

## Considering Petroglyphs of Birjand in Arid Environments, East Central Iran


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### Abstract

Recent field works have shown a great potential of rock art in eastern Iran, particularly in South Khorasan province. This paper is based on recent fieldworks, which have resulted in identifying new clusters of petroglyphs at Birjand. Khazān, Aso, Kāfarkuh and Lākhduldul have been identified in this region. The major technique applied for these petroglyphs is hammering, sometimes rubbing and very rarely engraving. The images at the aforementioned sites include zoomorphs, anthropomorphs and geometric motifs, indiscernible shapes and some inscriptions engraved on boulders. Although a preliminary chronology can be established based on patination and archaeological evidence, we cannot suggest an exact dating for them. Therefore, more fieldworks and micro-erosion analysis will be required for absolute dating.


**Keywords:** Petroglyph; Khazān; Kāfarkuh; Lākhduldul; Birjand; East Central Iran.



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## Introduction

The first attempt to study rock art in eastern Iran was made by Dessau, who reported two petroglyph panels in Baluchistan, the eastern part of the country (Dessau, 1960). In addition, engravings of Lakhmazar in Birjand (Khaniki and Bashash, 1994), petroglyphs at Nik Shahr (Shirazi and Soltani, 2011; Shirazi, 2008), the Kajou valley in Qasr-e-Qand (Solatani, 2010), the petroglyphic complex near Jorbat, the plain of Jajarm (Vahdati, 2011), newly found sites in Southern Khorasan province (Ghorbani, 2013; Ghorbani and Heydarian, 2018), petroglyphs in the Marzbanik valley, Baluchistan (Moradi et al., 2013), petroglyphs of Toos plain (Saffaran and Mozhdekanloo, 2014), rock art at the Negaran valley in Baluchistan (Sarhaddi-dadian et al., 2015), Bishiklik petroglyphs in Neyshabur (Rezaei et al., 2016), rock art sites in Balandar, Mashhad (Sigari et al., 2017), petroglyphs of Penhahi in Nehbandan (Yarabbi et al., 2017) and several others are some examples of rock art discovered in this region.

As mention, investigations in South Khorasan province by Ghorbani from University of Birjand, showed a great potential of rock art in this region (Ghorbani, 2013; Ghorbani and Heydarian, 2018). He identified hundreds of petroglyph panels but because of the requirement of permission and clearance for visual recording of the corpus of images, the authors attempt to study this site step by step. In this paper, an attempt is made to describe the Birjand petroglyphs and provide a general perspective for readers.

The study area i.e. Birjand encompasses 14265 square kilometers, with its geographic coordinates being 32°51'58" Latitude, 59°13'16" Longitude and 1459m above sea level (Hosseinzade, 2005) (Fig. 1). Birjand is situated in a region of Range-and-Basin topography between

the Dasht-eLut desert in the south and the E-W mountain ranges north of the Doruneh fault, that is known historically as Qohestan (Walker and Khatib, 2006: 1; also see LeStrange, 1905; Berberian et al., 1999, 2000; Walker and Jackson, 2004; Walker et al., 2004; Allen et al., 2006).

The Birjand region, is relatively high, with a series of roughly NW-SE linear mountain ranges (Kuh-e Gazik, Kuh-e Mo'inabad, She karab Kuh, Bagharan Kuh, and Kuh-e Shah), reaching to elevations of over 3,000m. The ranges are separated by narrow basins covered by alluvial deposits, and with typical elevations of 1500 to 1700m. The geological map marks only the most recent alluvial cover as Quaternary in age. All older alluvial deposits and folded gravel beds are described as Neogene (Eftekhar-Nezhad and Stocklin, 1992). A Neogene age of these deposits suggest that the structures in which they are exposed are relics from the late Tertiary. However, the morphology of the folds and the available record of seismicity show them to be active in the very recent past, and we are confident that the folded gravels are relatively young, and presumably date from the Quaternary. The mountain ranges expose Late Cretaceous to Eocene ophiolitic rocks of the Sistan Suture Zone, which are pervasively cut by inherited shear zones and faults. Therefore, in the south of the study area, the geological structures trend roughly NS to NNW-SSE along the eastern margin of the Dasht-e Lut. However, to the north of the study area, both the topography, and the geological structures, trend EW (Walker and Khatib, 2006: 3).

Numerous short rivers arise within the parallel EW mountain ranges of Qohestan and flow into the adjacent internally draining basins such as the Nauzad plain, Sarbisheh plain, Daqq-



Fig. 1. Map of Iran Showing the Location of Southern Khorasan Province, Birjand and Rock Arts.

e-Akbarabad, Sar-e-Char-e-Shur, and Namakzar-e-Sahlabad. The only river to flow for any appreciable distance is the Rud-e Shur, which arises in the Bagharan Kuh mountains to the southeast of Birjand and flows westward through Birjand and Khusf to eventually drain into the Dasht-e Lut desert (Walker and Khatib, 2006: 4).

The climate of Birjand city is of semi-desert kind and has cold winters and dry and hot summers. According to its climate, the rain level of this city is low and the most level of raining is occurred from November 21 to May 21 that this rain is often falls in form of snow in winter. The air of Birjand has severe storm and dust in average in 12 days of year (Donyaei and Pourkhabbaz, 2017: 2).

### Methodology and Petroglyphs

The research method has performed based on two approaches; fieldwork and library work. All fieldwork is non-intrusive, comprising data-gathering in the form of paper records, pencil drawings, photographs and GPS records. The methodology developed for recording the petroglyphs at the sites is based on “rapid survey”, with follow-up “specialist photography” and “GPS/topographical survey”. In addition to documenting the rock art, the survey includes the GPS mapping of topographical and archaeological features and the limited collection of surface finds, including lithic artifacts and pottery sherds. As a second stage in the recording each rock and its immediate surroundings is subsequently



Fig. 2. The Petroglyphs of Birjand. 1. Khazān, 2. Kāfarkuh, 3 Aso and 4. Lākhduldul

drawing and photography. In the library approach, we had a prevalent study and comparison between these samples and the similar ones on the east of Iran.

According to a survey by the authors, several clusters of petroglyphs identified in this area which were made on the limestone, basalt and schists surfaces of Khazān, Aso, Kāfarkuh and Lākhduldul villages (Figs. 1 and 2). The major technique applied in producing these petroglyphs is hammering, sometimes rubbing and very rarely engraving. Experience has shown that even walking lightly across friable rock surfaces (with or without carvings) can cause the outer “skin” to crack and break away from the body of the rock. As a result, the utmost care must be taken by all local ranchers, recorders and visitors when moving

around the rocks. The images include “zoomorphs” mostly purported to “depict ibexes” and “horse riders”, “anthropomorphs”, “geometric or symbolic motifs”, and some “inscriptions”. It seems, however, that “local inhabitants” have added some of the engravings to the site over recent years (Ghorbani, 2013). Unfortunately, due to weathering, some images remain difficult to decipher.

### The Petroglyphs of Khazān

This is located in Khazān village in the environs of the city of Birjand, South Khorasan province, towards the center of eastern Iran (Figs. 1 and 2). Khazān rock art consists of some dispersal of igneous rock on the top of the mountain outcrop (2043 m asl). The boulders in the region are made of dark and brown-or-

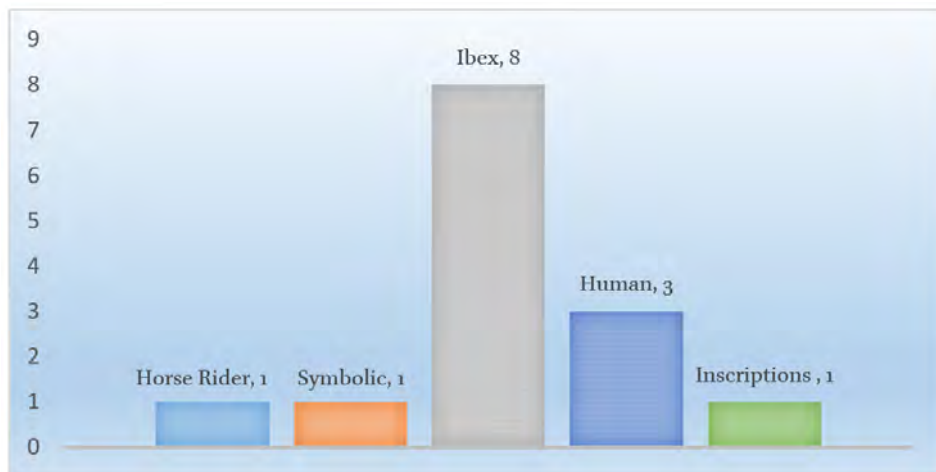


Fig. 3. Frequency Percentage of Rocky Motifs of Khazān

Table 1. The Division of Khazān Petroglyphs

Panels	Dimension (Cm)	Frequency	Division
1	40×40	2	horse rider (1)
2	82×80	2	ibex (1)
3	90×52	1	ibex (1)
4	154×68	1	ibex (1)
5	245×106	4	ibex (2)/ human (2)
6	124×122	3	ibex (2)/ human (1)
7	240×226	1	ibex (1)
8	170×110	2	inscriptions (1)/ symbolic (1)
Total		16	

ange rock with friable completely flat surfaces which could be easily worked on to create designs. Therefore, 8 panels and 16 rocks recorded images are introduced here that presented in table 1 and Figures 3 and 4: “eight ibexes” (Fig. 4: 2, 3, 4, 5, 6, 7), “one horse rider” (Fig. 4: 1), “one symbolic or geometric” (Fig. 4: 8), “three human shape” (Fig. 5), and “one inscriptions” (Fig 4: 8).

The main animal motifs on this site are “ibex”, depicted individually with different sizes and motions. “The ibexes” of the site are shown with stylized,

long and short curved horns (Fig. 4: 2, 3, 4, 5, 6, 8). The tail of this animal is in two sizes, short and curved or long and straight (Fig. 3: 2, 3, 4, 5, 6, 8). The body is shown as a thin or thick line (Fig. 4: 3) or with volume (Fig. 4: 2, 4, 5, 6, 8). Legs are represented by four plain, vertical lines in different sizes, long and short”. “Anthropomorphic” images in the complex in almost all cases show “male figures” on “horseback or on foot”. These “males” are sometimes shown with “two hands raised” (Figs. 4: 7; 5: 1, 2) and in some instances they are mounted on “horseback”



Fig. 4. Overviews of Khazān Panels

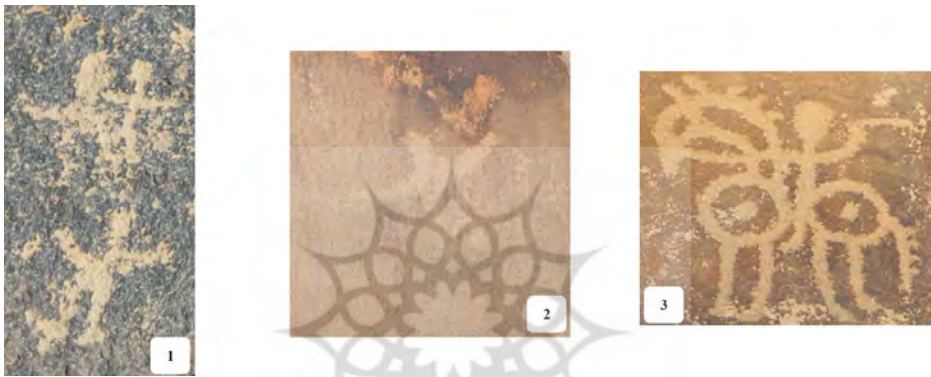


Fig. 5. Khazān, Selection of Anthropomorphic Carvings

(Fig. 5: 3).

Alongside these pictures are usually “symbols that comprise of lines and circle” (Fig. 4: 2) and “inscriptions testify to the emergence of English alphabets” (Fig. 4: 7). Although it looks like the last one is “much more recent, engraved by locals”.

**The Petroglyphs of Kāfarkuh**

The petroglyph of Kāfarkuh is located in Birjand after the Gāzār village, at 2065 meters” altitude above the sea level (Figs. 1 and 2). The designs are engraved on one stone slabs with a dimension of about 385 x 155 cm which because of weathering divided in two vertical (larger) and horizontal (smaller) parts. This complex consists of about 15 motifs created by means

of “stone or metal tools” by pecking or scratching the surface of the rock. The Petroglyphs of this site included “four ibexes” (Fig. 7: 4, 5, 8, 11), “four symbolic or geometric” (Fig. 7: 6, 7, 10, 12), and “five inscriptions” (Fig. 7: 1, 2, 3, 14, 15). Most motifs are “ibex” and “inscription”. “Other animal is rare and ibex motifs” are very similar together and usually have long leg and long horn with linear or with volume body. “The symbolic or geometric motifs” include “swastika” and “flower like shape (four interconnected circles)”. Unlike the other site that the “human figures are mores, less anthropomorphic patterns” can be seen here.

The site includes a “few Pahlavi (Fig. 8: 1, 2, 3) and maybe Greek (Fig. 8: 4) inscriptions”, which has been highly erod-

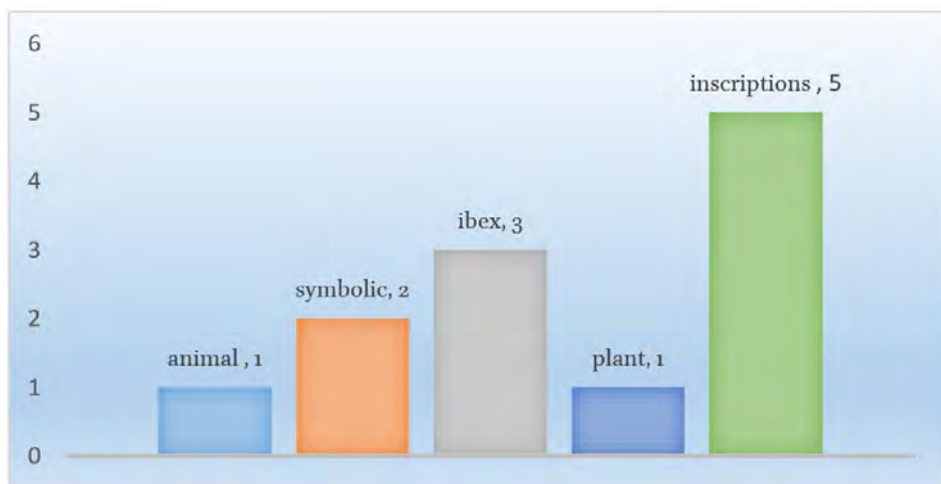


Fig. 6. Frequency Percentage of Rocky Motifs of Kāfarkuh

ed and cannot be read. It seems that “the inscription was written with Late Middle Pahlavi script”.

### The Petroglyphs of Aso

The petroglyph of Aso is located in the vicinity of the farm of Boshādi, south of Aso village in Birjand, at 2089 meters altitude above the sea level (Figs. 1 and 2). All of the motifs are engraved on one stone slab with a dimension of about 210×179×149 cm. Most of the motifs are to south and west side and close together (Fig. 9, 11). We have recorded approximately 45 petroglyphs with several “layers” of images that have been depicted some upon the other over a period of several decade years and this has distorted old images. The forty-five carvings, include “eleven horse rider”, “nine ibexes” and “seven other animals”, “six geometric (three of them circle)”, “Bactrian camel”, “three human shape” (Figs. 9, 10, 11). This site has a large number of “rider” motifs that are remarkable in this regard. “Eleven human figures riding horses” have also been engraved on the rock. “The horses are walking” and “the torsos of the riders” have been depicted with a “trian-

gular shape”, and “the reins appear to be thin and the hands quite long” (Fig. 9: 3, 5, 8, 13, 14, 17, 19, 30, 31, 32, 33). “Human figure are few and different in size and drawings of humans in position of standing, open hand and foot” (Fig. 9: 2, 9, 28, 35, 36), and in the one case probably with something like “dagger” (Fig. 9: 36). Based on type of clothing one of them is are distinguishable; However, none of them, “female and male organs” are not clear but it seems that this one is wearing “short skirt” (Fig. 9: 35).

“Animals are different in size and have linear body, four vertical line indicating the animal’s hand and legs and in antelopes two large curved line that marker the horns”. “The ibexes” are depicted individually with stylized, long curved horns (Fig. 9: 10, 12, 15, 21, 25) and short curved horns (Fig. 9: 22). The tail of this animal is short and dangle. The body is shown as a thin or thick line (Fig. 9: 10, 12, 21, 22) or with volume (Fig. 9: 15, 25). Legs are represented by four plain. In addition, animals such as “dog and fox” are present which are often accompanied by “abstract designs”. The most striking depiction (Fig. 9: 27) is a “zoomorphs re-



Fig. 7. Overviews of Khazān Panels

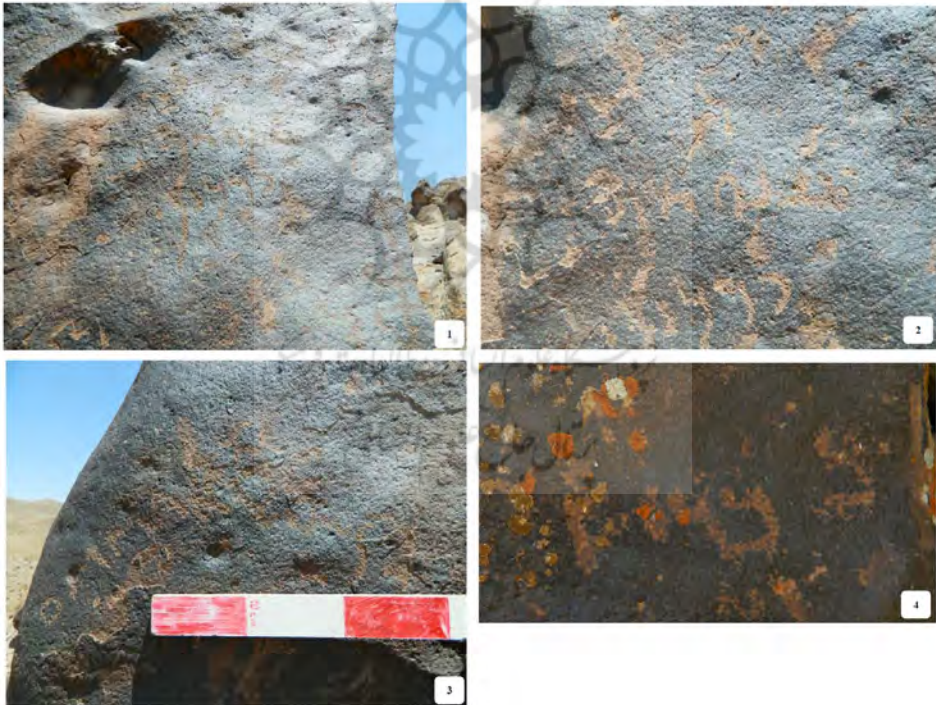


Fig. 8. Kāfarkuh, Selection of Inscription Carvings

sembling a two-humped “camel” (Bactrian camel)”, which has been engraved on the bottom of the panel. “Geometric de-

signs constitute six images of site and include circles and U-shape motifs” which most are to west side of panel (Fig. 11).





Fig. 9. Aso, Overview of Panel

### The Petroglyphs of Lākhduldul

The complex of Lākhduldul, is located in Shākhen village, at the 105 km in east of Birjand. It is situated on a rock

cliff with the same name overlooking the Keshmān Lashkargāh farm, 2041 altitude above the sea level (Figs 1 and 2). In this cliff which is made of dark rock,

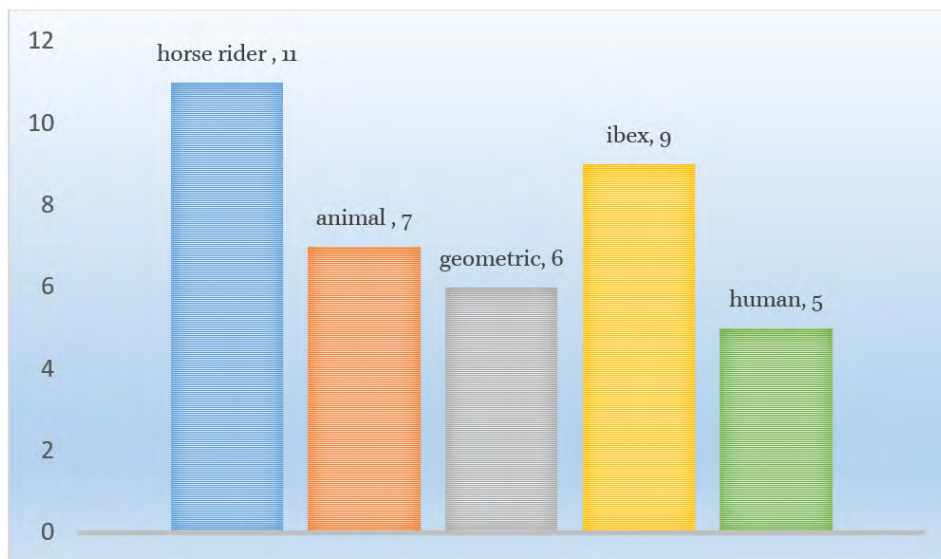


Fig. 10. Frequency Percentage of Rocky Motifs of Aso.

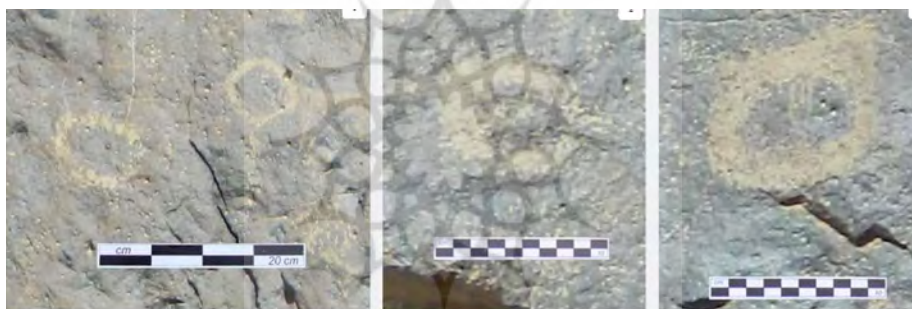


Fig. 11. Aso, Selection of Geometric Carvings in the Petroglyphic Complex

12 panels and 38 rocks recorded images are introduced that presented in table 2 and Figures 12 and 13. Although most of motifs created by “means of stone or metal tools” by scratching the surface of the rock but some inscriptions created by “metal tools by pecking”. The petroglyphs of this site including “nine animals” (Fig. 13: 4, 7, 9, 11, 12), “three horse riders” (Figs. 13: 2, 3; 14), “four geometrics” (Fig. 13: 10), “eight beast of burdens” (Figs. 13: 6, 7, 12; 15), “three hand-prints” (Figs. 13: 5, 10; 16), “eight inscriptions” (Figs. 13: 1, 2, 10; 17).

“Animals are different in size and have linear body, four vertical line indicating the animal’s hand and legs and

overall animal figure are sample and like the other sites”.

“Three-horse riding” have also been engraved on the rock in walking position and like to those in Aso complex (Figs. 13: 2, 3; 14). One of the most important depictions is a scene that shows “quadru-ped animals” like an “ass or mule” which apparently carry something (Figs. 13: 6, 7, 12; 15). “These depictions probably show the transportation of agricultural products at harvest time of farm land”. Considering that agriculture is being carried out today in the region, this panels may illustrate a specific religious ceremony performed to increase crop yields.

Table 1. The Division of Lākhduḍul Petroglyphs.

Panels	Dimension (Cm)	Frequency	Division
1	74×46	5	horse rider (1), inscription (3), geometric (1)
2	200×153	3	horse rider (1), inscription (1)
3	110×66	2	horse rider (1), animal (1)
4	200×167	1	hand-print (1)
5	115×60	10	animal (3), beast of burden (4), geometric (3)
6	170×110	6	beast of burden (3), inscription (1), animal (2)
7	119×102	2	inscription (1), animal (1)
8	31×15	1	animal (1)
9	165×140	4	hand-print (2), inscription (2)
10	30×20	1	animal (1)
11	68×42	2	beast of burden (1)
<b>Total</b>		<b>38</b>	

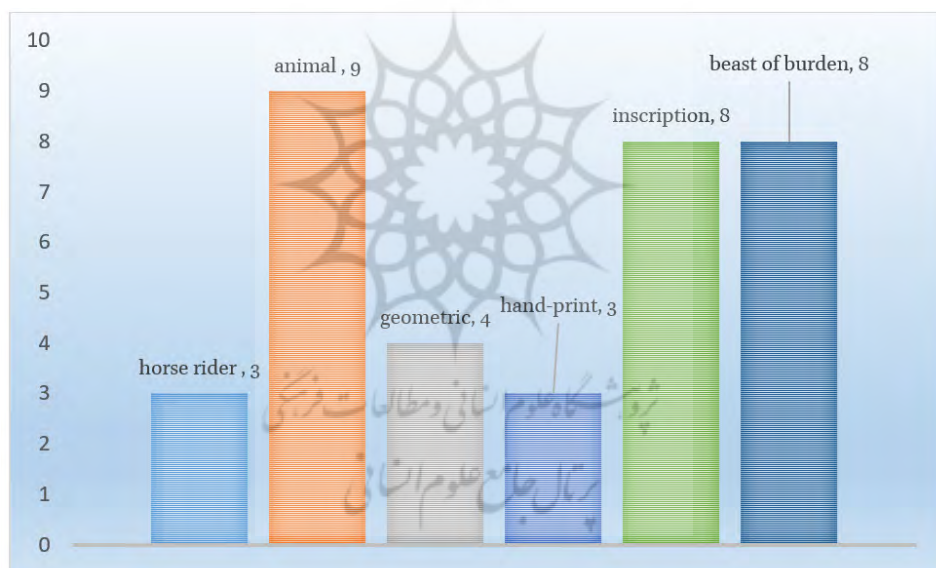


Fig. 12. Frequency Percentage of Rocky Motifs of Lākhduḍul.

As mentioned earlier, there are a number of distinct “geometric or symbolic representations” worthy of further comment. This motif related to “human figures and include images of hands/palms”. “Hand images” are made stylistic with scratching technique. Several examples (Figs. 11: 10; 16: 2, 3) are associated

with “Arabic inscriptions” (ya Allah, ya Ali) and undoubtedly belong to the Middle to Late Islamic period. We cannot offer an absolute classification or accurate interpretation of these motifs, but depictions of human hands and feet appear to be most common and have been identified in Khorasan (Vahdati, 2011: 181) Bal-



Fig. 13. Overviews of Lakhduhdul Panels

uchestan (Moradi et al., 2013: 340) and other parts of Iran. Although it is problematic to analyze and discuss these par-

ticular motifs, we can speculate on their meaning (Moradi et al., 2013: 346). Persian/Arabic inscriptions including



Fig. 14. Lākhduldul, Selection of Horse Riders



Fig. 15. Lākhduldul, Selection of Beast of Burden

“personal names” and “numeral-dates” written in different times with various techniques and scripts (Figs. 13: 1, 10; 17). Most of the personal names mention local shepherds and farmers such as “Ali Jahadi and Mohammad Gholipour”, and other personalities like “Mohammad... Saeid AlJavad, Abu Turab, Alabd, ya Allah and ya” sometimes associated with dates including Senah 122..., 1297, 1318, 1324 S.H., etc. “Shepherds and/or hunters” of “medieval times and later periods” to engrave or imitate many of the images and inscriptions of the complex. The method of creating inscriptions is engraved with a “metal tools or scratching the surface of stone”. Many of these inscriptions specially those made with “metal tools” are engraved after motifs.

### Results

Except petroglyphs of Lakhmazar which studied by Khaniki and Bashash in 1994, four new sites were identified in the Birjand geographic region by Ghorbani in 2013. All of this sites located in highland

areas. “Animals motifs” are different in size and have linear body, four vertical line indicating the animal’s hand and legs and overall animal figure are sample. Among the petroglyphs are “quadruped animals” which apparently carry something. After animals, “human figure” is the next highest in number, which are different in size and drawings.

Given the lack of evidence, it is difficult to date many images of the petroglyphic site of Birjand. By comparing the patterns of rock arts in south of the Khorasan with motifs of eastern central of Iran we can see a lot of similarities especially in Lakhmazar (Khaniki and Bashāsh, 1994), and Nakhlestān, Nehbandān (Ghorbani and Heydarian, 2018).

Regarding to a few “Pahlavi and maybe Greek? Inscriptions”, which has been highly eroded and cannot be read, On the other hand, some hand images are associated with Arabic inscriptions.

### Conclusion

The depictions of five sites in Birjand



Fig. 16. Lakhduhdul, Selection of Hand-Print



Fig. 17. Lakhduhdul, Selection of Persian/ Arabic Inscriptions

region can be divided into two different groups. The first group, which seems to be more ancient, can be found on all of site, including “zoomorphs”, “anthropomorphs”, “geometric marks” and “Pahlavi inscriptions”. The second group of depictions may relate to “recent Islamic centuries” seems to be much more recent and includes the Persian/Arabic name and numeral-date, which can be found on three of them. Unfortunately, no laboratory examinations or field studies to determine their chronology has been conducted in this sites. More surveys in this region and neighboring valleys can help

identify the local iconography, which may also assist in providing a chronology.

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