of all fish traps and their boundaries, the institution of a registration fee for the fish trap (which does not confer ownership), and the establishment of a government procedure for the creation of new fish traps. This proclamation was instituted with the aim of "preserving the rights of the government along the foreshore and sea"[30]. Following the proclamation were a series of cases providing settlements or compensation for fish traps that had to be removed. As part of the process for creating the Bahrain Oil Company (BAPCO) refinery in Sitra, several of the fish traps along the Sitra coastline were leased by the company for a decade before being demolished. A similar policy was enacted by the British Royal Navy upon purchasing land for a base in Juffair[31]. Similar to compensation for land appropriated by the state, fish-trap owners were compensated for lost traps with ten years' worth of rent based on market rates. Documents from this time relate the rationale behind the decisions that had to be made to fully incorporate the weirs into the modern property market. Although the ownership of the weirs was well-documented and integrated into the systems of modern government, the issue they ultimately represented was that they were a form of proprietorship not based on the ownership of land but rather, on the traditional rights to use. This was further complicated by their existence as a rebuildable structure (neither fully permanent nor temporary), in an area that was neither fully claimed by property law or maritime law.

While the weirs of the Gulf persisted due to their ability to take on the processes of land registration, speculation, and rent in the same way that farms have, it is their existence as an impermanent structure, on a shifting coastline, with unclear property rights that has led to their problematic legal position today. The gray area created by British maritime law and early twentieth-century policies continues today. Some fish-trap owners have land deeds and licenses for their enclosures, others have licenses to use the traps but no deeds or ownership documents[32], and some

29 "File 6/17 II Proclamations and Public Notices issued by the Bahrain Government" [103r] (206/513), British Library: India Office Records and Private Papers, IOR/R/15/2/1228, in Qatar Digital Library <https://www.qdl.qa/archive/81055/vdc_100032671548.0x000007> (accessed June 10, 2019).

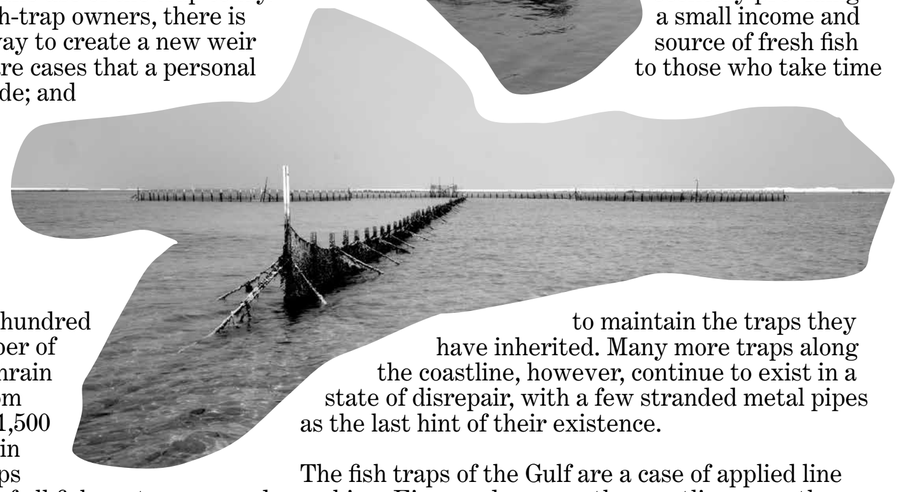
30 "File 8/9 Annual Report of the Bahrain Government for 1350 A. H." [43r] (90/206), British Library: India Office Records and Private Papers, IOR/R/15/2/307, in Qatar Digital Library <https://www.qdl.qa/archive/81055/vdc_100025548103.0x00005b> (accessed June 11, 2019).

31 Coll 30/65, "Persian Gulf. Bahrain. Purchase of land at Bahrain by H.M.G. for naval and R.A.F. purposes," British Library: India Office Records and Private Papers, IOR/L/PS/12/3782. Retrieved from Qatar Digital Library <https://www.qdl.qa/archive/81055/vdc_100000000648.0x00015d> (accessed June 12, 2019).

32 Hamza Al Hurz, personal interview with author in Nabih Saleh, (March 26, 2019).

traps have none of the above, rendering them illegal but still in use. One notable example was mentioned in the 1930's government reports as being illegal and unregistered but nonetheless remained in use for almost one hundred years, with the grandchildren continuing to make use of the trap today. For aspiring fish-trap owners, there is effectively no way to create a new weir except in the rare cases that a personal exception is made; and the renaming, selling, and inheritance of fish traps is handled on a case-by-case basis.

closures. The structures remain in use today, less as a source of rentable real estate and more as part of a subsistence economy providing a small income and source of fresh fish to those who take time to maintain the traps they have inherited. Many more traps along the coastline, however, continue to exist in a state of disrepair, with a few stranded metal pipes as the last hint of their existence.



In the past one hundred years, the number of fish traps in Bahrain has declined from approximately 1,500 in 1930[33] to 683 in 2019[34]. Fish traps account for 2% of all fishery tonnage and 5% of all fish and shrimp catches in Bahrain[35]. Although, the paucity of published information on the traps in Bahrain further hinders new policy approaches to the en-

The fish traps of the Gulf are a case of applied line making. Figures drawn on the coastline were then built in the sea. These lines are surprisingly accurate despite having been constructed in lengths that are sometimes greater than two-hundred meters without

33 Ibid.

34 مناطق تواجد الحضور ف مملكة البحرين [Trans: Location of *Hudhoor* (fish traps) and their location in the Kingdom of Bahrain], Ministry of Work and Municipality Affairs and Urban Planning Directorate of Marine Control, 2019.

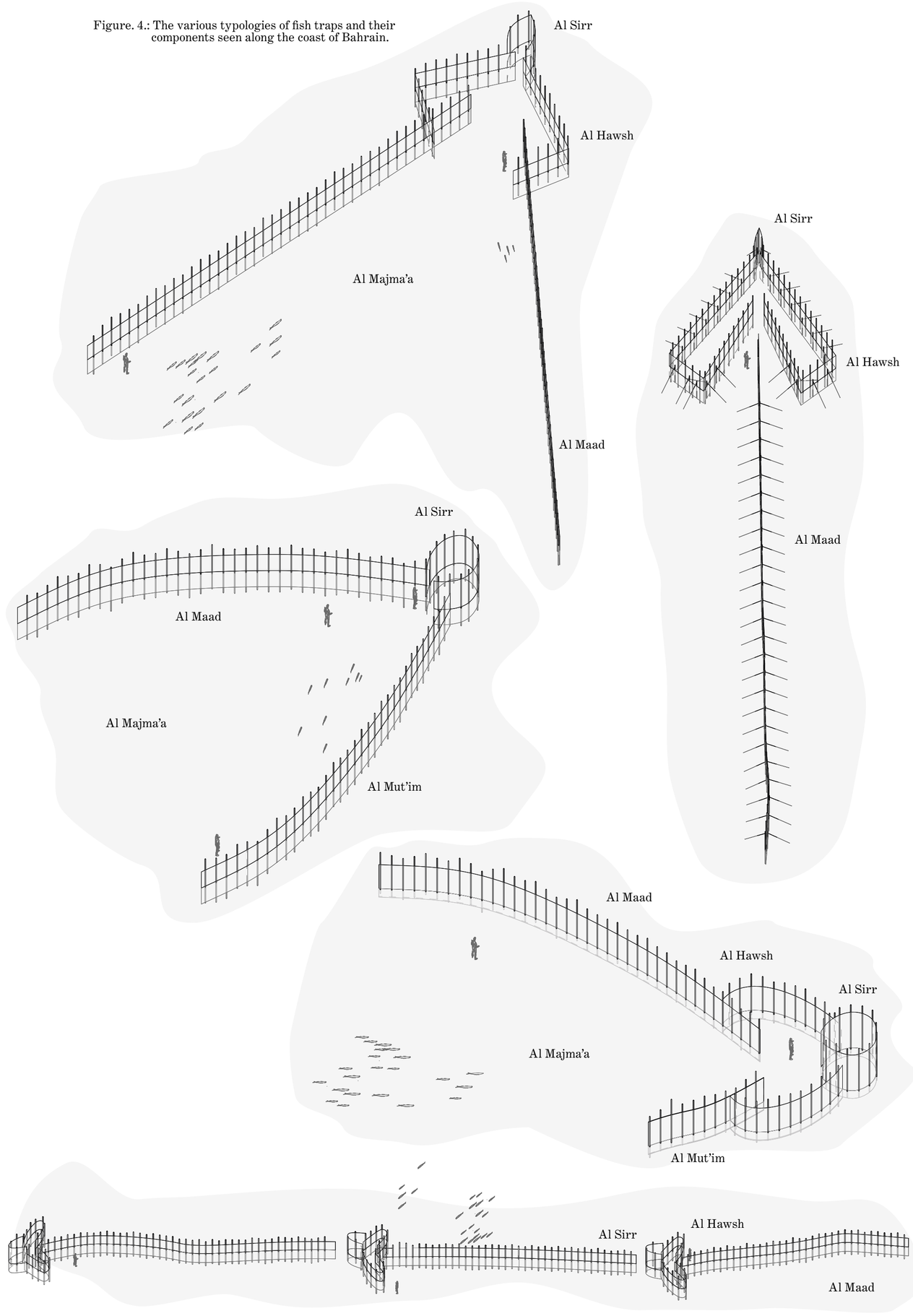
35 Information and Government Authority, "Bahrain in Figures 2016, General Directorate of Statistics and Population Registry" (2017): 48. Retrieved from < http://www.iga.gov.bh/Media/Pdf-Section/Bahrain_in_figures_Booklet.pdf > (accessed July 20, 2019).

Fish trap construction in Malikiya, Bahrain. Photos by Dilmuni Couple, 2018.

Nabih Saleh, Bahrain fish trap installation. Photo series by Dilmuni Couple, 2019.

Fish traps along the Barbar coast, Bahrain. Photos by Dilmuni Couple, 2018.

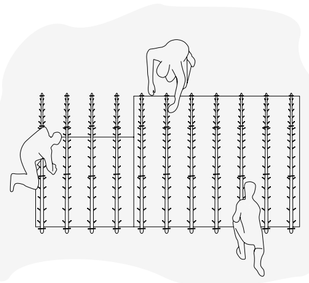
Figure. 4.: The various typologies of fish traps and their components seen along the coast of Bahrain.



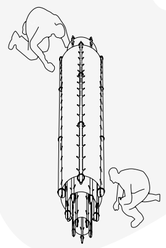
First step of fish trap construction in Nabih Saleh, Bahrain. Palm fronds are tied to chicken wire to help stabilize the walls of the trap. Photo series by Dilmuni Couple, 2019.

surveying equipment in muddy waters and shifting tides. The combination of prehistoric devices and modern land policies makes them simultaneously an anachronistic technology and a unique adaptation to profiting from the shallow waters of the region. The fish traps construct a perimeter around the island of Bahrain that is a bathometric mapping of the final transition point between land and water. Their steady disappearance is in large part a product of instituting governmental property in the early twentieth century, and the application of modern maritime and property laws to the coastline. As a legal framework however, these laws fall short in a context where the absence of hard definitions between sea and shore create a loose explanation of land. The resolution of this shifting boundary has been through extensive reclamation, eliminating the interstitial zone by backfilling and building upon the shallow areas. Using the satwa for speculative development has eliminated many of the shallower swimming areas, public beaches, and fish nurseries along the coastline. Although the fish traps have their own issues of maintenance—trapping sensitive species if not checked regularly—they are also more sustainable than trawling and over fishing with drift nets. When built and supervised they provide food at the scale of small communities, allowing for the provision of food to neighborhood markets and drastically reducing the overall cost of the food network as many fish-trap users either distribute amongst their neighbors or sell their daily catch at a local market.

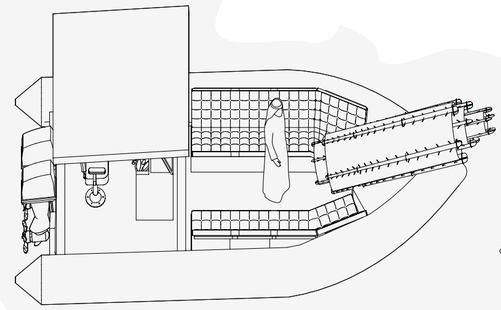
Fish traps have remained largely ignored since the 1930s, a reminder of the indeterminate areas that modern governance produces but chooses to ignore. As a small-scale architecture in the sea, the weirs remain an example of community-centered food security, offering possibilities for productive, private subdivision of the shoreline, and a model of ownership that can be short-term, emphasizing the right to use rather than being a permanently owned property. The fish traps are part of a several-millennia history of productive use of the coast, a set of lines connecting the sea and shore. More importantly, they represent an understanding of the fair use of the shoreline as a collective asset and the importance of maintaining a body of knowledge that includes seasonal and environmental changes. They should be seen less as a liability due to their short-term existence and more as a possibility for economic models that are based on seasonal ownership and the ability to utilize and create land usage in a short-term fashion.

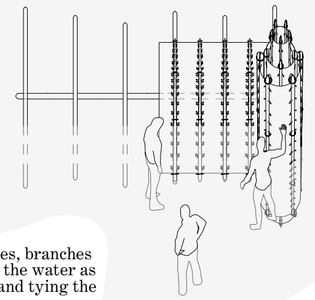


1. Preparing the walls of the fish trap on the beach by tying palm branches to chicken wire mesh.

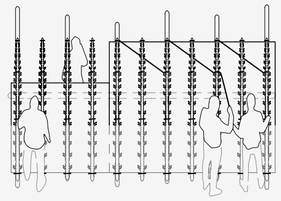


2. Rolling up the fish trap wall and loading it onto a boat.





3. Placing PVC pipes, branches or metal pipes into the water as a initial structure and tying the fish trap wall to it.



4. Cross-bracing and reinforcing the fish trap structure by tying it to the pipes at multiple locations as well as the elements of the wall to each other.

Figure 3.: The construction process of the fish traps (hadhra).

Ain Al Jinn Collection Pool, Bahrain. Photo courtesy of Hind Alghusaibi, 1997.

While the desert kites and fish traps are both anthropomorphic lines in topography (sand or sea) the waterways of Arabia are the nearest precedent to the highways and road networks that organize cities in the region today. As opposed to merely an element of the subsistence economy or functionalist devices for catching wild prey, the water channels of Arabia constitute the region's most extensive collective infrastructure. The challenges posed by the hot and arid climate with low rainfall and little drinkable water necessitated a series of architectural, ecological, and social innovations that could sustain life. In this case, the idea of planning is the combination of lines drawn to create an infrastructure from natural water sources to farmland as well as the policies for the sharing of these resources and maintaining the infrastructure. This section will look at Bahrain primarily, but many of the points mentioned are shared between the Gulf states. The parallels to farming in Bahrain can be found in varying degrees in Al-Jahra in Kuwait, Al-Hasa Oasis in Saudi Arabia, Al-Ain in the UAE, and in many of the farming areas in Oman. It is the goal of this chapter to examine the scales of the water network from the source to its use in an individual farm plot, highlighting the conceptual and built networks that enabled life in a desert climate prior to the discovery of oil.

Bahrain has been continuously inhabited for over five thousand years. The island's ability to sustain life throughout history is entirely contingent on the supply of water found on the island. Prior to the discovery of petroleum, Bahrain's economy was dependent on pearling, regional trade, and agriculture (primarily dates, date honey, and palm-tree byproducts). Bahrain's water needs were filled by terrestrial and marine sources whose water derived from the springs[36], wells, and collected rainwater[37]. There are nearly two-hundred springs in Bahrain[38] [39], of which fifty are well-known village springs and wells[40]. These fifty water sources can be split into two kinds: thirty that are Bahrain's natural artesian springs[41] and the most famous in the island nation; the remaining twenty are wells that use collected rainwater[42] in areas with a high water table. Millennia of reliance on these sources of water formed the basis for codes to insure equal rights among the community and equitable use of the natural resource. The springs constituted a public domain and stakeholders in the community were responsible for maintaining them and their water channels(Figure 1). The larger springs were among the earliest public spaces in the region. In the Dilmun era (3000 BCE) temples like Barbar Temple were erected next to springs and until the twentieth century, most of the larger springs in the country had a mosque, public bathrooms, and a shaded rest area for public use. The spring and its channels were a part of daily life, used as recreational space for swimming and exercise, and as place for the fulfillment of daily functions like filling water jugs, using the bathroom, bathing and cleaning clothes and cookware. The gendered nature of these functions also meant that springs were assigned separate hours for men and women to use the water. Or, if the spring did not have these hours, the men would use the spring and the women would go to the water channels near it. In the cases where two springs were closer together or a single spring was large enough, there would be separate springs/pools for men and women; as in Al-Dair village's Ain Al Sada (men's spring) and Ain Al-Niswan (women's spring). The springs also played a ceremonial role, and until the mid-twentieth century a bride and groom would bathe in a spring the week of their wedding[43] as part of the matrimonial ceremony.

The northern/northeast coasts of Bahrain hold most of the country's population due to the presence of artesian springs. From these springs emerged a network of open water channels, siban, which would be used to irrigate farms

36 Specifically water from the Umm er Radhuma-Dammam Aquifer System (Alat, Khobar and Umm Er Radhuma): UN-ESCWA and BGR (United Nations Economic and Social Commission for Western Asia; Bundesanstalt für Geowissenschaften und Rohstoffe), 2013. Inventory of Shared Water Resources in Western Asia, (Beirut): 386. Retrieved from https://waterinventory.org/sites/waterinventory.org/files/chapters/Chapter-15-Umm-er-Radhuma-Dammam-Aquifer-System-Center-web.pdf (accessed on December 11, 2019).

37 Curtis E. Larsen, *Life and Land Use of the Bahrain Island: The Geoarcheology of an Ancient Society*, (Chicago: University of Chicago Press, 1983), 16.

38 Ibid, 91.

39 "155 springs," according to R.B. Serjeant, "Customary Irrigation Law Among the Baharnah of Al Bahrayn," *Bahrain through the Ages: the History*, (London; New York: Kegan Paul International, 1993), 475.

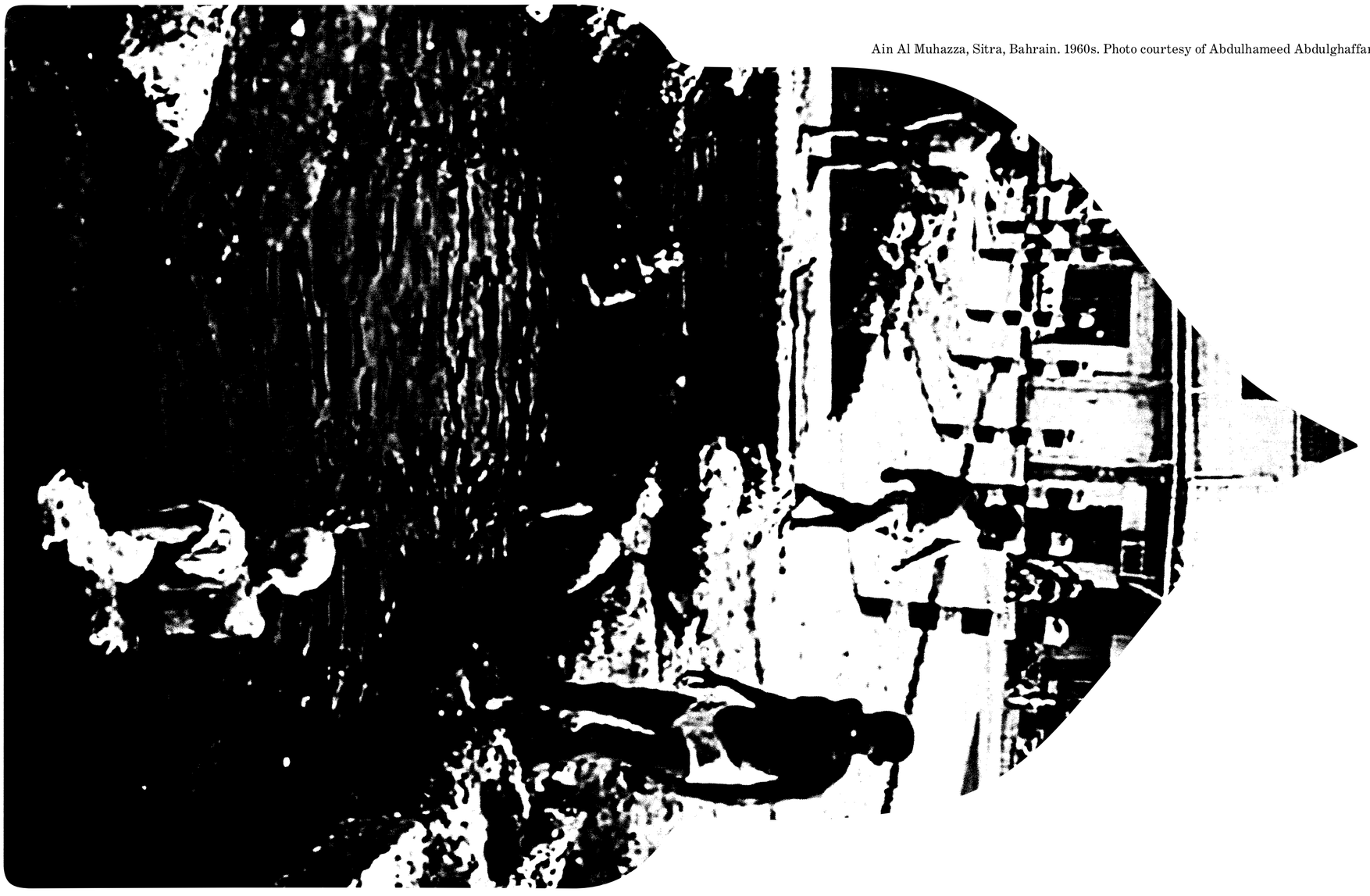
40 Puspita Roy Choudhury, "Bahrain Historic Spring Map," Bahrain Authority for Culture and Antiquities, (2019).

41 Hind A. Al-Gosabi, Tareekh wa waqi'I aluyoon altabi'iya fee dawlat al Bahrain, [Trans: *History and Reality of Natural Springs in the State of Bahrain*], (Arabian Gulf University, 1997), 38.

42 Ali Al Shabani, personal interview with author, (July 18, 2019).

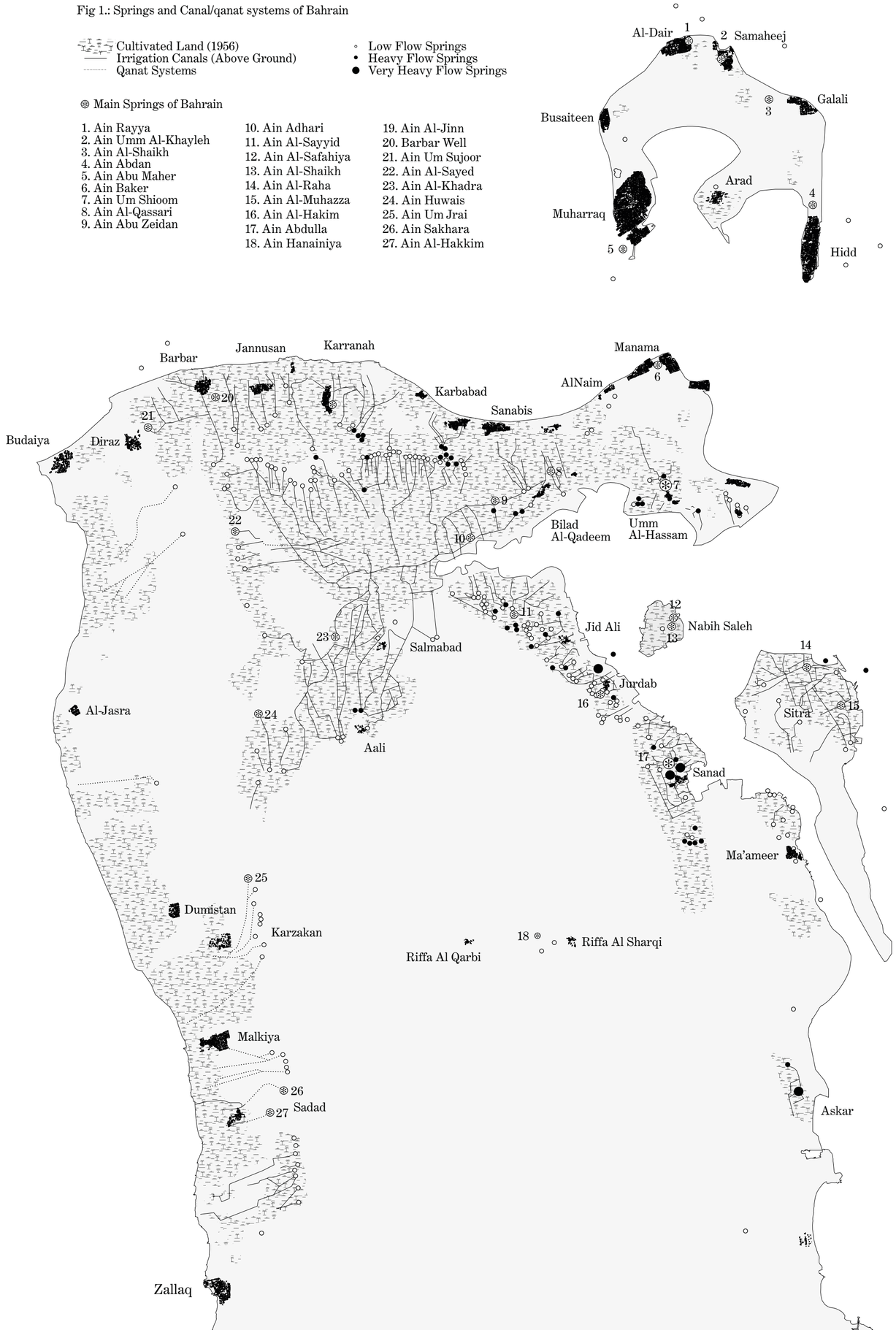
43 Saeed Mohammed, "Awdah ila masayif ahl al Bahrain fil mathee al Jameel" [Trans: "A Return to Bahraini Resorts from the Beautiful Past"], http://www.alwasatnews.com/news/438495.html> (accessed September 1, 2019).

Dumistan farmland, Bahrain. Photo by Camile Zakharia, 2019.



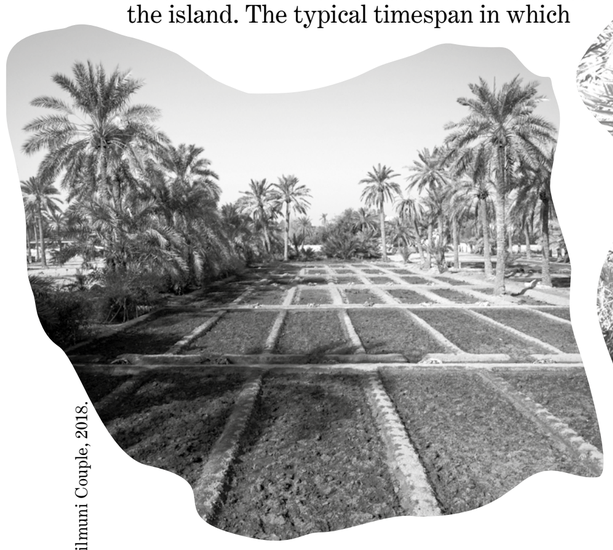
Ain Al Muhazza, Sitra, Bahrain. 1960s. Photo courtesy of Abdulhameed Abdulghaffar.

Fig 1.: Springs and Canal/qanat systems of Bahrain



along the coast, eventually discharging into the Gulf of Tubli and the northern coastline. However, on the western coast of Bahrain and in the valley in the middle of the island there are no natural springs. There, the water sources are a combination of accumulated rainwater and areas where the table was high enough that groundwater could be accessed by digging a few meters into the ground. As opposed to the north and northeast coasts of Bahrain where water was more plentiful and where in places like Nabih Saleh and Sitra, where open channels ran "fast as rivers"[44], these areas required the channels be covered to prevent water loss. The villages of Dumistan, Karzakhan, Malkiya, Sadad, and parts of Hamala and Saar all make use of underground water channels[45], called qanawat[46]. While the above ground channels were simply deep ditches crisscrossing the island, the qanawat were several meters below ground, with walls made of froosh, coral stone. This meant that the water was saved from evaporation due to heat and sun exposure, and the lining minimized the absorption of the water into the soil. Covering the channels prevented dust and dirt from polluting the water as it travelled several kilometers to irrigate farms. Every fifty meters there would be a cylindrical opening that was used to access the qanat for repairs and to conduct work on the channel(Figure 2). The origin of these qanawat in Bahrain is the subject of academic debate, with the possible date of introduction before or after the introduction of Islam to the island. The typical timespan in which the qanawat were introduced to the island between 300 CE and 700 CE[47], with the possible introduction from Persia or Oman during the Sassanid period (~400 CE)[48]. Since that introduction, the qanat system remained in use until the early twentieth century(Figure 3).

With the construction of the channels came the organizational infrastructure, which allowed the system to increase the efficiency of the water use. A host of professions rose to fill various needs in the agricultural sector. The first sets of professions were those related to water raising and the channels. Springs had people tasked with operating wells and water-lifting devices like the zajira, and the counterpoise lift, gharafa(Figure 4). The channels had their equivalents of engineers, people who would dig and construct new channels, and repair and clean existing ones. Once the water was in the channels, the water from springs would be shared by subdividing each spring



Karranah village farmland, Bahrain. Photo series by Dilmuni Couple, 2018.

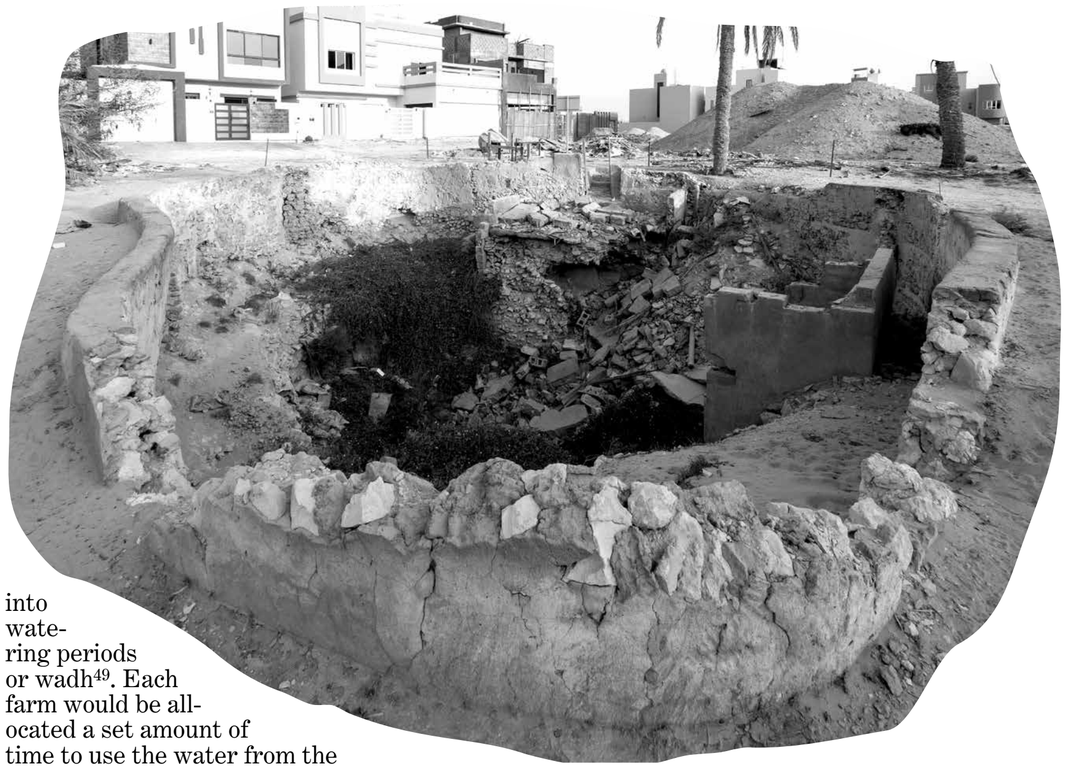
44 Ali Al Hurz, personal interview with author, (March 26, 2019).

45 Puspita Roy Choudhury, "Bahrain Historic Qanat Map," Bahrain Authority for Culture and Antiquities, 2019.

46 *Qanat* in singular, *Qanawat* plural meaning channels. Also known as *Falaj/Aflaj* in the UAE, and commonly referred to as *thuqb* in Bahrain, although *thuqb* refers more specifically to the circular openings of the underground channels.

47 D. Lightfoot, "The Origin and Diffusion of Qanats in Arabia: New Evidence from the Northern and Southern Peninsula," *The Geographical Journal* 166, no. 3, (2000): 215-226. Retrieved from http://www.jstor.org/stable/823073.

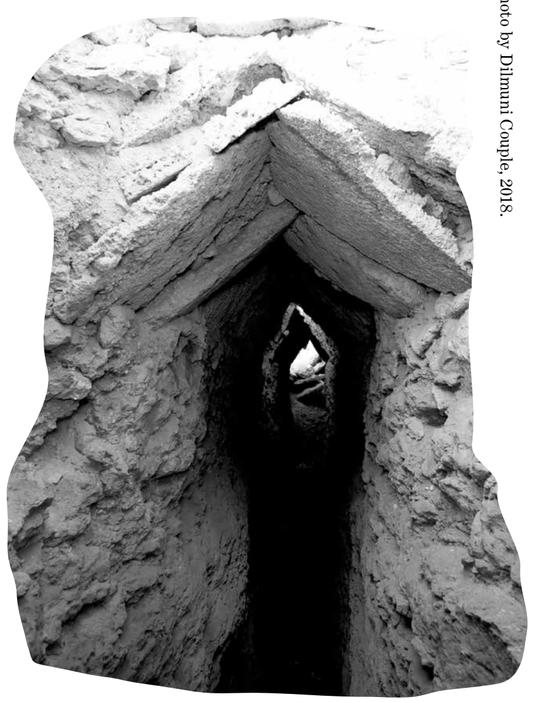
48 Hussain M. Al-Jamry "Binaa Thuqb wa Qanawat Taht ardiy'a fil Bahrain: Ikhtibar farathiyat" [Trans: Construction of Thuqb and underground channels in Bahrain: Possible theories], 2017. Retrieved from <http://www.alwasatnews.com/news/1060981.html> (accessed September 1, 2019).



Ruins of Ain Al Hakeem Spring, Sadad, Bahrain. Photo by Dilmuni Couple, 2018.

into watering periods or wadh[49]. Each farm would be allocated a set amount of time to use the water from the channels before having to close their access, allowing their neighbors to receive the water. The farmers would employ a falaki, (an astronomer), to help determine the amounts of water that would be available at different times of the day (depending on the timing of high tide/increased groundwater levels) and help determine the hours by which the farmers would abide[50]. The need to decide on water amounts required a communal agreement over how much water each farm was allocated, thus regular meetings would occur between those sharing the channel to ensure everyone's continued adherence to the system as well as to collect funds when repairs had to be made[51]. The conventions existed to prevent disagreements, but in the cases where the disputes could not be resolved in the collective meetings, a judge educated in Islamic jurisprudence was asked to intervene[52].

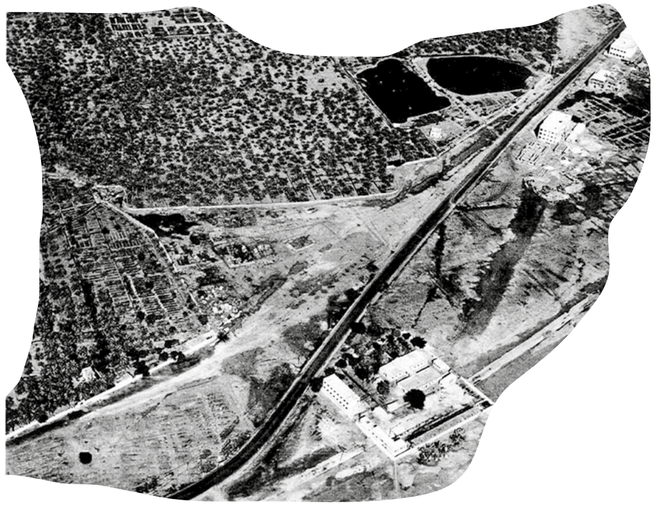
As it became easier to predict the yields from farming, particularly in the case of palm groves[53], the system for renting farms developed as well[54]. This led to the increasing trade in farmland as an investment, and, for those with sufficient capital, investing in the development of barren land as property to be rented, sold, and traded. Records in the Bahrain National Museum chart this development from the



Underground water channel (qanat) in Saar, Bahrain. Photo by Dilmuni Couple, 2018.

49 Serjeant (1993), 480.
50 Particularly during night-time watering hours, when it is more difficult to determine precise times.
51 Britta Rudolff and Muhammed alZekri, "A Network of Traditional Knowledge: The Intangible Heritage of Water Distribution in Bahrain," *International Journal of Intangible Heritage* 9, (January 2014): 83-97. Retrieved from https://www.researchgate.net/profile/Britta_Rudolff/publication/297551251_A_network_of_traditional_knowledge_The_intangible_heritage_of_water_distribution_in_Bahrain/links/58dcc7f0458515152b6409cd/A-network-of-traditional-knowledge-The-intangible-heritage-of-water-distribution-in-Bahrain.pdf (accessed on August 10, 2018).
52 Ibid, 86.
53 Khuri, 47.
54 Information on the leasing of farms, contract length and rates can be found in Fuad Khuri's, *Tribe and State in Bahrain*

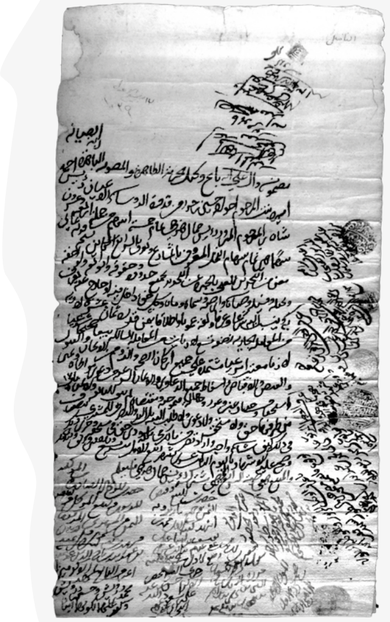
Aerial view of Al Safriya farmland. Photo by Dilmuni Couple, 2019.



Karranah village farmland, Bahrain. Photo series by Dilmuni Couple, 2018.

Karranah village farmland, Bahrain. Photo series by Dilmuni Couple, 2018.

Figure 2.: Use of qanat infrastructure across the Arabian peninsula (Iran/Persia is the origin of such technology.)



'The sale of a garden in 'Ali for the sum [of] 118 Ardiyah- Dated 1629' - Bill of Sale in the Documents Collection of the Bahrain National Museum.

thirteenth century onward as various farms were sold and traded for money, goods, and fish traps, or made waqf. The trade in farmland would continue to respect the conditions of the water-channel network. Any land traded would have the specified watering hours mentioned in bills of sale, ensuring that even if the landlord changed, the overall water-use system would remain the same[55]. The development of the land market over time meant that by the turn of the twentieth century there were several terms for the various types and sizes of farmland[56]. These different titles allowed for a specificity in identifying the size of a farm, the method of its irrigation, its location between other sizes of land, what was planted, and other qualities that would further aid in the commodification of farmland. Terms like dulab, daliya, and sirma exist today. Although they have largely lost their specificity and have become relatively interchangeable terms for family farms. Previously, the terms would be used to refer to both different farm sizes as well as the methods of their irrigation(Figure 5).

Though the system for water distribution was egalitarian and communal, the dhaman, or rent contract for farms, was often exploitative. Rental agreements were conducted orally, which led to frequent disagreements between landlords and renters. Depending on the landlord, the system for renting land could vary between fair employment and indentured service. Palm cultivation is yearlong, and the tasks associated with caring for the grove occupy the entirety of the rent contract, which spanned from October of one year to September of the next[57]. This short-term land tenure meant that contracts were renegotiated yearly. Given the lack of alternative sources of income in pre-oil Bahrain, farmers would compete for the contracts, leading to a bidding war that was a boon to the landlord. These short-term contracts undercut the livelihood of the individual farmer and meant there was little motivation for farmers to put in the capi-

55 "The sale of a garden in 'Ali for the sum [of] 118 Ardiyah —Dated 1629," Bill of Sale in the Documents Collection of the Bahrain National Museum.
56 Khuri, 37.
57 Serjeant (1993), 473

Rags used to divert water flow in Bouri, Bahrain. Photo courtesy of Camille Zakharia, 2019.

Figure 4.: *Dulab* method of water channel irragation

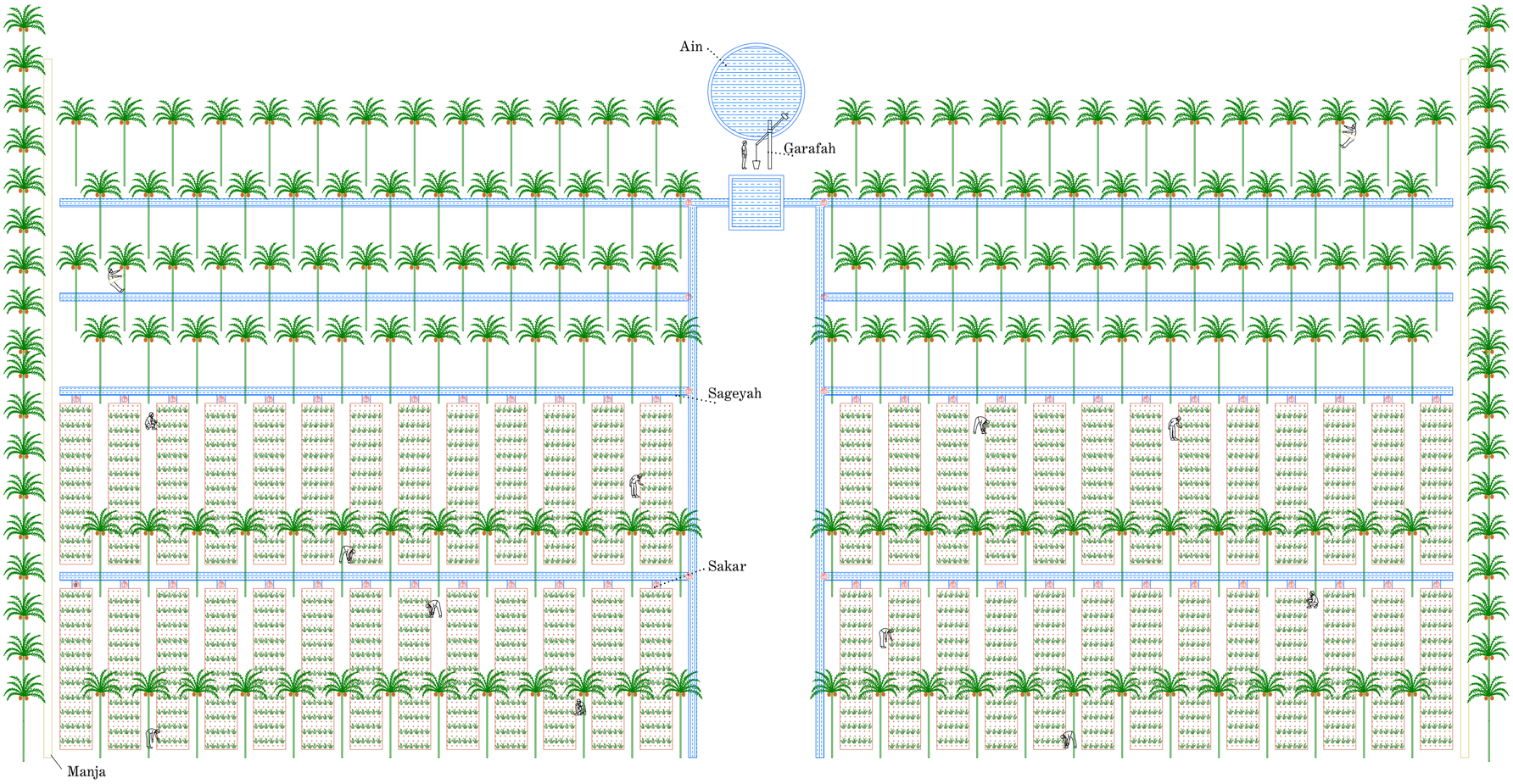
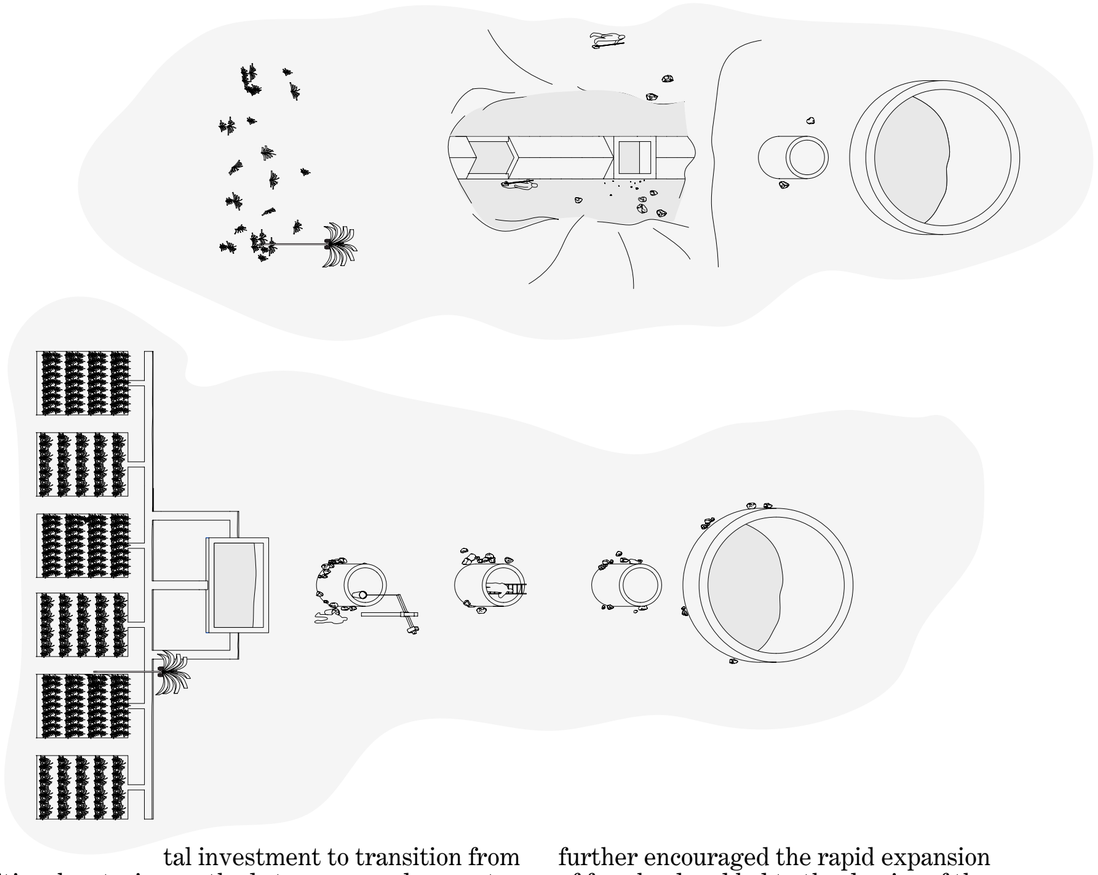


Figure 3.: The method of well and qanat construction



1.: Digging the underground channels.

2.: Constructing the channels.

3.: Constructing intermittent thuqbs (openings).

4.: The distribution of water for agricultural use.

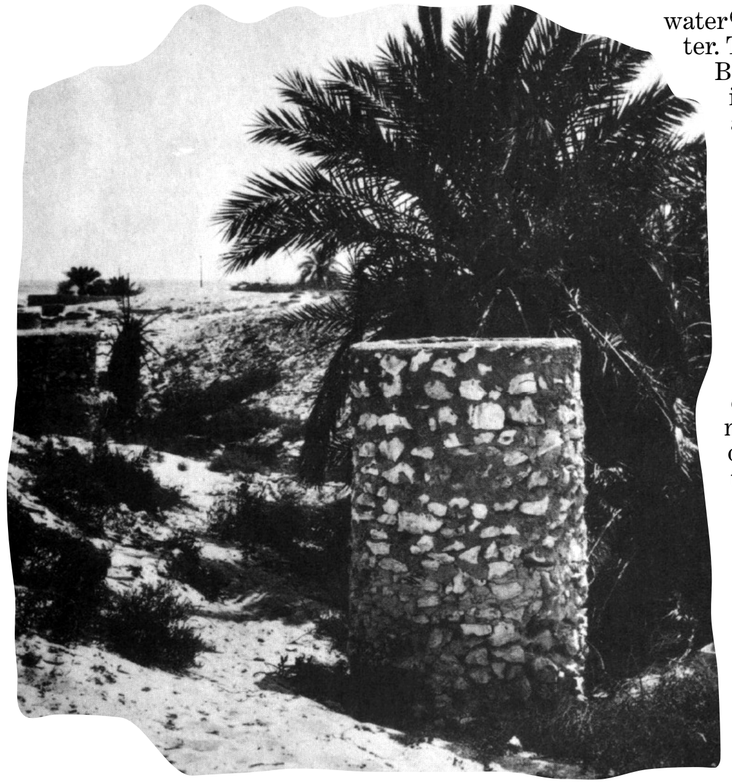
tal investment to transition from traditional watering methods to more modern methods like drip irrigation; not to mention, it diminished the vested interest of remaining in the agricultural sector after the discovery of oil[58]. The rental system has been discussed at length in other texts and so the mention here is less as a part of the social structure of farming and more to make the case for why farming had little appeal for a post-oil working class.

In 1960, thirty years after the discovery of oil, the government of Bahrain compiled thirty of the conventions on farmland in the Qanun Miyah Al Nakheel (Customary Irrigation Laws)[59]. Although these laws are neither binding nor particularly well written as a legal document, they were an effort to record the laws that governed farming and water use. The conventions covered the whole gamut of the farming system, from how water is to be divided, to how repairs on the system would occur, to liability and compensation in the cases of flooding a neighbor's farm or damaging their palm trees, to the terms of the dhaman contract. Given that it was produced in 1960, the document serves as more a post-mortem to the codes of pre-oil farming rather than as a charter to base the future of the agricultural sector. However, the document did attempt to include conventions on the use of water pumps, revealing the concerns with maintaining the traditional system of water distribution in light of the autonomy offered by the motor pump. It was the introduction of personal water pumps that further encouraged the rapid expansion of farmland and led to the demise of the shared water channels in early twentieth century. With the exploration for oil, came the digging of new artesian wells and the introduction of the water pump. Bahrain's groundwater was increasingly overused and by the 1970s, many of the springs in the country had dried up and their water had become saline.

There are many theories as to the reason behind the loss of groundwater in Bahrain: the damage done to the aquifer with the dredging of the Mina Salman port in the northeastern part of the island, increased water use in both Bahrain and Saudi Arabia of the shared aquifer between the countries, and the introduction of the water pump, which altered the water table drastically. Although those arguments account for the drop in the water table, salinity of the water and lack of groundwater, the death of the water channel, and the culture around water use ended with the introduction of the motorized water pump[60]. The pump allowed each farm to begin to extract its own water, effectively eradicating all need to share water or limit the use of water in a given area. This led to the rapid expansion of farmland for the benefits of increasing crop yields, which in turn increased rent values and also led to strategies for quickly acquiring land. Prior to the establishment of a land cadaster in Bahrain, empty land was available to whoever had the capital or expertise to work it. After all, barren land was worthless until planted. With the introduction of the water pump, any barren land could be quickly planted, fenced off, and a claim of ownership could be made for areas where there was previously no value. This rapid expansion of farmland was speculative both in terms of returns on farming and in predicting the increasing land values that would inevitably accompany the modern/British land-ownership system.

A system of real scarcity, water, was replaced with a system of artificial scarcity, land. The idea of growth as a sustainable development of resources, technology, and systems for utilizing limited land and water was replaced with the idea of open systems with endless resources, where scarcity only drives up real estate values. Despite the decline of agriculture, the loss of the springs, and the demolition of all traces of the channels, agriculture still uses half of Bahrain's

58 Larsen, 23.
59 Serjeant (1993), 478.
60 Waleed Al-Zubari, personal Interview with author, (September 10, 2018).

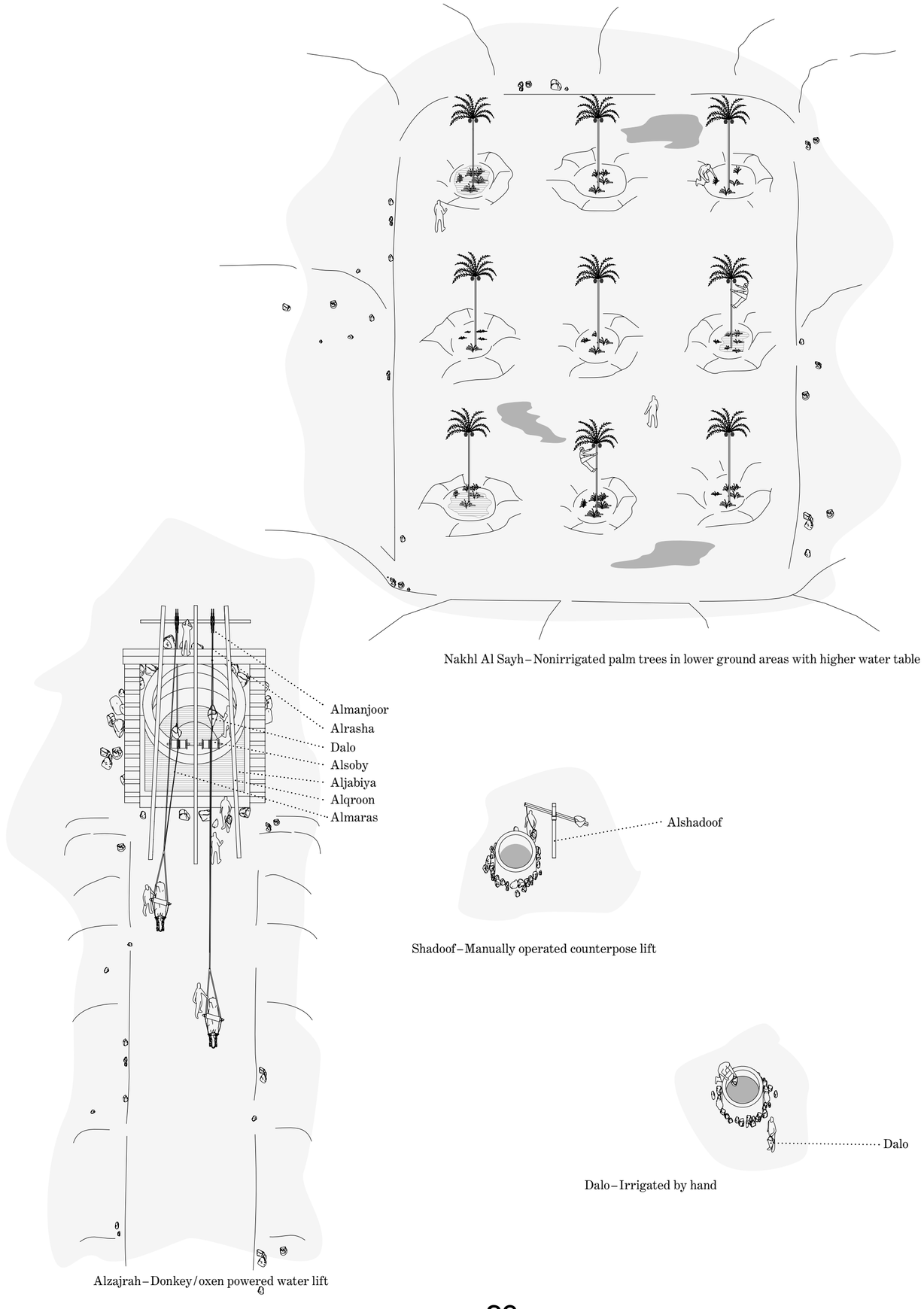


Thuqb openings of underground channels. Uncited photo from the archive Hussein Mohammed Hussein.

water[61] and 90% of all groundwater. The greatest irony of Bahrain's agricultural sector is not the demise of farming as a water-intensive industry but rather the diminishment of the commons that constituted the checks and balances against over exploitation. This is not to say that the farm or water channels of Bahrain or Arabia had ever been an egalitarian, idealized past. Rental contracts and land ownership systems contained as much injustice before oil as land ownership does today, if not more. Rather, it is an argument for both maintaining an alternative to the constructed scarcity of today's property market and the idea of growth as a constant reinforcement of this artificial scarcity, especially in a context where water and food scarcity is a very real and ever-present concern. The channels of Arabia are a two-thousand-year example of a non-urban past, which was planned—a studied, measured, and all-encompassing cosmology and social order of its own. It is not the organic dendritic Arab city that provides the historical case studies on how to plan land, but the gridded and studied subdivision of farmlands and the organized construction of underground channels to serve distant territories.

61 Mubarak A. Al-Noaimi, "Water Use and Management in Bahrain," (2005), 17. <http://niadbh.com/wp-content/uploads/2018/08/Water-Use-and-Management-in-Bahrain.pdf (accessed August 2, 2019).

Figure 5.: Typical irrigation/water raising strategies.

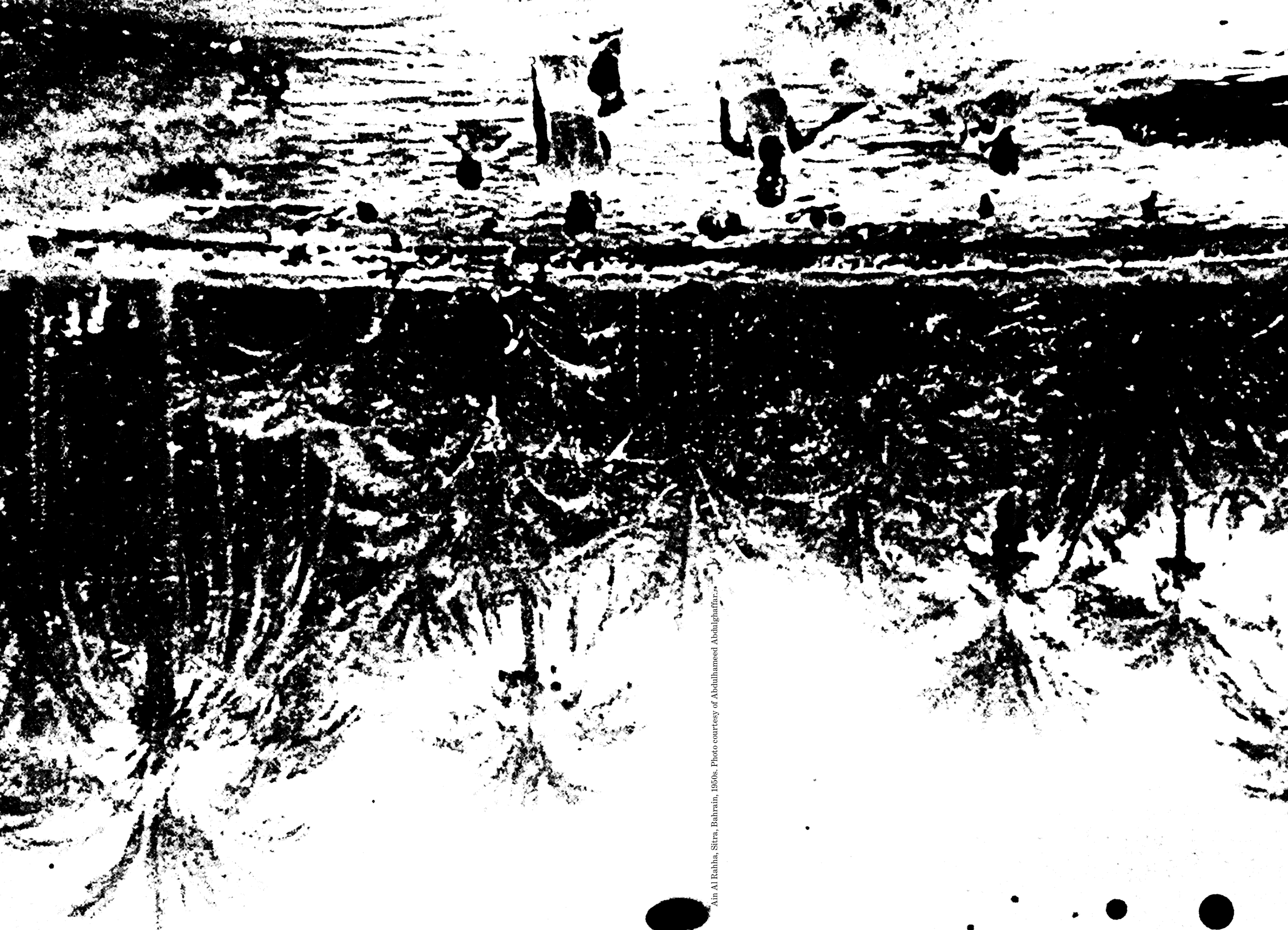


Nakhl Al Sayh – Nonirrigated palm trees in lower ground areas with higher water table

Alzajrah – Donkey/oxen powered water lift

Shadoof – Manually operated counterpose lift

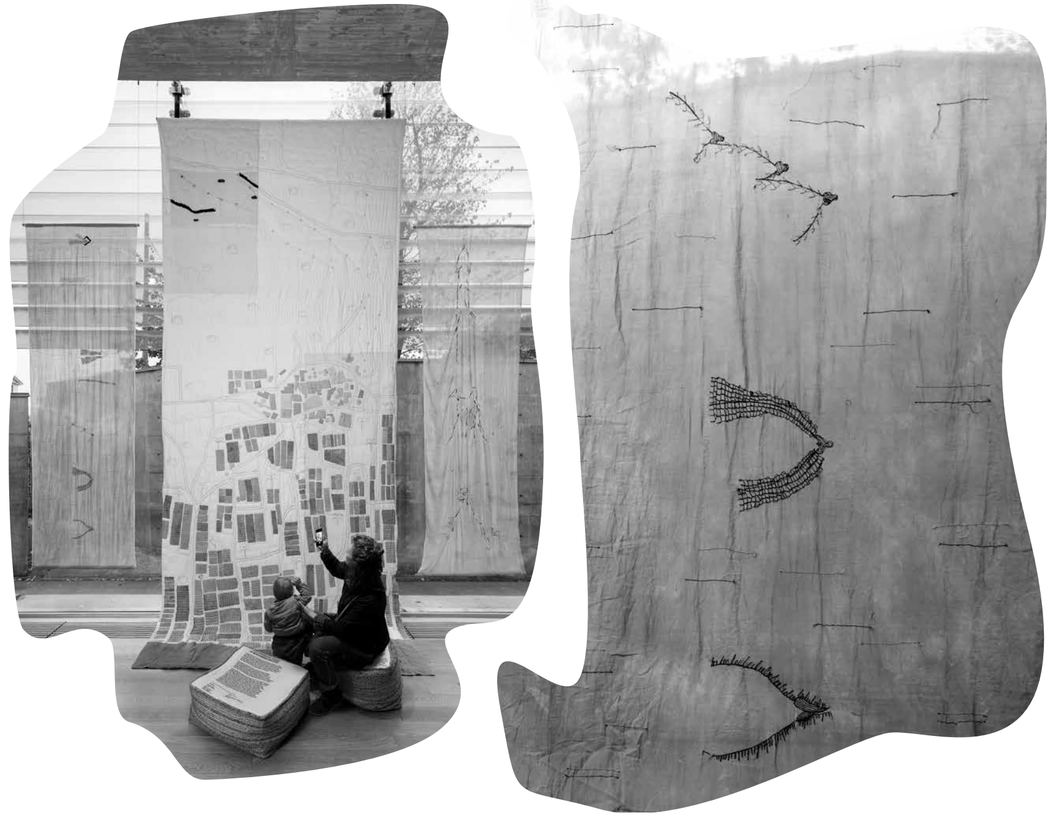
Dalo – Irrigated by hand



Ain Al Rahha, Sitra, Bahrain, 1950s. Photo courtesy of Abdulhameed Abdulghaffar.

The previous three chapters highlight ideas of planning (formal and political) as they existed without the modern rhetoric of city making or the impetus for endless urban growth. They orient the idea of growth away from systems without limits, towards systems that were bounded by scarcity. They also embodied ideas of ownership that centered on use—short term and long-term utility—as opposed to eternal ownership as the sole value for land. As necessary compliments to the Arab town, these examples form practices that are neither fully urban nor rural and blur the boundaries between the designated land types/uses that underpin the modern property market. The desert kites are an example of a semi-nomadic, semi-agricultural strategy for trapping migratory herds around the time that man began to farm in the region. The fish traps are an example of a family-owned structure similar to the kites, except they remain in use today and have taken on most of the property market laws and regulations as farmland—until British maritime law limited their existence. Finally, the springs, water channels, and underground infrastructure for moving water show the territorial infrastructure that allowed life to exist in the region and made up a significant portion of the economy prior to oil. The kites are almost entirely forgotten and the other two are headed for similar fates.

This concern is not over the death of these armatures of pre-oil life. Rather, the concern is with the hasty elimination of any non-oil narratives for medium- and long-term planning; and the substitution of the ad hoc, unplanned Gulf city as the precedent to today's autonomous developer. We are ultimately interested in what constitutes history and pre-history. In the post-oil period, the notion of prehistory has begun to envelop all narratives that are not oil or nation-state dependent. With the elimination of these narratives comes the erasure of bodies of knowledge aimed to create alternative divisions of resources and strategies for their management.



The overall installation at the National Museum as part of the Oslo Architecture Triennale. Photo by Istvan Virag, 2019.

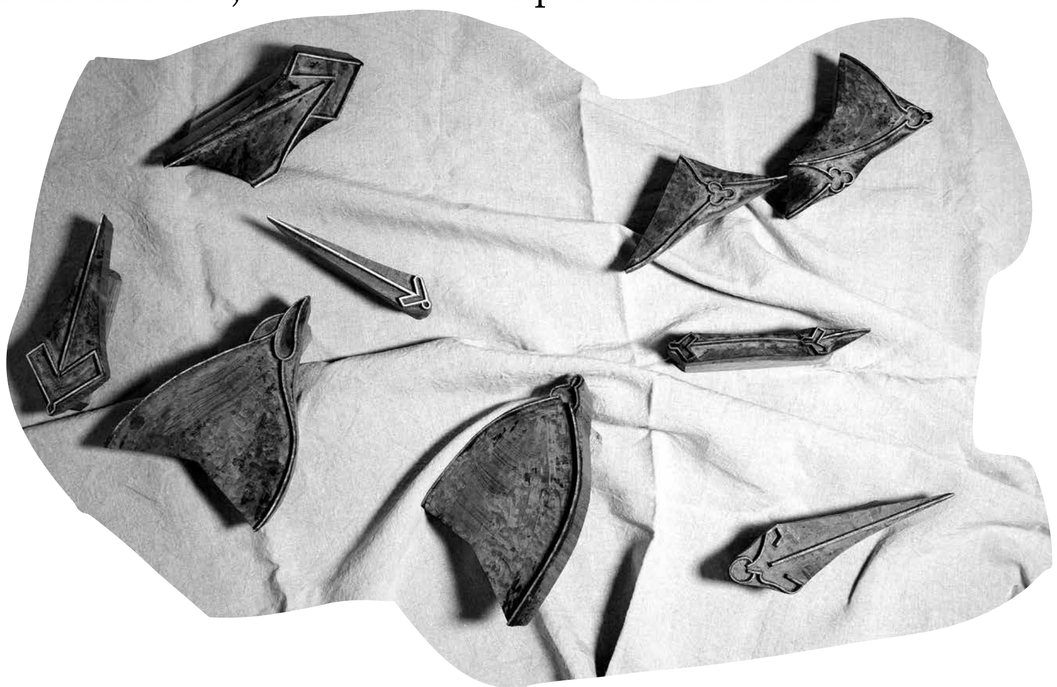
Land after oil becomes solely an asset of value if there is oil under it, or construction on top of it. It is our hope that this documentation provides different engagements to ideas of planning, ones that redefine community and collective ownership through different approaches to land and the drawing of lines onto it.

For the Oslo Architecture Triennale, we presented these case studies as a triptych of tapestries done in collaboration with Bahraini textile artist, Hala Kaiksow. The two smaller works are of the fish traps of the Gulf coastline, while the sand-colored piece is of the desert kites in Saudi Arabia and Jordan. These two works show the desert kites as embroidered rope through linen,

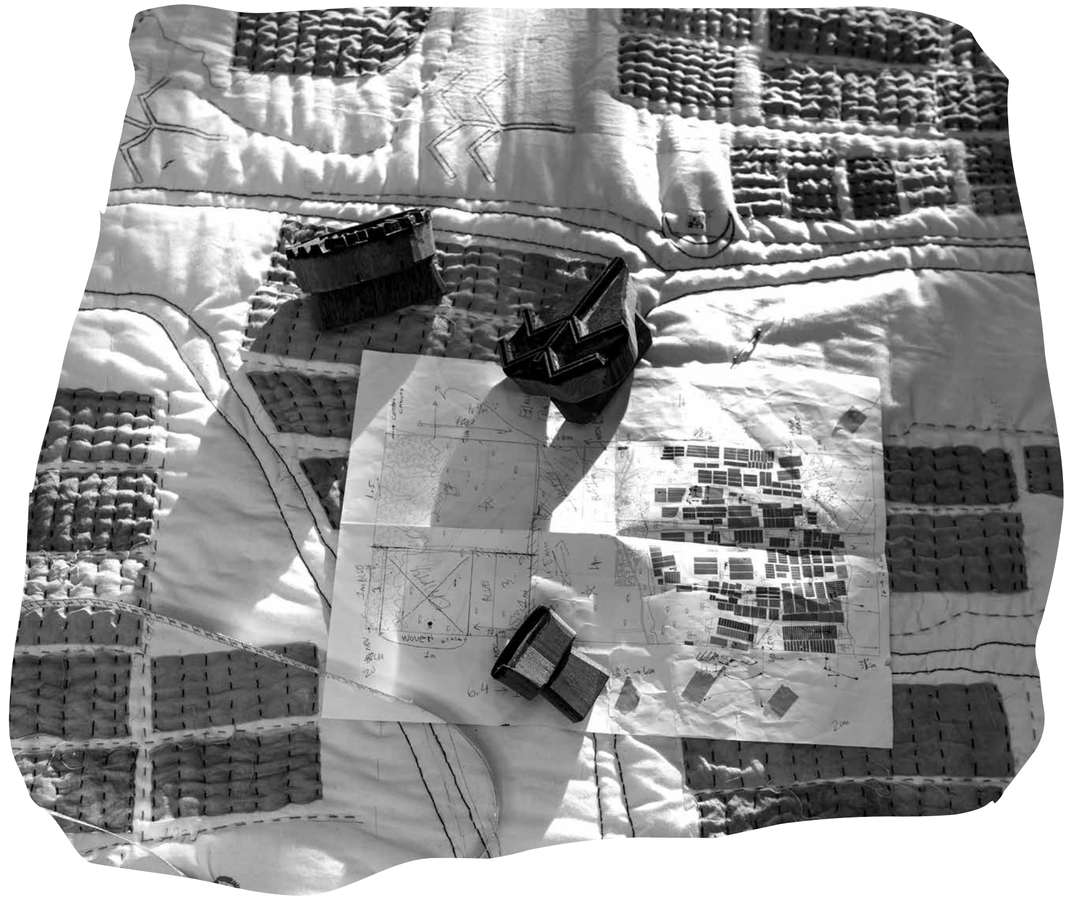
Hala Kaiksow's fish tapestry. Photo by Luis Callejas, 2019.

and the fish traps as a combination of wood stamps and lace-like weaving. The larger tapestry is a combination of quilting and weaving to create a mapping of the water channels around the village of Karzakhan, Bahrain. The fish traps are effectively woven fences in the sea, the channels are combinations of ditches and constructed underground aqueducts, and the desert kites are large aggregations of rock combined with a wooden fence. The act of reproducing these as textiles presents them as part of a lineage of weaving as architecture with a material closer to the mediums that were traditionally used during fabrication. Presenting these forms in tapestry argues for their canonization as ideal landscapes within the domestic realm. They become arguments for an archetypal plan that is not the garden as an isolated personal domain (as Middle Eastern carpets typically depict), but as an entire network of forms and the shared landscape they produce. The ambiguity of the forms depicted allows us to present three plan views and still have them be near inscrutable, an indication of the visual literacy that has shifted greatly between the time the forms were drawn and their near-alien appearance today.

In presenting the history of these three large-scale landscape-intervention cases and the architecture of communal infrastructure, along with the cultural and social context that enabled them, we promote an idea of



Hala Kaiksow's Qanat tapestry. Photo by Dilmuni Couple, 2019.



Dilmuni Couple, 2019.

Fish trap stamps used in the making of the installation tapestry in collaboration with Hala Kaiksow. Photo by

planning in the Gulf that is about the drawing of lines and the creation of policies around those lines. This idea of planning understands growth as the expansion of infrastructure while acknowledging the scarcity of resources rather than scarcity of land or housing. It is an idea of growth that is centered on the increasing efficiency and equity of resource utilization rather than unchecked speculation. It was the aim of this exhibition to highlight the existence of non-urban history to the Gulf as a way of incorporating it into the greater disciplinary body of knowledge and to amend the role of architecture as a discipline that hastens the proliferation of brittle developmental models. In the absence of modern planning, and as counterpoint to both developer and Sykes Picot, these lines across Arabia suggest alternative formal projects and another collective history from which to draw an understanding of the Gulf as a political and ecological entity.

CIVIL ARCHITECTURE is a cultural practice preoccupied with the making of buildings and books about them. The work of Civil asks what it means to produce architecture in a decidedly un-civil time, presenting a new civic character for a global condition. Since its founding by Hamed Bukhamseen and Ali Karimi, the practice has attracted a strong following for their provocative works and their offer of an alternate fure for a nascent Middle East.

ALI ISMAIL KARIMI is a Bahraini architect whose work explores social housing, public space, and the urban landscape of the GCC countries. Ali received his Master in Architecture from the Harvard Graduate School of Design. Ali previously worked in Brussels with OFFICE KGDVS, in New York with SO-IL, and in Santiago-Chile with Elemental. Karimi has conducted research on government-built housing in the GCC with the Affordable Housing Institute in Boston as a Joint Centre for Housing Studies Fellow; and in Havana with a grant from the David Rockefeller Centre for Latin American Studies. His work and writings have been published in various academic journals including San Rocco and CLOG, and he also teaches architecture studios at the University of Bahrain.

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