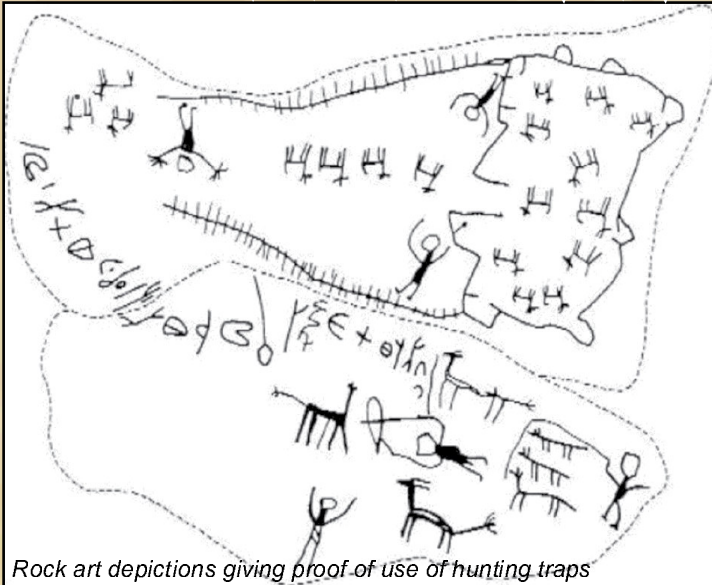
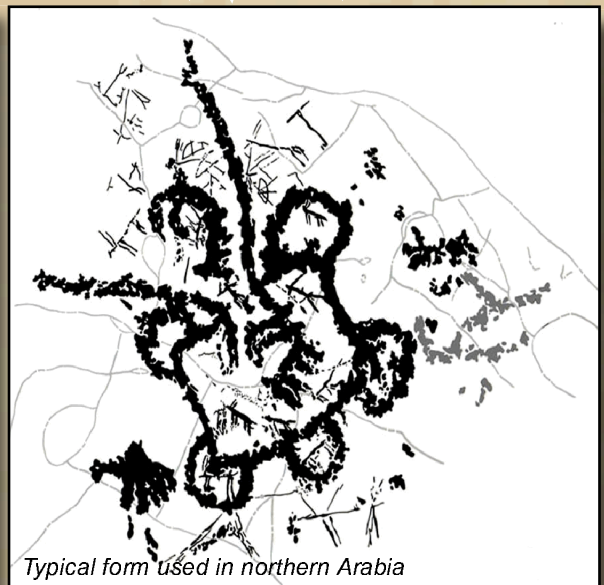


# DESERT KITES

## NEOLITHIC HUNTING & HERDING SITES



Rock art depictions giving proof of use of hunting traps



Typical form used in northern Arabia

**I**n recent years of traveling on weekends through the Saudi desert areas I came across at least three so-called desert kite structures and was intrigued about their origin and purpose.

What I did not realized was, that I must have driven past many and possibly even over some desert kites on various trips. But what are desert kites and by whom and when were they created? These questions initiated some serious research as little written material information is available on this interesting subject. In this article I am trying to give you at least a basic understanding of desert kites, despite the fact

that archaeologists have not yet published any detailed study on these huge Neolithic structures.

### Neolithic Hunters History

Let us take a step back into Neolithic history about 10,000 years ago. During the Early Neolithic Period small family groups of hunter-gatherers were moving through the Arabian Peninsula hunting and foraging for food. In the Late Neolithic nomadic pastoral shepherds were herding their first domesticated animals such as cattle, sheep and goats living of a mixed meat and plant diet.

During these periods continuous

human socio-economic developments took place with the necessary adaptive strategies to best master climate and available flora and fauna.

Interestingly the evolving desert kite hunting and capturing techniques were specific to the Arabian Peninsula. In the famous Gilgamesh epic, it is reported 4,000 years ago that hunters using traps and pits.

### Hunted Wild Animals

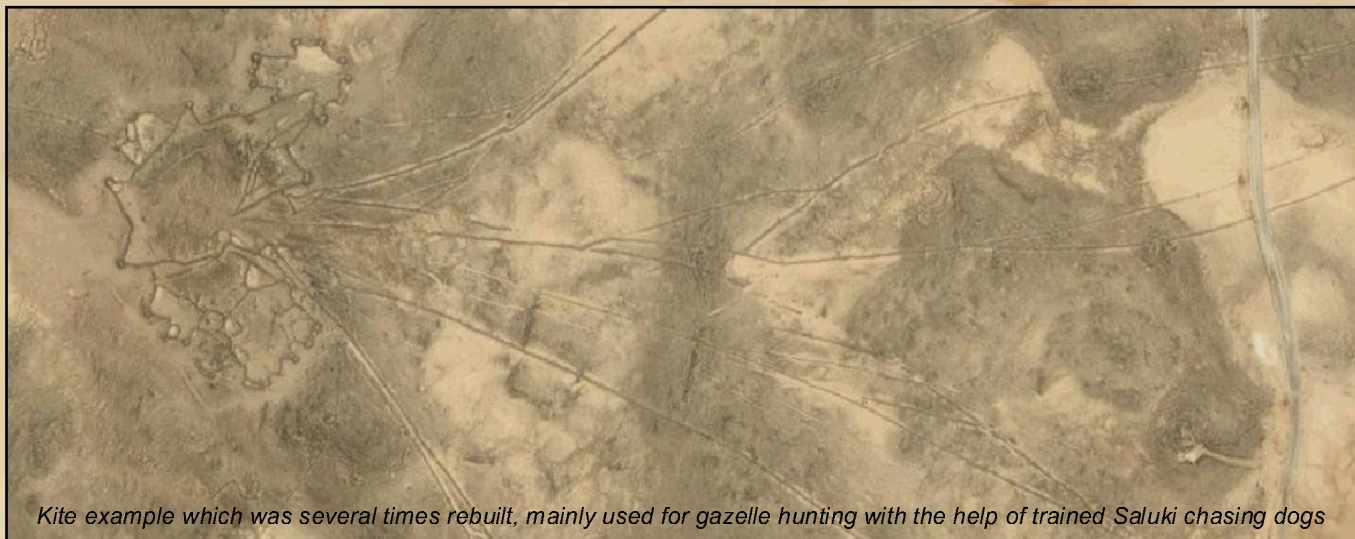
Fortunately experts have studied in detail and written a lot about the Neolithic Period and therefore we know that hunter-gatherer societies needed a huge territory



by Thomas Kummert  
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Arrow head form used in the Khaybar area of Saudi Arabia  
 All images with courtesy of Google Earth





*Kite example which was several times rebuilt, mainly used for gazelle hunting with the help of trained Saluki chasing dogs*

of about 300-500km<sup>2</sup> to survive. We also know that the northern part of the Arabian Peninsula where most of the desert kites are to be found, was the range of many wild animals such as mountain and steppe gazelle, ibex, wild cattle, fallow and roe deer, wild boar, onager or wild donkey and the rare wild goat.

Gazelle were in ample supply with huge herds moving across the Arabian plains and therefore were the most hunted. The mountain gazelle for example was a more stationary animal with a small home range of a maximum 25km<sup>2</sup> and easier to find and hunt. Both steppe and mountain gazelle species made up 80% of the Neolithic hunters diet.

### **Desert Kite Structures**

Desert kites were long enigmatic stone wall structures used to catch, kill and herd wild animals with a huge corral on the head end. They were called kites as their main corral and kilometer long funnel lead walls looked like flying kites.

The large head corals were used for killing and slaughtering the caught animals and the smaller corrals on the side walls were used for keeping and milking animals and then killing them over a period of time. Effectively, these corrals were the first live meat storage and the first step of animal domestication. Looking at these really low walls and the limited amount of stones lying dispersed on either side, a few questions need to be answered. Certainly the walls were not high enough to deter chased animals not to simply jump over them and escape.

Let us first look at the ground

on which these walls were erected. Most desert kites were constructed on rather solid rocky surfaces where it was not possible to ram into the ground any poles. So the low walls were actually used as holding foundations for a fence assumed to have been erected from wooden branches, palm leaves and thorny twigs. Any Bedouin knows that gazelles stay away from thorny branches so as not to get entangled and hurt and especially not to lose their eyesight.

If we look at the up to 3km and 5km kilometer long lead walls funneling chased animals into the head corral, it is not difficult to realize that an enormous effort and time was needed to erect these complex desert kite animal traps. From certain studies we know that the northern part of the Arabian Peninsula was quite populated at the time and that hunter-gatherer societies could form groups of several hundred persons.

It is further assumed that the construction of desert kites was



*Desert kite with multiple hunting & herding corrals*

the work of various groups over extended periods of time, often rebuilt and changed. But what makes us so certain? Well in

Syria various so-called rock art depictions were found to give proof that kites were used for hunting and capturing – refer to the hand copies of these depictions on the opening page of this article.

### **Animal Domestication**

We already talked about the enormous efforts needed to erect desert kites and again to chase and hunt these animals. So the idea to domesticate and herd animals is a logical step to create certainty of permanent meat supply and reduce overall energy and time. This would allow Neolithic hunter-gatherers to permanently settle down and focus on a new development in the area – namely farming.

The first domesticated animals were dogs and used for hunting and chasing. This important step was achieved by hunter-gatherers which were part of the Natufian Culture some 14,000 years ago. Now the second step of domestication of sheep and goats 4,000 later expanded quickly and changed the Neolithic lifestyle including the use of hides, milk and wool.

Another 2,000 years later cattle was domesticated. And by 4,500BC during the Chalcolithic Period finally the wild onager or donkey became a tame house hold animal and new beast of burden for starting trade which grew with settled down societies and the emergence of the first over-production of meat and grains.

### **Desert Kite Details**

Now going back to Neolithic hunting techniques, the first desert kites were erected 10,000 years ago and used during the Neolithic and Chalcolithic period. Today we



also know that these animal traps were used even later on into the Iron Age, right up until about 2,000 years ago.

We have to admit, that it is very difficult to date these structures, as they were built on bedrock and were often altered many times. What we found out so far is that some desert kite systems have been built over time by various clans. We have also established that only developed societies with organized collaborative efforts and division of labor would be able to build and maintain these huge complex desert kite structures.

So we can assume with some certainty that their architects were not fully nomadic clans, but semi nomadic or semi settled tribes staying at desert kite sites for extended periods, let us say several months during the annual hunting season at least. This is also the reason why we found some Neolithic settlement sites close to major accumulation of desert kites.

Desert kites are found throughout the Arabian Peninsula, including Saudi Arabia, Syria and Jordan. Archeologists have divided desert kites into eight major types taking into account their shapes and age. It has been possible to determine a chronology, as many desert kites were built over at a later stage with more modern designs or alternative forms preferred by later Neolithic hunters.

In Saudi Arabia the highest concentration is found around Khaybar situated some 200km north of Madinah, with one kite per three square kilometers, or **240 kites over a total area of 1,200 km<sup>2</sup>** - that is really a lot. The second highest kite concentration lies in northern Jordan south of the town of Jawa consisting of long rows of interlocked kites.

### Chase & Capture Technique

Out of the total eight types that have been categorized, there are two main shapes of desert kites we see most often in Saudi Arabia. The simple "V" funnel like kites with a keyhole shaped corral at end and the other type are more complex shaped corals with many side arms or bulges with mini corals or hides on the outer side of their walls. Some of these are huge structures several kilometers long with coral diameters of 200-500m.

Most kites were erected in such a way, that their funnel walls lead over a slight ridge, so that any chased animals could not see the corral at the end. Huge corral diameters also reduced possible escape jumps by animals feared being trapped. But there is really no proof for what the many mini corrals served, that we can see from the satellite image pictures. So we have to go by pure assumption. Hunters could easily hide behind the walls and fences, so they certainly did not need such an enclosure for cover.

Now let us assume that an ancient hunter collective of 50 men chased and rounded up 200 animals in a corral. Killing all of them at once would create an over supply of meat, which needed to be preserved and drying was possibly the only preservation method known at the time. But keeping the majority alive in mini corrals is the easiest and more economical way to keep meat fresh. This might have been the real background to these mini corrals, which had a diameter of 3m to maximum of 5m. The corral walls were much higher and may possibly have been covered with thorny twig roofs to keep animals from escaping.

### Desert Kite Shapes

We have already talked about the great variety of desert kite shapes including some quite complex structures. The pictures accompanying this article will give you some good examples, but we want to tell you what to look out for when travelling in the Saudi desert. Most kites have funnel walls, but some have even double funnel walls. We do not know if the inner walls were erected later or if the double walls served to ensure animals were not escaping after all.

Corral shapes have all kinds of imaginable forms, from



*Excellent kite example with many side corals*



*Kite with multiple funnels in northern Arabia*



*Check out kites on Google Earth  
25°47'36.87 N & 39°18'28.59 E*

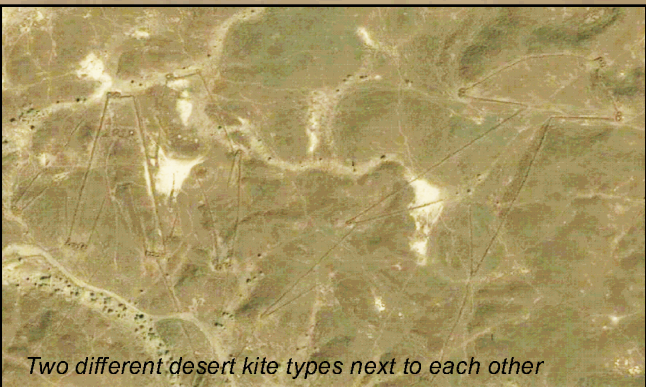




*Multiple desert kite & camp structures*



*Double arrow head desert kite*



*Two different desert kite types next to each other*



*Desert kite in norther Arabia*



*Multiple kite site in northern Arabia  
Seasonal camp structures can be seen on top right*



simple round, triangular or square to rectangular shapes, or rhombus and cruciform layouts. Also very irregular shapes are found with side arms and bulges, or even nicely star shaped corrals. Some kites have a multitude of staged corrals with lined up arrow heads, one leading into the next, or even various round corrals all combined like a bunch of grapes. Some corrals have additional internal walls leading animals to smaller enclosures, where hunters are waiting to catch or kill them.

What has also been noticed is that kite shapes were often adapted to the landscape. Looking at regional variances we find that simple round corral shapes were typical for western Jordan and Syria and are possibly the oldest desert kites. In comparison barbed arrow head and square pocket shaped kites are particular to the Saudi Khaybar area. Again star shaped kites are only to be found in Jordan and Syria.

#### **Khaybar Sites**

Khaybar and the Ash Shurayf area stretches over 13,000km<sup>2</sup> and hosts thousands of Neolithic sites, including desert kites and other prehistoric structures such as burial cairns, so-called tails, needles, keyholes, triangles, dotted circles, partitioned wheels and gates. This area is unique because of its high number of visible monuments, the enormous diversity of structures and the excellent preservation due to the arid local climate and the fact that the majority of them are not buried under sand in the local harrat area.

The greater Khaybar area can be called a complete prehistoric landscape frozen in time and for me it is a true "walk through history". There are many excellent desert kites on the west and east of the ancient oasis on the lava plateaus. The kite funnels typically open towards valleys to chase and capture wild animals more easily.

#### **Jordan Sites**

Three areas have been surveyed in northern Jordan with the highest concentration of desert kites. These are the Jawa area east of Mafraq with higher grounds and seasonal flooded wadis in ancient times leaving behind pools of water so-called sabhkhas creating grazing areas on slopes of rolling hills.

Here we find mainly star shaped kites, all arranged in combined lines or in isolated kite groups. Some were overbuilt later by corrals next to a 6,000 years old Neolithic settlement.

The irregular corrals in this area possibly have been erected much later by early Bedouin tribesmen. Of high interest are the two discovered pre-Neolithic Natufian Culture sites called Khallat 'Anaza and Mugharet el Jawa at which also pre-Natufian traces have been found.

The second area is close to the town of Azraq oasis east of Amman with a permanent water supply on the edge of the basalt area. Here a major chain of desert kites is found with a greater variation of kite types. The Dhuweila area east of Azraq is an open dry steppe type landscape with large seasonally flooded mudflats with deep wadis and rolling hills.

Here mainly star shaped kites are arranged in a line. These are rather permanent structures with stone lined fire pits, suggesting that the hunters who erected and used them where permanent settlers in the area.

Interestingly only gazelle bones and rock art depicting gazelle are found here. This site is dated to Pre-Pottery Neolithic or Late Neolithic period giving us a time span and age of 12,000-8,000 years. It is also one of the sites where many arrowheads were found, which are similar to those found at Byblos and Petra.

#### **Natufian Culture**

To better understand the ancient environment with regards to its population, the first development of settlements and evolving agriculture, I will summarize the various cultural periods. It really all started with the first developed culture in the Jordan valley about 15,000 years ago. This culture sprung up so to speak out of nowhere and was unusual for the fully nomadic hunter societies at the time.

The Natufian people were a semi-sedentary and sedentary culture before the introduction of agriculture. They erected first permanent settlements and these possibly were the first Neolithic settlements built worldwide. After taking this step Natufians were also the first to start organized agricultural domestication of wild grains called "Neolithic Revolution".



*That's what is left today on the ground*



### Pre-Pottery Neolithic Period

The so-called Pre-Pottery Neolithic Period is dated by scientists between 12,000-9,000 years ago and is at a time when pottery was not yet invented. During this time hunter-gatherer tribes were converging from a nomadic seasonal semi-settled life style to form small to medium sized permanent villages covering an area of 2 to 10 hectares. They erected round semi-subterranean huts with stone foundations and mud brick and a wooden roof structure made rain proof by a layer of mud and grass.

Their housing units included a central fire place filled with stone pebbles which were heated up and used for cooking. The first results from organized agricultural activities and extensive domestication of animals had an important multiplier effect with regards to technological, social and economic built up with the creation of food surpluses. The first temples and shrines were erected to pray for rain and good harvests.

### Pottery Neolithic Period

This followed after 3,000 years, a short period of 1,000 years in which pottery was invented and quickly spread through out the Neolithic inhabited areas in the Levant and further southeast on the Arabian Peninsula. The population grew over time and large villages with an extended area of 20

hectares were the result.

With 2,000-3,000 inhabitants, new social and political structures were evolving to organize labor and manage supplies. This also included certain community rituals to establish and renew the authority of the leaders and to create and maintain common goals and an economic strategy necessary to survive. These were well planned villages with first wells being dug for water sourcing and storage. Buildings had an organized layout and were erected along streets. Residential buildings had huge courtyards and were rather large to house huge families with 250-750m<sup>2</sup> and eight to twenty-four rooms.

We have to remember that during the Natufian Culture period, both Neanderthal hominids and modern Homo Sapiens were living in this region side by side and that the developments mentioned above were introduced at a different speed and therefore even co-existed over longer periods. This is why desert kites were still used until only 2,000 years ago in less populated and more wildlife rich areas, to hunt and capture those animals. This might have been so even for clans which already owned and herded domesticated animals and worked to enrich their diet and introduce fresh blood into their herds.



*Harat area with various desert kite structures*