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## Stone structures in the Syrian Desert - by Amelia Carolina Sparavigna

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An arid land, known as the Syrian Desert, is covering a large part of the Middle East, extending from the northern Arabian Peninsula to the eastern Jordan, southern Syria, and western Iraq. In the past, this harsh environment characterized by huge lava fields, the "harrat" [1], was considered as a formidable barrier between Levant and Mesopotamia. This desert possesses two volcanic regions: one is the Jabal al-Druze in As-Suwayda Governorate, the other field is the Harrat Ash Shaam in South Syria, south-east of Damascus [2,3]. When we observe these huge harrat from space, using for instance the Google Maps, we discover that they are crossed by several stone structures, known as "desert kites", which were the Neolithic stone traps for the game. These structures were firstly observed by the pilots of the Royal Air Force in the 1920s, flying over the desert. The pilots named them "kites", because these lines reminded of kites used by children to play [4]. Beside the kites, many stone circles are visible too, as many Stonehenge sites dispersed in the desert landscape. Probably, this harsh environment was friendlier and then quite populated in ancient times.

We usually imagine our ancestors, before they settle down, as people simply hunting and gathering for food, but this is not true. The "desert kites" are the remains of an ancient hunting technique based on stone-walled traps, the construction of which surely involved several people for long times. The desert kites were used to push large herds of animals into some enclosures, or, in the worse case, to fall off from steep cliff edges [4]. The simplest structure of a desert kite has a triangular shape, consisting of two long, low walls built of stones and arranged in a V-shape, like a funnel, ending as a corral. Hunters pushed the game between the walls, trapping then the animals into the end of the structure. It is usually considered that the animals were there slaughtered "en masse" [4-7]. The faunal remains found in these sites are including gazelles, Arabian oryxes and other species that are now rare or driven to extinction in the Levant [4]. A research at the Mesopotamian site of Tell Kuran, found what seems to be a deposit from a mass kill. According to [6], it was the overuse of desert kites a possible cause of extinction of several species.

Typically, a desert kite possesses two, three or more small circular enclosures on the edge of its corral (in **Fig.1** a wonderful structure as it can be observed with Google Maps, other examples in **Fig.2 and 3**). Some ancient rock art images show these hunting traps [8], depicting the role of the 'walls' of the kites. Let us note that these walls are low and then not able to stop any game. In fact, these walls are not walls at all: they are the basements, in the rocky harrat, where stick some poles and build a fence with branches. These structures created a visual effect as a barrier for the animals. References 5 and 6 are telling that the kites were used for the slaughter of animals. There are also different opinions: for instance, Ref.[8] is telling that these hunting traps were not only designed to just capture and then kill animals, but also for the conservation of food, keeping the game alive, in small pens at the end of the kites. The kites were probably the first step from hunting to the intentional breeding of animals [8,9]. Other scholars do not agree with such conclusions [10].

It impresses the number of kites that we can still identify: it seems to be in the thousands, distributed on the Arabian and Sinai peninsulas and, northward, as far as Turkey. Over a thousand have been recorded in Jordan alone [4]. The earliest desert kites are dated to the Pre-Pottery Neolithic B period of 9th-11th millennia BP. It is the radiocarbon analysis on charcoal within the kite pits helping to date them [4]. As we discussed in the paper on Arabia [11], an interesting fact is necessary to note [8]. In the Khaybar area, Arabia, there are some remains of Neolithic villages very close to the hunting desert kites. Linking the "desert kites" with "human villages" could be a mistake, because wild animals are avoiding places where people live. Since the Khaybar area is full with ancient burial structures, sometimes placed inside the desert kites, a possible conclusion is that these burial mounds are more recent than the desert kites [8]. Because this conclusion is coming from the observation of satellite images, it seems that the satellites, and in particular the Google Maps, can help the archaeological researches providing a portrait of the human collective activities in the early stages of civilization.

Even the Syrian Desert is dispersed with smaller circular stone structures and mounds, sometimes inside or near the desert kites (see **Fig.2** for instance). On these earlier human settlements, news was

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Fig.1. The wonderful structure of a "desert kite"(Jordan), as it can be observed with Google Maps.

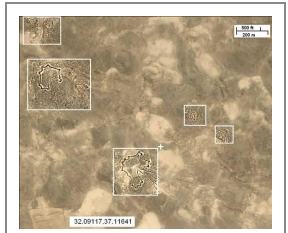


Fig.2: A landscape with desert kites and other stone structures (Jordan). This is an image adapted from the Google Maps. The visibility of marked areas has been adjusted with image processing software.



Fig.3: Desert kites. The images have been adapted from the Google Maps. The visibility of the stone structures has been adjusted with image processing software.



Fig. 4: A stone circles in Syrian

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announced last year that Robert Mason, archaeologist of the Royal Ontario Museum, discovered what we can define as a Syrian Stonehenge [12]. The site, near the Deir Mar Musa al-Habashi monastery, is composed by some tombs and stone circles. From the stone tools he found there, it's likely that the structure dates from the Middle East's Neolithic Period, roughly ranging from 8500 BC to 4300 BC. In Western Europe, the first structures built of stone date back approximately to 4500 BC. The Syrian site is then quite older than the European sites. Edward Banning of the University of Toronto says that more fieldwork is necessary because it is possible that the landscape that Robert Mason has identified could be an example, in the Neolithic period, of burial practices out of the settlement, that is, an off-site cemetery [12].

The report in [12] is continuing with a suggestion by Julian Siggers, of the Royal Ontario Museum. Remembering that agriculture spread from the Near East to Europe, he is proposing the possibility that the stone landscapes, that is the creation of stone circles, had travelled with agriculture. On the other hand, Banning is replying that stone structures are found throughout the world and that people in Western Europe could have developed the stone landscapes independently of the people in Middle East. According to Edward Banning, the site studied by Mason is not unique [12,13]. "Archaeologists have detected, via satellite photos, what appear to be cairns and stone circles in other areas, including the deserts of Jordan and Israel. However, he admits that most of these things have not received a lot of archaeological investigation."

It is quite interesting what Ref.12 is telling, that the satellites are revealing so many structures, that probably, it is impossible to study all of them, and then many sites are not receiving specific investigation. We can check by ourselves the dispersion of stone circles in the Syrian Desert, using the Google Maps or Acme Mapper, for instance. Here again, these map services are excellent to reveal the landscapes of the past. **From Fig.4 to Fig.8**, I am proposing some images of stone circles, sometimes with radial structures inside. There are also complexes composed by several structures (for a collection of images see [14]). To study and date these petroforms [15], a huge fieldwork in the desert is necessary, requiring time and financial supports. The satellite imagery, as the Google Maps are clearly demonstrating, is a quite good source of information to locate the sites, propose their preservation and then plan the archaeological expeditions, perhaps with the support of contemporarily geophysical researches, which are surely performed in this area full of oil resources.

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14. More images at <https://sites.google.com/site/syriandesertsatelliteimagery/>
15. According to Wikipedia, desert kites and stone circles can be

Desert. The images have been adapted from the Google Maps.



Fig. 5: Other stone circles in Syrian Desert. The images have been adapted from the Acme Mapper.

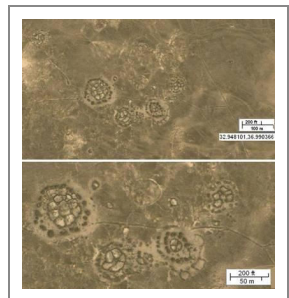


Fig. 6: Stone landscape in Syrian Desert. The images have been adapted from the Google Maps. Note the "dots" that are surrounding the circular complexes.



Fig. 7: Stone circles with radial structures. The images have been adapted from the Google Maps

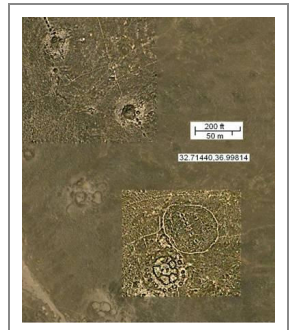


Fig.8: Mounds, lines of dots and circles in this stone landscape. The image has been adapted from the Google Maps. The visibility of the stone structures has been adjusted with image processing software.

19. According to Wikipedia, desert kites and stone circles can be considered as Petroforms.

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