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'We who move': the built environment of nomads in the Suleiman Mountains of Balochistan, Pakistan

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Abstract

This paper looks at nomad pastoralists migrating back and forth through the Suleiman Mountains of northern Balochistan, as part of their annual movements and importantly as guides for historic caravans. These caravans brought trade goods, particularly Central Asian horses, from the west to India. This 'Silk Road' link is central to the Karez System Cultural Landscape World Heritage nomination. Due to limitations on funding, challenges of physical access, politics and local conflicts, much of the research on these historic nomad movements and their built environment has been carried out using remote sensing imagery. It is possible to follow their trails marked in the images by compacted pathways, campsites, corrals, trail-side cemeteries and soil discolourations. This transient heritage is critically threatened as these nomad groups have been refused entry into Pakistan from Afghanistan due to border closures and conflict. The imagery over time shows how the nomadic built environment is becoming a layer of archaeological deposits. The most interesting challenge is how can this kind of 'minimal heritage' be documented, conserved and managed and whether it is possible to design a methodology for its preservation in some form.

Keywords Pastoral nomads, Built environment, Mountains, Silk Route, Caravans, Satellite imagery, Archaeology, Karez system, Horse trade

1 Introduction

The built environment and cultural landscape of nomadic peoples is, by definition, challenging to identify, interpret and conserve. It is the result of irregular and discontinuous activities distributed across wide areas of geological, topographical and ecological variation. This is exemplified by the nomadic groups who have travelled across the landscape of Northern Balochistan, between Central Asia and the Indian subcontinent for centuries. This area lies at the heart of a cultural landscape of valleys and rivers cutting through the Suleiman Mountains at the eastern margin of the Central Asian world and the western limit of the Indian subcontinent.

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The broad aim of this research has been to initiate investigation into the adaptation of nomadic communities in the high mountain areas of North Balochistan from a multi-disciplinary point of view reliant on limited tools and data due to the limited accessibility of the study area. The built environment created by centuries of repeated, low impact and small-scale interaction with an arid rocky landscape serves as an entry point into this interesting study.

2 Study area

The mountains of Northern Balochistan are riddled with a dense maze of valleys, passages, defiles and stream beds that provide nomads with access to every corner of the mountain range. Most give local access to pastures and neighboring villages, but many link to form passable routes across the entire massif, north to south and east to west (Fig. 1). Among this complex web of pathways

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there are routes that were regularly travelled by nomad caravans, explorers, surveyors, armies and traders for centuries, The main route through the northern mountains led from Kandahar through the Khojak Pass, across the north of Pishin valley then on to the Quetta Valley. then north eastwards to Zhob and across the passes leading to the markets of Dera Ismail Khan, Multan and the subcontinent (Codrington 1944; Toynbee 1961).

3 Historical nomads in Northern Balochistan

Pastoral nomads have played a central role in shaping this built landscape over the centuries, moving from the Afghan highlands at the end of the summer, across the Suleiman Mountains to more temperate areas of the Indus and beyond. The pastoral nomads follow the seasonal patterns of forage production, spending the summers in the cold highlands in Central Asia and winters in the warmer lowlands of Pakistan and India (Jasra 2001). They moved in search of watered areas producing the animal fodder they needed to survive the winter, starting the journey back to Afghanistan in early spring. Caravans of extended families and their camels, loaded with all their belongings, moved with their valuable herds across the open rangelands where they spent a few days, or sometimes weeks if range vegetation was abundant, following routes through the landscape (Fig. 2).

The mountainous frontier has always been a broad overlapping area where two different ways of life met: the culture of the pastoral nomads and of sedentary agricultural communities made possible by karez irrigation. A karez is a water supply system built as a series of vertical shafts excavated to connect to a sloping underground tunnel which transports water from foothill aquifers. The water is carried by gravity over long distances to farmlands and settlements in the valleys below (Yazdi and Khaneiki 2017). Within the valleys of this landscape there are still thousands of these karez underground water channels, many still in full or partial use, linked to remains of the communities they have supported for centuries. This settlement and the resulting agriculture supported caravans from Kandahar and Ghazni and the movement of trade goods along an important but little documented branch of the "Silk Route" formed by rivers and trails through mountain valleys and over the

Fig. 2 Contemporary Kuchi migrating through the mountains with their animals (Source: Kuchi Nomads documentary made by Zareef Khan Foundation for UNDP GEF SGP)

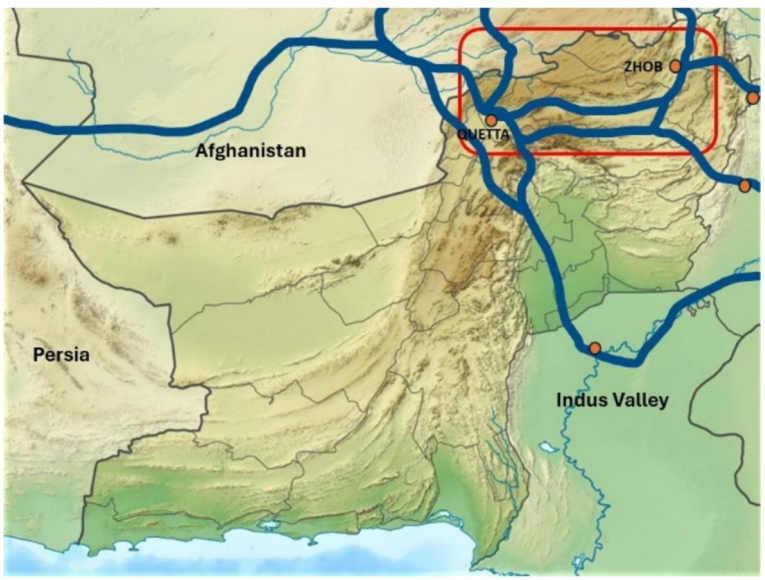

Fig. 1 Table Map of Balochistan showing the study area in red and major Silk Road routes in blue (Source: the author)

Suleiman Mountains to the Indus Valley and beyond (Gommans 1994; Kumar 2009; Williams 2014).

Steel and Crowther in their account of their journey in 1615 from India through Persia, describe Kandahar as the meeting place 'of many merchants of India, Persia, and Turkey, who often conclude their exchanges of commodities here. At this place the caravans going for India usually unite together, for greater strength and security in passing through the mountains of Candahar. (Purchas 2014).'

These caravans were led on the long and difficult journey by the nomadic tribes following the regular annual migratory routes, through the Gomal, Bolan or other passes to Multan and India. The most important trade was the large-scale commerce in horses from Central Asia via Southern Afghanistan, led by nomadic caravans through passes into the highlands of Northern Balochistan and then over the Suleiman Mountains for sale to the rising mounted warrior states in India. (Gommans 1994; Pour 2013; Kumar 2009). From the 13th through 18th c. many thousands of horse caravans made this journey every year along the Khorasan – India branch of the Silk Road. Traders from Afghanistan, Central Asia and the subcontinent took advantage of the nomads' traditional knowledge of the mountains, routes, water and fodder sources and hostile tribes to negotiate the difficult journey.

4 Nomads in the study area today

The inheritors of this nomadic tradition are the Kuchi or 'nomads' of Afghanistan and northern Balochistan; these are tribal and patrilineal groups based on a core family comprising multiple generations. Led by a tribal leader, Kuchi follow a traditionally migratory lifestyle that depends on livestock including goats, sheep and camels. Ethnically, the vast majority of Kuchi are Muslims and Pashtun (Rodriguez 1994). The Kuchi travel the alpine routes between Afghanistan and the Indus over rugged mountain terrain (Tapper 2008). Their migration follows routes though areas of what we might call 'least resistance and maximum benefit', moving and grazing on the outer fringes of contemporary settlements with whom they have only limited contact to access grazing facilities and animal fodder in return for which the nomads sell them animals, animal products and provide farm labour (Ker and Locke, 2010). As winter turns to spring, the Kuchi move to utilize the relatively rich grazing lands. At the end of summer, the kuchi will return to their lowland pastures along the border. During these spring and summer migrations, various households will leave and rejoin other herding units as they wish; no unit remains continuous while traveling, and only the number of livestock remains the same (Foschini 2013).

These modern nomads used to freely cross the international boundary of Pakistan, Afghanistan and the Central Asian states, travelling as far as Bengal and Burma to trade. Now due to international politics, conflict and border restrictions their scope for movement has been drastically reduced and they move mainly through Balochistan into the Indus valley in Sindh province trading Afghan fruit, fabric and kitchen ware (Fig. 2 and 3).

The Kuchi have followed these same routes for centuries fixing their goat hair tents, called *khaima* or Pashto *egdey,* where they chose to stop for a season (de Weijer 2007). They make their camps on the edges of the desert, in mountain passes and on riverbanks or on the edge of towns and villages, often going back to locations next to agricultural karez systems where they can take water. Camp sites are frequently re-used, each time with a slightly different layout, creating a complex palimpsest across the landscape.

The arid, rocky and barren environments of the north of Balochistan contribute to the preservation and visibility of nomadic sites, characterised by low artefact densities and minimal structural remains. While such remains would quickly be obscured in more dynamic environments with rapid rates of sedimentation, the relatively slow development of soils in the area often leads to well-preserved archaeological landscapes, We see this same phenomenon of accumulated visibility in other areas, including the Andes (Nielson 2022), Crete (Nixon and Moody 2017) and the Taurus hills of Turkey (Hammer 2014) where extensive pastoral nomadic landscapes are preserved largely above ground.

Fig. 3 Kuchi caravan moving along a modern road in Balochistan (Source: the author)

5 Research questions

The built environment of mobile, nomadic communities moving through difficult mountainous terrain along streams, rocky paths, enclosed valleys and arid slopes will inevitably be sparse and minimal. It will be the outcome of irregular and discontinuous activity and therefore challenging to identify, map and conserve. Current scholarly attempts to map Silk Road pathways in similar landscapes, such as those of Western China and Central Asia, have focused on connecting the dots between notable religious and urban sites throughout lowland and highland systems. This approach is presented in the World Heritage nomination for Silk Road: the routes network of Chang'an-Tianshan Corridor; it is not applicable to routes such as that across the Sulaiman Mountains where urban nodes and landmark religious sites are notably absent and routes are marked by transient campsites, scattered cemeteries, stone markers and trails themselves. These high elevation pathways form a different category of Silk Route forming links that were essential for the wider network to function.

The historic role of nomad caravans and historic Silk Road movement from the 10th through 19th c. is widely acknowledged in studies of the Silk Road and trade between Central Asia and India but has not been viewed through the lens of ancient or contemporary nomads, their built environment and its retrievability (Gommans 1994; Kumar 2009; Pour 2013). No mapping or inventory of the remains of nomad movement, ancient or contemporary, along traditional routes has been done to date. Study of contemporary nomad groups in Northern Balochistan and Afghanistan has focused instead on ethnographic issues of minority alienation, displacement and loss of social structures and on ecological issues of transhumance, rangeland and environmental degradation (Jasra 2001; Tapper 2008; de Weijer 2007).

This research therefore addresses several questions:

- Can we identify characteristic features of a built environment related to past historical movement along the 'Silk Road' routes through Northern Balochistan?
- Is there a pattern of structures and landscape modifications forming the built environment of contemporary nomadic Kuchi groups along these same routes?
- Does evidence support the theory of how centuries of seasonal nomadic herding and travel could shape discrete routes of connectivity across the mountains of Balochistan?
- And is there continuity of the nomadic built environment and 'movement-related materialities' (Dal Zovo et al. 2023, 4) of different periods in the North Balochistan mountains?

6 Research methodology

The challenge in addressing the research questions has been how to cope with the ephemeral evidence of declining nomadic presence on these routes when research is additionally constrained by vast areas of mountainous terrain, what Dal Zovo et al. (2023, 2) refer to as 'the apparent emptiness of these research contexts'. Difficulties posed by the terrain, restrictions on researcher movement and access due to political insecurity and the constraints of tribal society have resulted in limited access to local communities. Inspired by the approach taken by Dal Zovo and colleagues to research in a similar environment, we employed what they termed 'an optimized set of methodological steps' (Dal Zovo et al. 2023, 2). This methodology incorporated an expanded research area to increase the study scope and the mapping of both historical and modern elements of the built nomad environment as they appear together on the ground to gain a clear picture of the significant attributes of the nomads in the Suleiman Mountains as a palimpsest over time. The research strategy to investigate the palimpsestic cultural landscape of this region incorporates the following:

> *Our analysis comprises an optimized set of methodological steps, based on a twofold consideration. First, the rescaling of the research area, which prompted a redefinition of the field survey, to provide a broad and meaningful cultural coherence in terms of a wide highly mobile landscape. Secondly, the use of multiple sources (satellite im- ages, survey, and historical cartography) to map not just obvious archaeological elements, such as the monumental Late Prehistoric funerary mounds that are widely documented in Central and Western Mongolia, but also material features associated with pastoral mobility and used in modern or present times.*

- Baseline studies including environmental and geological studies, historical timeline of the area and ethnographic studies of contemporary nomad communities, particularly video records; and limited archaeological survey data to understand the context
- Accounts and historical maps from 17th to early 20th c. travelers including explorers, traders, soldiers and colonial cartographers that can be mined for descriptive details of nomads and their adaptation, information regarding routes, scale and frequency of use
- Cultural Mapping conducted in 11 communities and nomad groups in three pilot areas selected for accessibility combined with their role in present and historic Silk Road movements based on historical documentation: focused collection of information from

local communities and site observation about the important attributes of the built environment

- Systematic Remote Survey—Using Google Earth satellite imagery of routes from southern Afghanistan to the Indus Valley; mapping of the locations of nomad camps, mountain passes and other natural and cultural features including karez and settlements to reveal details of the landscape and the spatial relationship between multiple features. Given the complete lack of archaeological and field data in this region, remote surveys have been a critical component of the research methodology. This application extends similar projects designed to study landscape patterns across Kandahar province and related areas of Afghanistan, equally inaccessible to ground truthing and survey (Thomas and Kidd 2017; Franklin and Hammer 2018; Egitto 2013)

The resulting database is limited, partial and uneven and so the approach has been to take the available multivariate data and aggregate them as small 'samples' to generate a data set that is 'significant' in terms of its statistical reliability. The value of the methodology is that the use of the data from a variety of independent and unconnected data sources is a kind of "test" of the credibility of our theorem. This approach is based on finding small overlaps in the data that allow us to align and compare one with the other while constructing a picture in the manner of a physicist or geneticist tracing extinct lineages of DNA. The unevenness of the data is ameliorated by using a model which allows the extraction of relevant data into the model without being dependent on the reliability of other pieces of data, resulting in maximizing of data potential.

7 The nomad built environment

The nomadic communities of Northern Balochistan move through a built environment created by their traditional nomadic lifeways and mobility, both past and present, framed within another built landscape created by the adjacent sedentary communities, both past and present. This nomadic built environment is comprised of minimal forms but is very widely dispersed over a large area. Three diagnostic elements can be highlighted for the purposes of this study:

7.1 Nomad campsites

Campsites are the basic markers of nomad mobility, transported on the backs of camels and donkeys, assembled and disassembled over time. Our research has followed the historic routes documenting all pastoral campsites to map patterns of movement and repeated use that we posit represents the continuous nomad tradition in this region for centuries, reflecting seasonal occupation as early as the 11th c. (Frachetti and Maryashev 2007; Houle et al. 2022; Jia et al. 2020).

In the research area, we documented the location of all campsites visible on satellite images, which may or may not have a much deeper chronology. Because these campsites are used only intermittently, and less these days than in the past, the remains can be 'in use', temporarily out of use or abandoned leaving only scars in the landscape which are rapidly becoming archaeological deposits (Figs. 4 and 5). It is frequently possible to distinguish in the satellite image between camps in use when photographed, not occupied or in long term abandonment.

No on-site mapping or archaeological excavation of these camps is currently available. It is predicted that future field research will reveal that each nomadic campsite is made up of a combination of some or all of the

Fig. 4 Satellite image of a nomad campsite between sedimentary linear stone outcrops (Source: Google Earth)

Fig. 5 Satellite image of a campsite beside the Gomal River (Source: Google Earth)

following archaeologically retrievable elements presented in Table 1.

In addition to retrievable remains of dried and packed earth walls, compacted surfaces, charred areas, post and stake holes, an important characteristic non-structural alteration of campsites is soil discoloration due to dung accumulation in areas where animals are kept. This alteration is evident as patches of dark red-brown staining and compaction which remain visible long after a site is abandoned (Fig. 6). Manure stains represent continued containment of flocks and occur in corrals and in the vicinity of tent foundations. In terms of archaeological retrievability they can long outlive built elements of a site.

These built elements of camps are distributed in predictable patterns across the mountain landscape: along river and stream banks; at intersections of tracks; between concealing linear ridges of sedimentary rock outcrops and on the periphery of agricultural and urban areas in the lowlands. It appears that the majority of campsites have not been used in recent decades, reflecting the political situation and restricted cross-border movement. They appear as scars on the landscape slowly degrading and becoming archaeological deposits. This was also found to be the case at Spin Boldak, east of Kandahar, where it was observed that between the 1983 maps and DigitalGlobe Imagery from 2015, the number of occupied campsites had decreased by more than a third (Franklin and Hammer 2018, 12).

7.2 Nomad Burials

In lowland and valley areas of Northern Balochistan there is no evidence that nomad populations bury their dead differently from the rest of the Muslim population. However, in northern mountainous areas, beyond centres of population, Kuchi burials follow a different pattern. The form of graves, their locations and distributions differ from cemeteries of urban and agricultural areas (Fig. 7).

Lone burials and clusters of graves can be found at intervals along the banks of rivers and mountain trails and at the entry/exit to mountain passes along the ancient routes through the mountains. These graveyards are characterised by low, bracket-like structures oriented roughly north–south and facing west and enclosing clusters of burials. Some are simple brackets while others extend to form circular enclosures, but all are characterized by the presence of a *mihrab* showing *qibla,* or the direction of the *Kaaba* (Figs. 8 and 9). Vigne recording his journey from Multan to Ghazni with a nomad caravan or *kafila* commented: 'A pile of stones covers the graves, and a wall of the same material surrounds them. Sticks are inserted amongst the stones, and upon these are generally put the offerings of their friends, in the shape of wreaths and pieces of cloth. ……We passed burial-places for many days successively, and their appearance was melancholy and desolate in the extreme.' (Vigne 1840, 85–86).

Burials frequently cluster at entry/exit passes into the higher terrain; providing the first chance for burial of someone who died along the trail or the last chance to bury dead before entering difficult rocky terrain. The distribution of these cemeteries reflects an inverse relationship to the historically populated agricultural areas, becoming increasingly significant towards the north and east of the study area and continuing along the Gomal River and routes towards Ghazni. Where the built landscape is characterized by karez water management features there are no nomad graves and in the high mountain passes there are few if any karez landscapes or cemeteries of the lowland type. At the margins where

Table 1 Table presenting the basic built components of a Kuchi nomad campsite

Campsite Element	Photographs Source: https://www.youtube.com/watch?v=i69SjeuWu-k
Tent foundations - low rectangular walls built of mud or stone over which tents are pitched using wooden poles and tent pegs and stones as weights around the exterior base of the tent; Mosque foundations – similar but with a mihrab, fewer internal walls and no cooking area	 
Cloth hangings, brush panels or other screens to close the space between the tent and the ground	
Compacted earth floors created by repeated use and intentional packing	
Internal post arrangements to support the tent and low, mud, interior dividing walls to define animal space, storage and sleeping areas	
Hearths usually placed just inside the entrance to a tent and often enclosed by low mud walls; often with a mud-built trough nearby to hold brush and kindling	
Livestock arrangements outside the tent including: - Stakes and posts for tethering animals - Wooden feeding troughs for animals; these may be portable or fixed - Holding pens and milking pens, divided for mothers, young and nursing animals - Huts for storage – semi permanent mud and wood structures	 
Rectangular enclosures or round corrals of varying sizes for securing livestock; built of stones and wood. Often located some distance from the camp but within sight.	

Fig. 6 Campsite with dung deposits visible as re-brown discolouration (Source: Google Earth)

Fig. 7 View of a nomad cemetery in the mountains northwest of Zhob (Source: the author)

nomad and karez landscapes interface we find several examples of cemeteries with both distinct funerary traditions, separate but side by side.

7.3 Trails and paths

Routes, whether they are footpaths, mountain tracks or remnants of 'official' trade roads can be difficult to document in the field; in many cases they are made more legible by viewing them remotely from above. Certainly, this is the case if we also want to trace the network of interconnected and overlapping networks and patterns of connectivity. A major caravan route or *kafila*, from Kandahar, along the northern edge of the Registan desert, crossed the mountain barrier through the Khojak Pass and continued along the northern edge of the Pishin plain. This is still the main route from Afghanistan and today is a paved road in parts. Caravans with war horses heading for the Gomal River and the road to the northeast branched off along several routes entering the mountains and narrow valleys. Other routes headed to Quetta and then south to the Bolan Pass and seaports or northeast towards the Indus River and Multan. These roads remain visible where they run over gravel or rubble covered ground. Thousands of animal feet have carried away the pebbles in their path or crushed them into the soft sediment making them visible on the satellite image (Huigens 2019).

The long-term network was explored here, including 'modern' paths, following the fundamental premise of Frachetti et al. (2017) that such attributes are 'the material result of mobility patterns and spatial choices developed, modelled, and reiterated over time' (Frachetti et al. 2017, 2) in essentially unchanging environmental contexts (Figs. 10 and 11). The integrated mapping of the built environment of nomads can be configured as an "historical examination of repeated practices' (Joyce and Lopiparo 2005, 370). Frachetti et al. studying similar mountain networks in Mongolia, developed an iterative flow aggregation model that clearly supported an extensive network of connectivity emerging as an aggregate effect of seasonal mobility amongst small and geographically sparse mobile herding populations (Frachetti et al. 2017).

Patterns of routes are closely related to landforms and topography, the function of even the vast mountain mass

Fig. 8 Satellite image of a cemetery in the mountains northwest of Zhob (Source: Google Earth)

Fig. 9 Schematic drawing of the cemetery shown in Fig. 8 (Source: the author)

Fig. 10 View of a local path across a stony landscape linking campsites (Source: the author)

'was never that of a mere barrier. Our interest is focused, not upon the wall itself, but upon the many breaches in it, which were the channels of persistent human intercourse through the centuries' (Codrington 1944, 30). In a landscape like that of northern Balochistan routes are guided by the innumerable valleys and breaks in the dense mountain mass through passes, along rivers and streams and by seasonal access. (Fig. 12); similarly, the frequent large alluvial fans and boulder fields deter traffic while *sabkhas* (salt-encrusted flats), gravel plains and dry riverbeds facilitate movement of men and animals.

An initial typology of trails and paths is proposed as a basis for future research:

1) Simple short range paths linking campsites, corrals and pastures in elevated areas
2) Longer range trails, which have in some cases been modified by wheeled traffic over recent decades, linking local settlements and market towns
3) Routes used by *kafila* caravans, extending the Silk Road from Kandahar into the mountainous border regions and joining it with the Indus valley, mountainous areas to the north and urban centres such as Multan and Lahore; in sections adopted as part of the modern road network

These categories reflect the two ranks of paths described by Dal Zovo et al. (2023, 12): our category 1) being Dal Zovo's second-rank paths which originated from a more ancient and pervasive network, connecting pastures, and campsites at a local scale, linked in turn by first-rank paths to the supra-regional mobility across Iran, Afghanistan and the subcontinent, equivalent to our category 3). The regional tracks which join small towns and farming settlements are an intermediary type which is clearly visible in the Sulaiman terrain.

8 Revisiting the research questions

Referring back to the questions we asked at the beginning of this paper, we can say that initial remote survey data supports the existence of a visible and widespread pattern of structures and landscape modifications forming the built environment of contemporary nomadic Kuchi groups along the many routes across the Suleiman Mountains. The same assemblages of tent foundations, corrals, modified soil, characteristic burials all linked by a complex network of paths occur repeatedly along the rivers and valleys used to cross the massif.

It is true that the built environment of these nomads is limited in range and scattered over a very wide area, but this preliminary research maintains that it is still highly visible and retrievable. It has been possible to identify a range of 'diagnostic' nomadic built elements patterned across the landscape forming a coherent group of attributes indicative of a single nomadic strategy in this area. These defining attributes create a coherent body of evidence for a single strategy characteristic of the Kuchi. We can also posit that future fieldwork and ground verification of these predictions will show that there is considerable time depth in such palimpsest landscapes, potentially extending back many centuries.

Fig. 11 View of a path created by human and animal use in stone and soil (Source: the author)

High-resolution satellite imagery has proved a useful tool to obtain an initial insight into the nature of nomadic landscapes but is of limited use in recognizing obscured features such as stone cairns or cisterns, artefact scatters or rock art. Similarly, imagery cannot communicate temporal depth because in every image, the time depth of this palimpsest-built landscape is compressed or flattened into a single temporal moment. 'The same techniques and datasets (layered satellite imagery, GIS, aerial photography, historical mapping) that enable us to carry out a study of archaeological landscapes in otherwise inaccessible areas also challenge us to find new ways to give temporal depth to our reconstruction of the past via remote survey' (Richard 2015, 240).

Franklin and Hammer undertook chronological study in a related landscape of nomad campsites in Spin Boldak, on the border between Kandahar Province and Pakistan. Using detailed Russian maps which show camps in active use, they were able to document what they refer to as the disappearance of pastoral campsites between 1981 and the dates of the high-resolution satellite images used to map the area. They found that they were 'able to trace many campsites from active to abandoned to invisible, obscured by shifting sand dunes, wadi deposits, or the robbing of their stones for other buildings. Our primary observation is that without ongoing re-visitation and continued maintenance, pastoralist campsites that were marked occupied in 1983 maps may be invisible after as brief an interval as 30 years' (Franklin and Hammer 2018, 12).

Frachetti et al. (2015) found very different results in their study of pathways and track networks in similar environments along the Inner Asian section of the Silk Road. They applied a flow accumulation model with 500 reiterations which revealed 'a high-resolution flow network which simulates how centuries of seasonal nomadic herding could shape discrete routes of connectivity across the mountains of Asia. The model suggests that the geography of highland Silk Road networks emerged slowly in relation to long-established seasonal mobility

Fig. 12 Satellite image of a section of the trail network in the Sulaiman range showing multiple paths and trails (Source: Google Earth)

patterns used by nomadic herders in the mountains of Inner Asia'. Their research illustrates the important influence that small-scale, ancient, and long—term mobility patterns can have in shaping macro scale networks. 'Indeed, one could speculate that major Silk Road centers east and west of the Inner Asian mountains may not have flourished without locally established channels of nomadic connectivity through this interstitial highland terrain' (Frachetti et al. 2017, 10).

The evidence from remote survey of modern paths as 'routes of connectivity' supports this continuity of use of long-term mobility across the Sulaiman Mountains. The basic premise is that they are the material result of patterns of movement and spatial choices that have developed through repetition over time. 'Far from establishing a direct analogy between ancient and present mobility the mapping is configured as an historical examination of repeated practices' (Dal Zovo et al. 2023, 2); the form and location of modern paths are the result of persistent and repeated use of the environmental, making them increasingly visible over time.

This study initiates a re-evaluation of the way in which 'invisible nomads' engage with their environment, specifically through the built environment which they create in the landscape of mountainous North Balochistan. The notion of the 'invisible nomad' has been reassessed by ethnoarchaeologists for decades but persists in wider academia. As summarized by Huigens (2019), the idea of the 'invisible nomad' has been fed by several assumptions. These include, firstly, the assumption that the built environment and material culture of nomads is limited and comprised almost entirely of perishable materials. We have found, on the contrary, that nomads in this environment are not 'invisible'; their adaptation leaves visible built remains and modifications to the soil and sand matrix which accumulate as a palimpsest over time. In the study area of Northern Balochistan and adjacent research areas in Southern Afghanistan, where soil development is slow, evidence of the built environment can be seen in remote imagery, mapped in space and traced through the decades available to us in Google Earth. Surface and near-surface material will be readily visible for documentation and mapping by field surveyors.

Huigens' second assumption is that if such materials do enter the archaeological record they do not accumulate in dense enough clusters to form sites visible archaeologically, given the highly mobile character of nomadic communities. He interprets this as precluding accumulation of remains of built and material culture into stratified archaeological deposits. Franklin and Hammer, quoted above, agreed with Huigens, stating that pastoralist campsites appeared to be irretrievable after only three decades. (Franklin and Hammer 2018, 12).

We posit, however, that over long time periods of even irregular occupation, nomad sites do accumulate in the sand, gravel, and soil of these mountain areas where the environment is stable over extended periods of time and taphonic processes are notably slow. A variety of archaeological recovery techniques have been developed to investigate 'invisible nomads' in contrasting environments: temporary campsites of 19th century Chinese railway builders in the mountains of western Canada (Voss 2018), abandoned Medieval tracks through mountains ranges in Norway (Pilø and Barrett 2020) and nomad camps on the beaches of southern Thailand (Engelhardt and Rogers 1998). A toolkit of similar micro-excavation techniques can be applied to reading the palimpsest of the nomadic built environment of Northern Balochistan.

9 Conclusion: Preserving the Kuchi Nomad built environment

There are a few Kuchi areas in the north of Balochistan which have been lost to dam construction and road building but mainly sites have been abandoned in areas so isolated that they are not in immediate danger of development, however, the nomad-built environment requires repeated use to remain viable. This was easily achieved in the past but now that extended periods go by without access to traditional locations due to drought, war, forced relocation to displaced persons camps and border closures, the Kuchi have had to all but abandon sites that have been part of their landscape of mobility for generations. Built features are at risk as locations fall out of the mobility network.

Documentation and excavation of the nomad landscape is critical to preserving what we know about the Kuchi built environment, past and present. This research has laid the initial groundwork for a future programme of archaeological ground truthing, survey and excavation when circumstances make it possible. However, the issue of how to conserve the built heritage of nomads is contingent on also preserving the traditional knowledge of nomadism carried within the Kuchi communities. It is tied up closely with knowledge of the seasons, weather, livestock, pasture, streams and forage, with group identity and inter group relationships.

In short, in addition to conserving campsite remains or trail segments as a form of 'preservation by archaeological record', conservation of the Kuchi built environment requires preservation of associated intangible aspects of their nomadic way of life and knowledge systems, freedom of movement and access to grazing land. These are expansive socio-cultural issues that depend on political will and commitment which is very unlikely to materialise in the current situation in Balochistan where nomads and their continued lifestyle are such a low priority.

Realistically, we may have to treat the built environment of Kuchi nomads in the mountains of Northern Balochistan as a network of "almost archaeological sites" or 'archaeological sites in the making' acknowledging the power of unstoppable socioeconomic, environmental and political change. This is certainly not the conclusion that we might want but it is also not one that is rare or exceptional as any review of modern nomadism will show.

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All images used in this article do not show clear facial features.

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