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## The 2015 Archaeological Report for Khor Kharfot

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**Abstract:** The purpose of this report is to expand on the earlier assessments made during the April 2014 expedition concerning the numerous archaeological features observed within the Khor Kharfot locality.

# **The 2015 Archaeological Report for Khor Kharfot**

**An account of the April and October 2014 Expeditions  
in Wadi Sayq on the Arabian Coast, Dhofar, Oman**

**Sponsored by the Khor Kharfot Foundation**



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Director**

**Extracted from Preliminary Report Prepared by  
Kimball Banks & F.R. Hauck  
for the Khor Kharfot Foundation (2014)**

**&**

**Provided to the Office of the Advisor for Cultural Affairs  
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## INTRODUCTION

Located at the convergence of the Wadi Sayq canyon and the Arabian Sea in southwestern Oman, Khor Kharfot (or in English: the Kharfot Inlet) is situated at 16°43'51" north latitude by 53°20' east longitude. This Dhofar locality contains a unique ecosystem with its varied coastal, canyon and lagoon topography and the associated botanical, zoological, geomorphological, maritime and geological resources and features, all of which are being addressed by specialists<sup>1</sup> in the respective disciplines.

The purpose of this report is to expand on the earlier assessments made during the April 2014 expedition<sup>2</sup> concerning the numerous archaeological features observed within the Khor Kharfot locality. In order to adequately address this subject, this entire lower Wadi Sayq location will be hereafter referred to as the ***Kharfot Archaeological District*** because of the area's size and the diversity of its cultural remains. As demonstrated in the Google satellite map in Figure 1, this archaeological locality is roughly triangular in plan, and measures two kilometers across its northeast to southwest trending coastal front by over one kilometer up Wadi Sayq, which is oriented southeast to northwest (see Photographs 1 through 4).

The Kharfot Archaeological District actually consists of five separate units designated I through V; all five are based on variations in topography and ecology. Figure 2 shows the present configuration of these units and provides brief descriptions of each. In actuality, the archaeological assessments contained within this report are specific to only four of the five units (II through V). Unit I, the center of the entire district, is not considered an archaeological unit as it includes the residual lagoon, its marginal lacustrine resources and its present alluvial floodplain—resulting from millennial accumulations of soil, gravel and rock deposition within the inlet's basin—and does not contain visible archaeological features. If the subsurface strata here were ever exposed, one could expect to find numerous archaeological/organic remains preserved in anaerobic conditions. Such preserved remains—like sunken boats or ships deposited below the inlet surface and residing for centuries within a continually wet environment—may be present within Unit I but no evidence of such has been found to date. Thus, this report focuses only on Unit II through V ruins which we have observed during the April and October, 2014 expeditions.

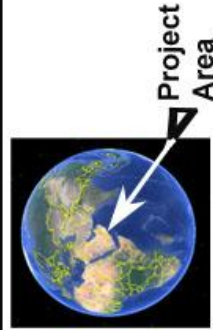
The archaeological remains identified in Units II and V and consist of village complexes situated on the two coastal terraces that border the wadi. These village remains consist of hut foundations constructed by aligning large rocks and boulders in oval to circular alignments. Other features include artificial rock platforms, rock-walled terraces, rock walls, and rock shelters constructed adjacent to or beneath massive monolithic limestone blocks. The degree of patina or "desert varnish" on the exposed architectural structures is indicative of their having been exposed to the natural elements for millennia. In addition, both units contain unique topographic features

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<sup>1</sup>An excellent assessment of the geological resources in Wadi Sayq is contained in "Geological Assessment of Khor Kharfot inlet, Dhofar Region," provided to the Khor Kharfot Foundation in October, 2014 by Iftikhar Ahmed Abbasi, a professor in the Department of Earth Science, Sultan Qaboos University, Muscat, Oman. Dr. Abbasi accompanied the foundation's April 2014 expedition to the site. Additional reports on the locality are expected from a variety of other researchers who either accompanied the April expedition or were present during the October 2014 research program.

<sup>2</sup> See "Observations Relative to the Khor Kharfot, Dhofar, Oman" provided to the Khor Kharfot Foundation on May 16, 2014 by F. Richard Hauck, PhD. of the Archeological Research Institute (ARI) of Farmington, Utah.





**Figure 1: Satellite View of the Khor Kharfot Ecological & Archaeological Zone Dhofar, Oman**



### **Photographs 1-4**

- 1. View of the eastern bank of Khor Kharfot looking eastward up the coast from the beach-lagoon interface.**
- 2. View of Wadi Sayq and the lagoon looking northwest from the beach.**
- 3. View of the beach and the dune-scrub landscape on the western bank of the wadi looking eastward up the coast.**
- 4. View of the beach and the dune-scrub landscape on the western bank of the wadi looking westward down the coast.**



Photographs 1-4









suggesting that ancient springs once flowed directly through the features in these units. Units II and V each contain at least six subunits each of which can be designated as a separate archaeological site. Each of those sites contains various exposed features including rock alignments, habitations and drainage features.

Units III and IV include a variety of rock, habitation and drainage features similar to those associated with Units II and V but vary in that these units also appear to have been the loci of agricultural activities. Unit IV encompasses a much larger area than does III and its occupations, terraces and check dams extend farther up the talus slope into the first level of rock shelter exposures.

### **Climatic Conditions which have Affected the Cultural Occupations of this District**

Two gradual but very specific natural events occurring over many millennia directly impacted the evolution of the Khor Kharfot inlet into its present day condition as a brackish lagoon.

Consequently, these two events also affected the human occupation and industry within this district. Both events appear to have been linked to ancient climatic fluctuations.

The Arabian Peninsula has been subjected to alternating pluvial and arid periods for many thousands of years and which caused its earliest peoples to alternate between occupation and abandonment of the highland deserts in the Dhofar and Empty Quarter. Archaeologist Jeffery Rose, who is affiliated with the Dhofar Archaeological Project in Oman, has documented Paleolithic hunting and gathering sites in the Rub al Khali region of the Dhofar that date as early as 106,000 years ago. Rose uses thermal luminescence studies of Nubian style lithic tools to establish temporal correlations for these early human occupations.

Apparently this alternation between wet and dry periods continued to affect the population compositions and densities in Arabia well into the time when Khor Kharfot may have been first occupied. These trends include arid periods associated with the 6.2 kiloyear event (4,200 B.C.E.), 5.9 kiloyear event (3,900 B.C.E.) and 4.2 kiloyear event (2,200 B.C.E.) all of which may have greatly affected the local water tables. Such drying trends would tend to reduce the water stored in the limestone aquifers and thus reduce drainage into the numerous springs that once flowed from the wadi's walls.

Interlaced among these specific dry intervals were a series of wetter than normal periods including the Older Peron (ca. 5000-4100 B.C.E.) when the sea level was 2.5 to 4 meters higher than present evidently forming the playa scree that exists above and parallel to the beach in Unit III as shown in Photographs 3 and 4 and as Feature 1 in Figure 4. The energy in ocean's surf six to seven millennia ago was evidently much more dynamic than now because the relative size of the cobbles in that exposed beach dune scree are much larger than the pebbles and small cobbles incased in the present-day beach strata. After the Older Peron came the Younger Peron (ca. 4000-3000 B.C.E.) when the sea level peaked ca. 3 m. above present, followed by the Abrolhos (ca. 2600-2100 B.C.E.) when the sea level was 1.5 m. above present, and finally by the Rattnest (ca. 1600-1000 B.C.E.) when sea level was still ca. 1 m. higher than its current level.

Add to this equation the Piora Oscillation, which featured a cold and wet period ca. 3200-2900 B.C.E. and one realizes that the canyon's aquifers were evidently subjected to numerous episodes of depletion and refilling. The most exposed aquifers—hence quickest to deplete—were

those lining the limestone cliffs above the coast. They would have been the first to dry up during long arid periods. One would expect that when this trend—the gradual reduction of flowing springs—was set in motion along this rugged coastline, the loss of springs would have gradually continued farther into the canyon's interior, thereby affecting natural seepage and surface drainage within the wadi.

At the present only three springs are active, the closest being ca. 700 meters from the coast. In contrast, at the time of densest human population in the wadi active springs apparently were flowing within 100 meters of the shoreline.

Furthermore, such episodes of climatic change were hosted by shifts in the monsoonal patterns. Whereas the usual prevailing winds are from the east (as witnessed by aeolian deposits situated on terraces immediately above the coast), the monsoons of May through August come from the western highlands. Monsoonal activity would have varied in intensity from gentle rains and coastal fogs to intense deluges in the interior highlands filling catchment basins and causing extensive colluvial runoff through the wadis or canyons. Flash floods in this arid environment would have been accompanied by violent movements of soil, rock and boulders through eroding channels resulting in secondary depositions filling the bottom of the inlet. Over millennia this depletion within the canyon's channels would have resulted in the extensive alluvial depositions in Wadi Sayq. These dynamic natural forces would have gradually filled the inlet and led to its replacement by the existing lagoon. Physical evidence of the filling of the inlet is present at low-tide along the edge of the surf-line where an extensive bed of submerged boulders can be observed directly opposite the lagoon. These submerged boulder beds do not exist along the seabed beyond the inlet's confluence with the sea, which conclusively demonstrates that over many millennia vast amounts of rock and soil have been expelled through Wadi Sayq and out into the submerged portion of the canyon until the detritus gradient was brought up almost to sea level. The accumulation of this colluvial fill below sea level was apparently the catalyst leading to the recent upheaval of the barrier beach and the creation of the present-day lagoon.

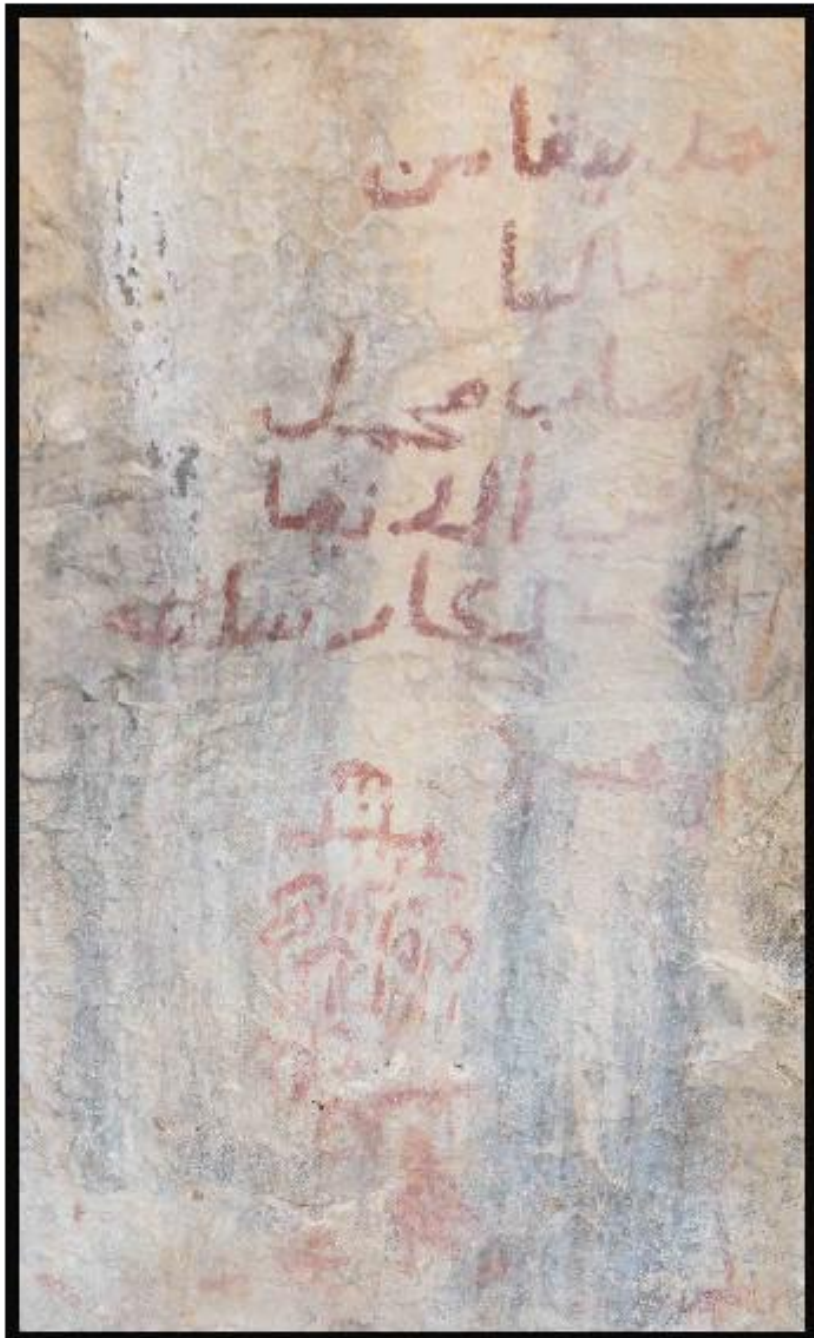
Thus, the gradual loss of aquifers and springs along the canyon walls, the loss of the inlet and most recently and the almost complete eradication of the lagoon caused by monsoon related depositional episodes appear to be the primary environmental factors that contributed to the population decline. Because of these factors Khor Kharfot declined from a small, thriving, stratified village complex involved in agriculture and maritime trade into a marginal community seasonally occupied by fishermen and herdsman. Evidence that the final phases of population density occurred during the Islamic Period consists of the possible mosque ruins and cemeteries in Unit III and the Arabic inscription daubed on the inner wall of the Unit IV Rockshelter (see Photograph 5).

### **An Assessment of the Cultural Development of the Khor Kharfot District**

Anciently the Khor Kharfot inlet offered numerous natural resources including fresh water, open space for agriculture, a diverse range of plant and animal species, and ready access to the Frankincense region in the neighboring highlands.

Photographs 1 through 4 present different views of this locality. These pictures were taken on or adjacent to the barrier beach (see Figures 1 and 2) which presently restricts the flow of fresh water coming down the wadi from entering the Indian Ocean. In the past, the mouth of Wadi Sayq





**Photograph 5: Inscriptions on the rear wall of the Unit IV rock-shelter (see Feature 10 in Figure 5). The upper inscription is Arabic, the lower is an unknown writing system which has yet to be deciphered.**



was an inlet subject to fluctuating tides. Copious amounts of fresh water, dispensed from numerous springs situated along the canyon walls, flowed directly into the inlet and then outward into the sea. Thus, from a very early date, the inlet provided a sheltered port containing floral and faunal resources that would have attracted coastal shipping.

Such environmental diversity as was offered at Khor Kharfot would have also attracted human occupations. Probably the first humans to occupy the wadi either descended the cliffs coming from the dryer highlands or arrived by boat after traveling either north from Africa or south from Mesopotamia. Stone tools observed in Wadi Sayq were apparently discarded on mega-faunal butchering sites situated in Unit II and at the upper end of Unit III. It is difficult to estimate the age of these tools without excavation, but our preliminary assessment is that they are possibly relics of the Neolithic Period or “New Stone Age” and discarded between 10,000 and 5,000 B.C.E.

Eventually small communities became established at Kharfot perhaps as early as the Mesopotamian Ubaid period (6,500-3800 B.C.E.). Based on the exposed architecture in Units II – V we can assume that over the course of millennia such localized communities eventually expanded from the original hunting/gathering, egalitarian cultures of the Neolithic into a flourishing stratified Bronze Age (2300 – 1300 B.C.E.) society subsisting on diverse maritime and agricultural resources and highly capable of initiating intensive public work projects. Such projects at Wadi Sayq included the construction of a small, commemorative stepped tower and its adjacent platforms in Unit IV, complex networks of double-wall barriers and walkways that are still standing in various stages of preservation in Units II, III, IV and V, and numerous double-wall circular to ovate huts containing stone foundations.

Until a better term is proposed, this expansive phase of site development in Wadi Sayq will be referred to as the “*wall building phase*.” This phase occurred when the culture at the lagoon was at its peak and the population most dense and most sophisticated, possibly between 3500 and 1800 B.C.E. Furthermore, the *wall building phase* did not happen in a vacuum but was strongly influenced by other more powerful political and economic forces originating in Mesopotamia to the north, Egypt to the northwest, and/or the Sabaean culture (2000 B.C.E. to A.D. 500) to the southwest. We doubt that any written records have survived that could directly link the site’s parent culture(s) with this tiny ocean port at Khor Kharfot; thus, only through careful excavation can the cultural identity of the *wall building phase* be resolved. However, our preliminary assessment is that the cultural developments associated with Khor Kharfot’s most dynamic expansion phase probably occurred sometime between 2500 and 1800 B.C.E. Of course this period during which the site became a minor economic contributor to the known civilized world can most probably be attributed to its maritime link to the commercial spice trade which was founded within this portion of Arabia. Spice trade passing through the Wadi Sayq inlet apparently contributed to the local population increase and possibly established Khor Kharfot as a pertinent gathering and maritime distribution point of incense materials acquired by that population living beyond the canyon upon the adjacent Arabian highlands.

The dynamic phase of village life, maritime trade and agriculture within Wadi Sayq may have terminated as early as 2500 years ago, possibly during the Iron Age (1300 B.C.E. – 650 A.D), long before the Islamic period began in the 8<sup>th</sup> Century AD. However, maritime trade in incenses may have continued in Wadi Sayq after the depletion of its villages through the use of camel caravans bringing Frankincense and Myrrh down to boats and traders situated in the Kharfot inlet.

The domestication of camels occurred sometime between 900 B.C.E. and 3000 B.C.E. depending on which camel expert one chooses to accept. In any case, camel herds may have been maintained in the Unit III corral complex on the west bank of the lagoon and would have been an important asset to the villagers allowing convenient transport up out of the remote wadi, both for resource collection and for maintaining social contact among the highland village peoples.

Eventually, during the Islamic Period, or after 700 A.D., because of the gradual alluvial and colluvial filling of the inlet, the depletion of the water sources along the canyon's walls and the development of the barrier beach and brackish lagoon, the residual population in the Kharfot archaeological district also diminished. The possible ruins of two small mosques surrounded by small cemeteries and Arabic inscriptions found on the interior wall of the Unit IV rock shelter (see Photograph 5) remain the only evidences of Islamic Period occupation in Unit III.

Today, with only three springs still flowing—and that at marginal rates—the only human activity here is the infrequent visit of a herdsman checking on the local cattle and seasonal occupation in the wadi's rock shelters by goat herders. Apparently humans have not maintained year-around residences in the wadi for several centuries. Today, the only evidence of horticulture at Khor Kharfot is revealed through archaeological assessments. The ancient tending of large fields of grain on the wadi's west bank (Unit III) and the growing of vegetable gardens on artificial terraces associated with check dam arroyos below the canyon's eastern wall (Unit IV) can only be deduced by assessments of ruined walls emerging from the distant past.

## **ARCHAEOLOGICAL UNITS IN KHARFOT DISTRICT**

In addition to Figures 1 and 2, which provide an overview of the Kharfot Archaeological District, four other satellite maps have been developed, courtesy of Google Earth, showing selected archaeological features within this district. Each of these four Google satellite maps (Figures 3 through 6) show the location of various archaeological and topographical features specific to each unit. The April and October, 2014, archaeological evaluations of these diverse features provide the essence of the following assessments concerning Units II through V.

### **Unit II Assessments**

Figure 3 is a Google Map of Unit II, the narrow coastal terrace overlooking the sea situated to the southwest of Wadi Sayq. Like Unit V, its coastal equivalent to the northeast, Unit II contains a unique environmental and cultural content, both fundamental to explaining the development and decline of ancient populations residing within this archaeological district. For instance, because of the cooling effect provided by the localized sea breezes coming from the east, the artificial terraces and platforms situated within this unit are also the most pleasant places in the wadi for occupation. The positions of 11 separate features in Unit II are shown in Figure 3.

**Features 1 and 11:** The October explorations included revisiting Feature 1, the split block or Slot Site with its several occupations, refuse midden and caves (see Photographs 6 and 7). This site takes its name from the vertical shaft that allows access from the top of the terrace down to the sea. Photograph 7 was taken by archaeologist Kimball Banks showing Matt Thurmond and archaeologist F. Richard Hauck (shown in tan clothing) descending into the site. The crevice from





**Figure 3: Unit II -- Southwest Coastal Terrace Habitation Area at Khor Kharfot**

**Legend**

- 1. Huge split monolith with cleft that leads down to sea level containing caves (2), rock shelter habitations (2), and a shell/pottery midden.
- 2. Large rock shelter with southern exposure containing small storage cave.
- 3. Large midden & occupational zone associated with the rock shelter's entrance.
- 4. Rock wall & hut foundation enclosure abutting a vertical monolithic slab on the west.

- 5. Occupation area containing an ovate, double rock foundation hut situated on the edge of the cliff.
- 6. Occupational area containing a variety of down-slope retaining walls & various hut foundations abutting monoliths.
- 7. Large aeolian dunal area of re-deposited beach sand.
- 8. Coastal trail in talus containing evidence of rock wall barricades.





**Photograph 6:** Looking west from Feature 5 down the coast. The split block monolith where the Slot Site is situated is shown as is the southern portion of the midden associated with the Unit II Rockshelter Site.



**Photograph 7:** Exploration of the Slot Site (see Feature 1 in Figure 3).  
(Photographs 6 & 7 courtesy of Kimball Banks)

### Photographs 8-13

8. Orange-red pottery sherd found in the midden on the Slot Site. The discoloring on this body sherd occurred during the firing as exhibited by the blackening on the surface. It is similar to sherds recovered elsewhere manufactured during the Iron Age B Phase (300 B.C.E. - 650 A.D.)
9. Two gray ware sherds found in the Slot Site's midden.
10. A broken rim to body, gray ware sherd containing punctate incisions at the junction of the body-neck, wadi looking eastward up the coast. It is similar to sherds recovered elsewhere manufactured during the Iron Age B Phase (300 B.C.E. - 650 A.D.)
11. View looking northwest of a large monolith situated within the Slot Site that contains a series of cavities, one of which has been used as a natural oven as shown in Photograph 12.
12. A view of the interior of large cavity in the monolith shown in Photograph 11. The red rock associated with carbonized wood remnants consists of oxidized limestone and because of iron content has been turned red to orange during the heating process. Carbon buildup on the walls of the cavity are marginal probably due to the amount of natural exfoliation or surface flaking which has occurred within the cavity.
13. A view looking north of the entry into the Unit II rockshelter shown as Feature 2 in Figure 3. A portion of Feature 3, this site's midden, appears in the foreground.

(Photographs 8 through 13 courtesy of Matthew Thummond)





Photographs 8 - 13





The pottery sherds shown in Photographs 8 through 10 were observed in a midden or refuse deposit situated within the "Slot." That midden also contains carbonized wood fragments, lithic and plant remains and marine shell debris all related to the two ancient occupations within the site shown as rock shelters in the upper-right quadrant of Photograph 7. These four artifacts were not removed from their location in the site. The orange ware body sherd shown in Photograph 8 was burnished prior to firing; its dark appearance is apparently due to varied firing conditions and not the addition of black paint prior to firing. Temporal affiliation of this sherd is difficult to ascertain; our best estimate at the present is that it is associated with the Iron Age B red wares recovered during the excavations of various Dhofar sites.<sup>3</sup> Photograph 9 contains two gray ware body sherds that were smoothed but not burnished. Photograph 10 contains a gray fragmented body/rim sherd which originally was part of a small bowl. Its surface was more scraped than smoothed and it exhibits a thin out-curving rim. This artifact is also distinguished by a repetitive design consisting of three vertical punctate incisions, possibly thumbnail marks, situated on the vessel's upper body adjacent to its neck.<sup>4</sup> Test excavations within the midden and the several sheltered occupations in the Slot Site are likely to yield dates of occupation and a variety of both ecofacts and artifacts that could provide pertinent information on the ancient occupations in the site.

Situated in the Slot Site and just to the northwest of the entrance into the crevice is a large upright monolith (see Feature 11 in Figure 3) which contains peculiar cavities (see Photographs 11 and 12). Photograph 11 displays a large hole in the face of this large boulder. Above that hole are several other openings into the boulder's interior, none of which appear to be linked into a natural chimney. The interior of the largest cavity contains evidences of its having been used as an oven: an accumulation of oxidized (reddish to pink) limestone rock fragments, carbon particles and soot exist on the cavity's base and walls (see Photograph 12). In the future, carbon samples extracted from this oven and from the soils below its base could not only determine its age but could possibly contain remnants of whatever was being cooked or heated in the oven.

**Features 2 and 3:** These two Unit II features, formally referred to as the Shelter II-1 Site, include the large, southeast facing rock shelter (see Photograph 13) and a large refuse, debris or midden zone that extends to the south of the shelter terminating on the escarpment as shown in Photograph 6 and Figure 3. Both features are situated at least 50 meters to the northeast of the Slot Site and over 100 meters to the west of Unit II's primary occupation features 5 and 6. This rock shelter exhibits evidences of ancient occupation including several terrace walls and possibly several small occupational loci. No inscriptions or other forms of pictographs or petroglyphs are apparent on the shelter's interior walls. There appears to be little depth potential for excavation in

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<sup>3</sup> See pages 83-87 in Juris Zarin's *The Land of Incense, Archaeological Work in the Governorate of Dhofar, Sultanate of Oman, 1990-1995*. Sultan Qaboos University Publications in Archaeology & Cultural Heritage Series Vol. 1 (Sultanate of Oman:2001).

<sup>4</sup> Similar punctate ceramics were recovered by Zarins at Shisr (see pages 112-113 in op.cit.) associated with Iron Age B occupations (300 B.C.E. – 650 A.D.).

the shelter, however test excavations in the midden area are recommended; test excavations sampling the midden's stratigraphic contexts could yield sufficient lithic, organic and ceramic material to facilitate dating this site which might contain evidences of Paleolithic through the Islamic Period occupations.

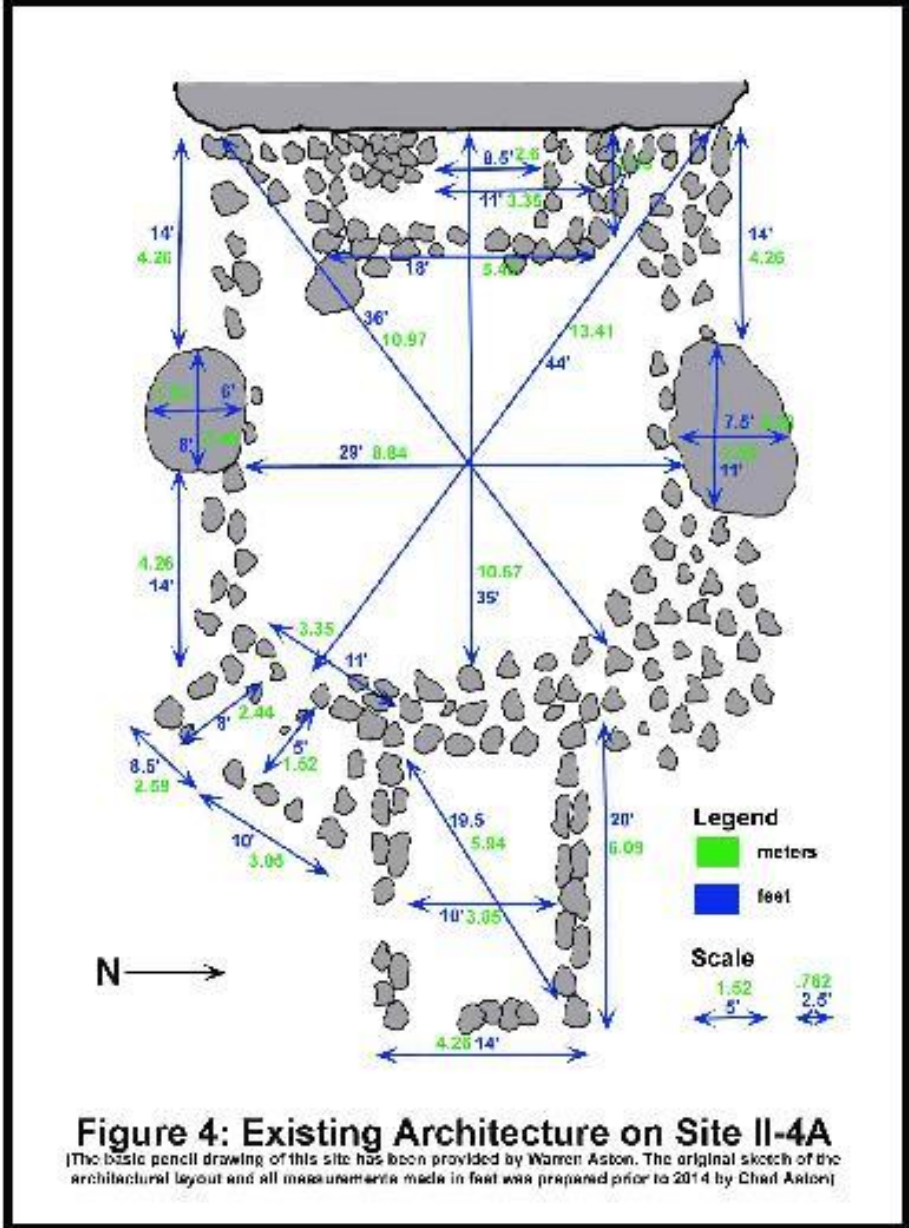
**Features 4, 9 and 10:** Photographs 14 through 22 provide a variety of views of an ancient structure probably of ceremonial use shown as Feature 4 in Figure 3. Photographs 14 through 17 show portions of this platform and begin with a view to the southwest then rotating northward in a clockwise direction to terminate with Photograph 17, an eastward view of the Dhofar coast. Thus, this structure is open to the east and terminates on the west with a large vertical limestone slab shown in Photograph 15.

This site, formally referred to as Site II-4 (see Figure 4 for a drawing containing the layout associated with this site), contains the most interesting and complex architecture found to date in the Kharfot Archaeological District. As Figure 4 demonstrates, this structure appears to be more sophisticated than the architecture associated with the *wall building phase* but does not appear to be as recent as the Islamic Period architecture found within the district. Thus, we may assume it was constructed sometime between the demise of the *wall building phase* culture and the advent of the Muslim occupations in Wadi Sayq. This assumption will be either substantiated or refuted through future excavations in Unit II.

Structure II-4A consists of an artificial platform originally surrounded on its northern, eastern and southern peripheries by free-standing, coursed stone walls that may once have stood over a meter in height (see Figure 4 and Photographs 14, 16, 17). The western wall of the structure consists of the immense vertical limestone slab shown in Photograph 15. The configuration of the platform is rectangular with its longest axis east to west.

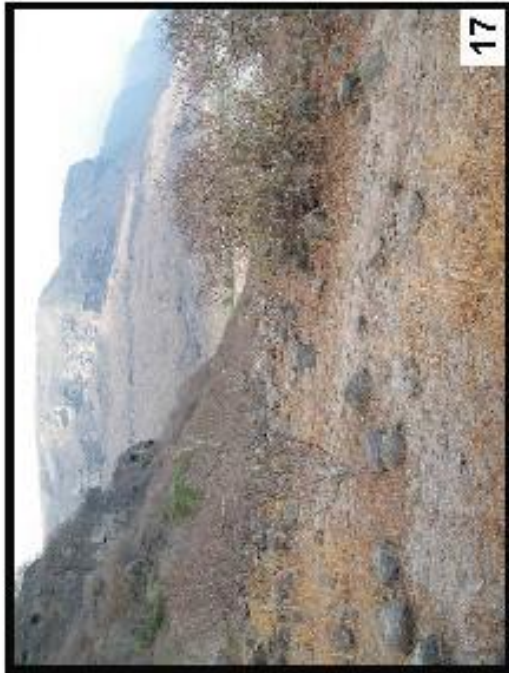
The west wall stone slab is unique in several ways: it is an isolated relatively narrow slab standing on end in a vertical position with its base buried below the structure's artificial platform. There is very little probability of its having rolled down the talus slope and become embedded in its present vertical position. In addition this huge slab exudes water. Monsoonal moisture entrapped in the limestone periodically issues from fissures near the top of the slab. This assessment of water extrusion is based on the variations of dark to light patina on the face of the monolith. Trace to moderate discoloration among the patina accumulations on the face of this slab is associated with moisture flowing down its surface. Where sufficient moisture exists the patina is either nonexistent or has been inhibited. Thus, the growth and amount of "desert varnish" on rock surfaces periodically covered by water is a factor related to the frequency and intensity of the flow and the exposure of that surface to both sun and wind. Another indication of trapped water flow down the rock's face is the presence of residual mineral deposits, probably calcium carbonate particulates that have become attached to the monolith. These depositions have steadily accumulated on the slab's upper region over a long period of time. Photograph 22 shows this particulate buildup, the result of water trapped in the monolith seeping through small cracks readily apparent on the rock's upper surface and leaving deposits as they run down the face of the slab.

An accumulation of rock rubble along the western periphery of the structure paralleling the base of the monolith suggests that a low feature of some type, possibly a low platform, once existed at this location (Photographs 14 through 16 and Figure 4).



### Photographs 14-17

14. View looking southwest of the platform floor, southern wall rubble and limestone slab situated on Site II-4A.
15. View looking to the west of the large limestone slab that forms the western perimeter of the Site II-4A platform and floor.
16. View looking northwest of the platform floor, northern wall rubble and limestone slab situated on Site II-4A.
17. View to the north of the northern portion of Site II-4A showing its northeast corner with Wadi Sayq in the background.



Photographs 14 - 17

### **Photographs 18-21**

18. View looking east of the eastern portion of Site II-4A platform and eastern attached room.
19. View looking northwest of the eastern attached room or structure at Site II-4A.
20. View looking north of the southern and northern walls of the eastern attached room at Site II-4A.
21. View looking northwestward of the entry into the eastern attached room or structure at Site II-4A. The large monolithic slab can be seen in the background





Photographs 18 - 21





The structure's architecture is further enhanced by two large flanking boulders which occupy central positions along the platform's northern and southern walls as shown in Figure 4 and Photographs 14 and 16.

Photographs 19 through 21 and Figure 4 show linear walls associated with two separate structures that are situated slightly below and abutting this platform along its eastern and east-southeastern flanks. Both sets of rock foundations appear to be integral to the main structure and both exhibit separate entries on the east. The eastern flanking structure is a contained feature lacking western access through the wall onto the platform whereas the southeastern flanking structure has doorways on both ends and thus was the sole means of access onto the platform and within its ceremonial sanctuary.

The southwestern periphery of the artificial platform upon which this ceremonial center rests is partially exposed as shown in Photograph 23, and contains a loosely coursed rock and boulder retaining wall. This retaining wall confirms our earlier assumption that the sub-floor of the platform was filled with rocks and soil until leveled at its present elevation in order to maintain the integrity of its flat floor, which is clearly visible in Photographs 14 through 18.

Furthermore structure II-4A is complemented by a separate artificial and floored platform to its west on the opposite side of the large limestone slab. This separate but flanking structure, which has been designated Feature 9 in Figure 3 and as structure B in Site II-4, appears to be square rather than rectangular in configuration but needs to be mapped to accurately determine its configuration and dimensions. This feature is delineated along its eastern perimeter by the same vertical slab that forms Feature 4's western periphery. A second vertical limestone slab forms platform II-4B's western periphery (see Photograph 24). Its northern perimeter consists of a large accumulation of collapsed rock wall rubble (see Photograph 25). A low wall associated with the original terrace construction and platform fill runs along its southern perimeter. The only access corridor onto this second platform is through the south wall.

It is important to note that both platforms were originally developed to inhibit ready access into their overlying structures except through controlled entry locations. Both have vertical slabs as western walls, both were built on artificial fill allowing their subfloors to have sufficient density to inhibit the growth of shrubs and trees. Together they maintain a long east to west axis alignment. The absence of any stone pillars within both structures suggests that originally these two platforms were protected from the elements by either cloth tents or palm frond roofs stabilized on wooden frames anchored into the free-standing, coursed rock walls.

Careful mapping of Site II-4A&B is recommended. In addition, ARI's ground-penetrating radar could be initiated on the site as a means of mapping the buried configurations of both platforms which may contain or overlie cultural material, carbonized deposits and/or diagnostic artifacts. Any cultural materials buried within these two platforms could provide pertinent information on the construction processes used to build these structures, the purposes and nature of the superstructures that stood above each platform, and the temporal phases associated with this site's construction and occupation.

### **Photographs 22-25**

22. View looking west at the limestone monolith block on Site II-4A showing the location of the calcium carbonate deposit in its upper quadrant.
23. View looking north of the southwestern corner of Site II-4A platform showing a portion of the rocks and soil fill used to construct the platform to its present elevation.
24. View looking west of the western vertical slab situated in Site II-4B directly to the west of II-4A.
25. View of the north wall of the platform structure in Site II-4B showing the platform floor that is basically devoid of vegetation because of the compact floor and depth of rock and soil fill. The height and complexity of the platform's northern barrier wall is shown in the background.

(Photographs 22-25 courtesy of Matthew Thurmond)



22

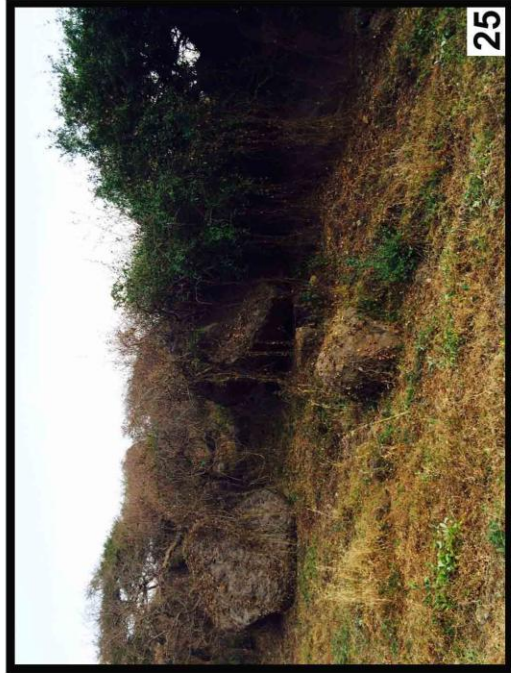
Photographs 22 - 25



23



24



25



During the October explorations in Unit II, Feature 10, a defunct spring and drainage system, was discovered within the trees ca. 40 meters to the northwest of Feature 4 in Figure 3. This channel is assumed to be the active water source used during the ancient occupations in Unit II. Originally its steady flow became entrenched in a shallow channel that descends the slope to the east, as shown in Photograph 26, before disappearing under an accumulation of aeolian beach sand deposits which have accumulated in the millennia since the spring dried up. A few meters to the south of this sandy location the original water course emerges as two flanking channels that extend northeasterly down the slope into Feature 6 area on Figure 3. The location where the drainage course disappears under the sandy deposits is assumed to be a reservoir possibly modified by the ancient occupants to create a water pool used for communal activities. If this hypothesis is correct, this buried reservoir should contain a variety of discarded artifacts including broken pottery used for transporting water from the basin to the surrounding occupations. Such artifacts can be used for dating these apparently Bronze Age to early Iron age occupations associated with the Shelter Site and Site II-4A&B) in Unit II. Test excavations into this sandy deposit could readily assess the potential feature 10 has for containing material that can furnish both cultural and chronological indicators pertinent to our identifying occupants of Unit II.

**Features 5 and 6:** Photographs 27 and 28 show the difference in vegetation following the monsoon periods that extend between mid-May and September of each year. Photograph 27 was taken during the April expedition. It shows European archaeologists Carl Phillips (on the left) and Michele Degli Esposti mapping a habitation or hut foundation, known as Feature 5 in Figure 3. This same feature partially covered by weeds that spring up during the intermittent monsoon season is also shown in Photograph 28 taken during the October expedition. The subject of these two photographs, an ancient hut foundation, is precariously situated on the edge of the cliff overlooking the Indian Ocean. The double-wall architecture of this ancient house is apparent in Photograph 27 but difficult to ascertain in Photograph 28 because of the density of the weeds. Because this double-wall structure is architecturally similar to other structures in Units III, IV and V, this hut foundation was apparently constructed during the *wall building* cultural phase possibly dating to the Bronze Age or between 3000 and 1200 B.C.E.

**Feature 7:** Three of the earliest artifacts observed at Khor Kharfot are ancient stone choppers apparently dating from the Neolithic Period or earlier and possibly used for dismembering large fauna during the butchering process. One of those tools was observed in April on the Unit II trail near the eastern entrance to the sand dunes shown as Feature 7 in Figure 3. Attempts to relocate this artifact in October were in vain; the density of weed growth in the vicinity hampered the search.

### Photographs 26-29

26. View looking east at the channel associated with the ancient spring that was situated in Unit II and shown as Feature 10 in Figure 3.

27. View looking east of archaeologists mapping Feature 5, a hut foundation overlooking the Indian Ocean.

28. Another view of the Feature 5 hut foundation looking to the east with the beach in the background. This photograph was taken in October 2014, after the monsoon period showing the amount of weedy vegetation that can cover and obstruct archaeological features in contrast with Photograph 27 which was taken in April of the same year.

29. Archaeologists Kimball Banks followed by F.R. Hauck walking the Unit II trail in October, 2014.

(Photographs 26, 28 and 29 courtesy of Matthew Thummond)



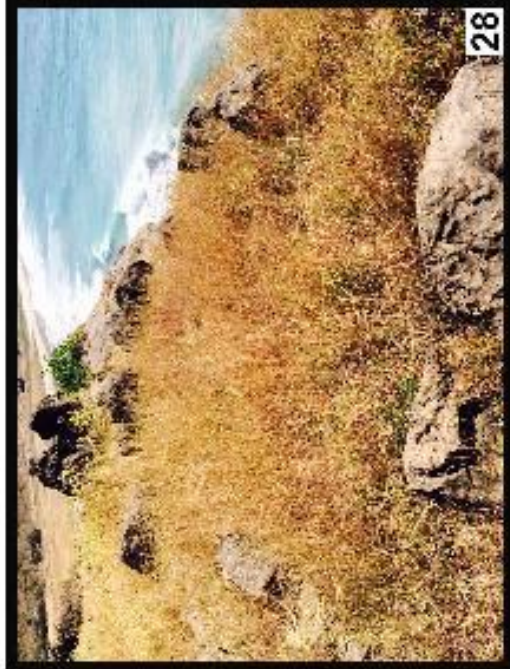


26



27

Photographs 26 - 29



28



29





### Unit III Assessments

Figure 5 provides an overview and summary of the natural and cultural features observed in Unit III. This unit consists of the entire west bank of Wadi Sayq westward from the lagoon (Unit I) up the colluvial slope and from the beach inland over Feature 1 (a linear expanse of sand dunes and scree that parallels the coast), and from there northward across the soil and gravel terrace associated with *A*, *B*, and *C*, all subunits of Unit III.

Three of the earliest artifacts observed at Khor Kharfot consist of ancient stone choppers or hand axes apparently dating from the Neolithic or earlier and possibly used for dismembering mega fauna. All three artifacts had been brought to the surface as a result of trail erosion associated with repeated livestock movements across disparate surfaces associated with the aeolian formation in Unit II (see Feature 7 in Figure 3) and eroding soils associated with the northwestern terminus of Unit III. Photographs 30 and 31 show both faces of a hand chopper that was observed in Unit III during the April expedition. Attempts to study this stone tool during the October expedition were fruitless because of the amount of weed cover that proliferated in that locality during the summer monsoon.

Of particular interest in this Unit III discussion are those large areas labeled *A*, *B*, and *C* which are believed to have been originally used for agricultural activities. Since double-wall barriers (Features 3 and 7) dating from the *wall building phase* were used to separate these large areas, it can be assumed that fields *A* and *C* were in common use during that particular period of site development. As Figure 4 demonstrates, *B* is shaped like a funnel and for very good reason—it was apparently used as a corridor where sheep or goats and possibly camels and cattle were herded down from the feeding slopes to the northwest through the *B* corridor to water at the inlet/lagoon. That watering place is shown by flanking double-wall barriers (see Features 11 and 12 in *B*).

Not only is the funnel shape of this drive-line corridor a giveaway that we are seeing the remnants of a herding feature, but the lack of house foundations, platforms and retaining walls in *B* also confirms this assessment; herdsmen generally do not erect their habitations, no matter how humble, in the middle of their herds' drive zone. Indeed, all three types of features can be readily observed in the upper elevations of adjacent fields *A* and *B*. For instance, position 8 in Figure 5 gives the location a fairly intact double-walled hut foundation that was built into the down-slope side of the double-wall retaining terrace (see Photographs 32 and 33) associated with Features 7 and 8 in Figure 5).

One additional factor confirms this assessment: The surface of *B* has been highly disturbed by livestock traffic resulting in windblown depletion of surface soils after those soils being stamped into powder. As a result, a large amount of surface rock debris accumulated during the herding phase in corridor *B*. To a careful observer visiting the site during the dry season when the vegetation cover has been depleted, the rock debris accumulation in corridor *B* stands in stark contrast to the more stable soils and general paucity of rock debris visible in adjacent fields *A* and *C*.

Since *B* can be assumed to be a livestock runway, the question naturally arises: What is the remnant of a mosque and its adjacent cemetery (see Feature 6) doing in the middle of a livestock runway? The answer becomes apparent when one considers the difference in the lesser amount of patina exhibited on mosque and cemetery rocks in contrast with the intense patina exhibited on the exposed rocks associated with the double-wall barriers. Since desert varnish or patina increases



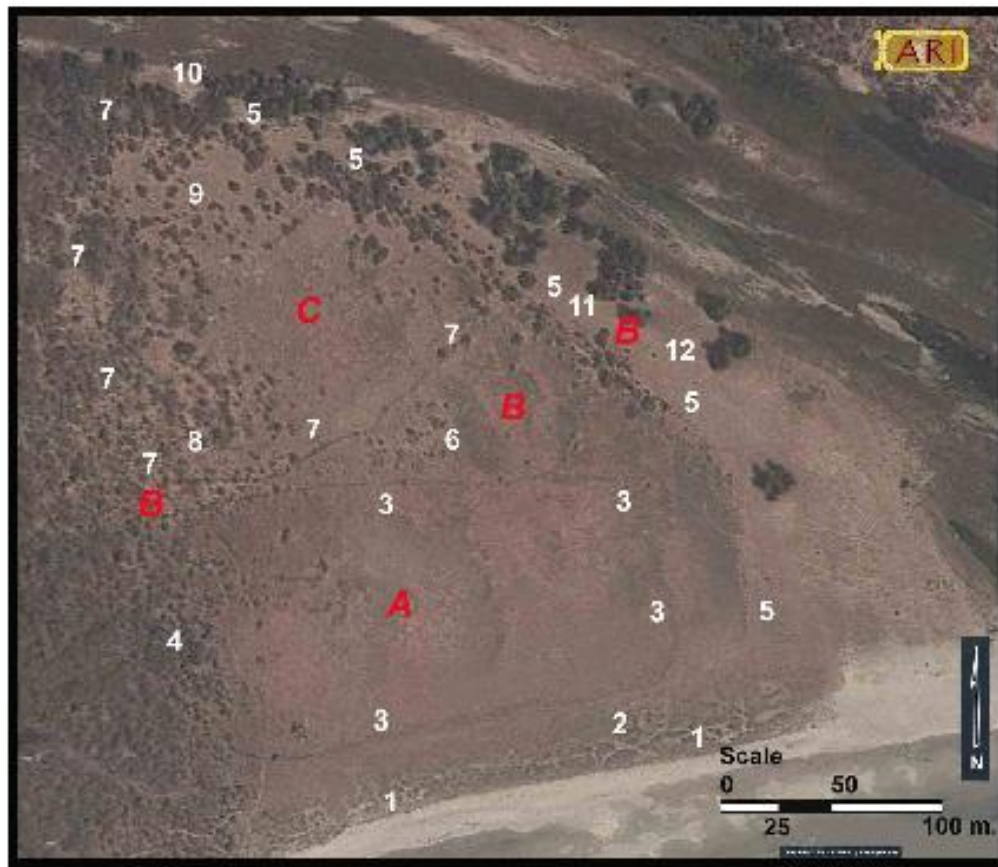
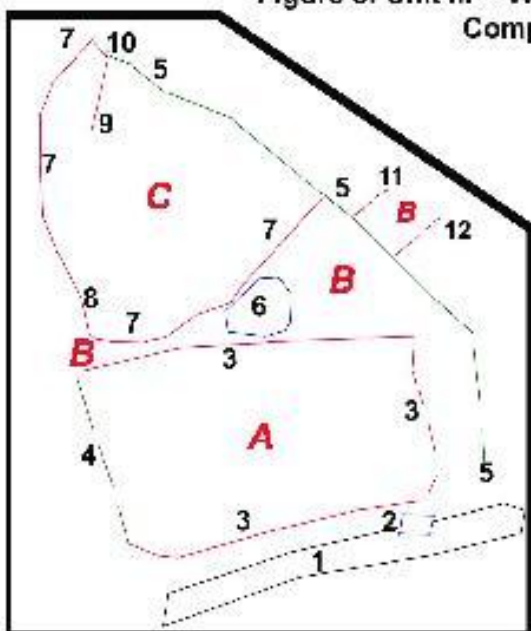


Figure 5: Unit III -- West Bank Occupational & Agricultural Complexes at Khor Kharfot



#### Legend

1. Coastal cemetery consisting of highly patinated rock cairns many of which are oriented east-west.
2. Mosque platform on ridge crest overlooking the coastline.
3. Double-rock barrier wall defining the periphery of the southern agricultural terrace (A).
4. Intermittant rock wall at the base of the talus slope.
5. Large rock retaining wall forming the base of the first terrace above the lagoon.
6. Mosque platform and cemetery with graves oriented north-south situated in the middle of B, a corridor linking the talus slope grazing area on the west with the lagoon to the east.
7. Double-rock barrier wall defining the periphery of the northern agricultural terrace (C).
8. Highly patinated double-rock walled hut abutting the double-rock barrier retaining wall (7).
9. Double-rock barrier wall extending to the rock walls associated with the spring/well (10).
10. Ancient wall & spring feature that may have been converted into a well during the Islamic Period.
11. Double-rock barrier wall that apparently extended down to the lagoon's shoreline forming the northern periphery of B at the water's edge.
12. Double-rock barrier wall that apparently extended down to the lagoon's shoreline marking the southern periphery of B at the water's edge.





Photographs 30 & 31: Views of the Unit III chopper.









**Photograph 32:**

North wall of Unit III, Feature 8 as located in Figure 4. This double-walled hut foundation abuts Feature 7 terrace wall on the right. The entrance into the occupation is on the left as indicated by the arrow.



**Photograph 33:**

East wall of Unit III, Feature 8 showing the entry into the habitation. A perishable wooden structure with thatched roof were probably associated with this foundation. Fire-cracked rock, the result of ancient cooking activities litters the surface outside the entry.



through time of exposure, the longer a rock has been exposed to the air the longer the bacterial colonies that create the patina have multiplied. Thus, the more patina a rock exhibits, the longer it has been stationary in its present position. Anciently when any of the limestone Khor Kharfot rocks were originally released from their parent positions in the limestone cliffs above the site, they were tan in color. Some of those rocks were still tan when they were incorporated into the construction of the double-rock barrier walls. Once embedded into the earth's surface the rocks became immobile and the bacterial colonies started to populate across their sunlit, exposed surfaces.

The Feature 8 hut shown in Figure 5 and Photographs 32 and 33 is an excellent example. Photograph 32 shows the hut's northern exterior, at the junction where that structure's wall ties into the double-rock retaining wall, an opening among the rocks can be seen. The interior rock within that opening, having never been exposed to weather or ultra-violet rays from the sun, still retains its original tan appearance. Furthermore, when a rock exhibiting a high degree of patina across its surface is broken open, its interior still retains the original color in contrast with the almost black rind on the exterior. All of the double wall barrier rocks exhibit such intense patination.

Thus, it is safe to assume the double-wall barriers were erected for livestock herding before the mosque was constructed. The Muslim community associated with the mosque was not using those barriers for herding their own stock and camels through their small settlement. Who would place their religious center, cemetery and seasonal huts in the center of a livestock corridor? Instead, those Muslims were apparently drawn to this location in the center of *B* because of the security afforded by these adjacent abandoned walls. They used these same walls to provide some measure of protection from animals rather than as a means of containing animals which were the walls' original purpose. This chain of reasoning brings us to the eventual conclusion that the *wall building phase* occurred long before the Islamic period when the mosque was introduced. Hopefully this assessment terminates any further unsubstantiated conclusions that the two different types of construction, mosque and double-wall, were the work of the same people or that they were contemporaneous. As archaeologists we must now either substantiate or refute this assessment through careful excavation.

One final point needs to be addressed before leaving Unit III. Features 11 and 12 in Figure 5 consist of double-wall barriers that retained animal herds at the designated waterhole on the lagoon rather than allowing the animals freedom to roam the shores of the lagoon where other activities were on-going, e.g. boat construction, bathing, fishing, washing clothing. At present, both rock features gradually disappear below the earth's surface as they extend eastward toward the lagoon from the terrace retaining wall (Feature 5). There is a distinct probability that these two walls, although buried, remain intact but buried under the more recent alluvial fill associated with Unit I. Furthermore, both walls apparently terminate on the northeast at the elevation where the low water tide existed when the walls were constructed. By following those walls down to their termini and measuring those elevations above present sea level, one will discover the shoreline's western edge during the *wall building phase* and thus refute or demonstrate that the inlet's ancient shoreline was associated with the open sea long before the inlet deteriorated into its present brackish lagoon condition contained within an extensive accumulation of alluvial fill.



## Unit VI Assessments

Figure 6 provides a map of Unit IV which comprises the eastern bank, terrace and talus slope of Khor Kharfot. This portion of the archaeological district appears to have been more densely populated than was the west bank of the lagoon as suggested by numerous evidences of occupation and gardening within sub-unit A. Just as double-rock barrier walls extended down to the ancient water's edge on the west bank in Unit III, two similar walls (Features 2 and 3) exist on the east bank. It would be most instructive to compare the elevations and distances apart of all four terminal positions of these walls to determine the actual width of the lagoon and the relative elevation of sea level during the *wall building phase* when these walls were constructed.

**Features 2, 3, 4, 5, and 6:** These five features are all part of an architectural complex with Feature 5 as the center or focal point. This large mound shown in Photographs 34 through 37 is the feature presenting the greatest archaeological and architectural interest in Unit VI. Based on presently intact exposures of vertical coursed wall, like that portion of an intact wall shown in Photograph 37, we assume for research purposes that this tower was constructed in the form of a stepped pyramid possibly during the Bronze Age. During the intermediate millennia large animals climbing onto the structure to feed on its forbs have caused the collapse of much of the tower's walls until today it simply appears as a mound of rubble exhibiting few relatively intact wall segments. The larger amount of rubble on the tower's eastern side suggests that a stairway or ramp may have occupied that position allowing access to the top of the mound for religious activities.

Features 4 and 6 are low platforms constructed to the north and south of the mound and possibly consisted of public ceremonial compounds associated with priest activities on the 'High Place' tower. Photographs 35 and 36 clearly show the large size of the Feature 4 platform. The rocks shown to the left of the mound in Photograph 36 are associated with the double-wall identified in Figure 6 as Feature 2.

Feature 3 is the walkway leading toward the pyramid shown in Photograph 35. Its two parallel rock alignments apparently not only served as supports for perishable walls erected as barriers to livestock but also formed a private walkway linking the inlet on the south with this large ceremonial complex, Features 4, 5 and 6, on the north. This walkway contains two parallel sets of rock walls that only accommodate single-file movement through that protected area. The fact that the walkway is too narrow to accommodate public traffic including beasts of burden is indicative that, like the adjacent platform enclosures and tower, it had some type of sacred value. Perhaps the narrow walkway was used only by priests going to obtain water from the lagoon for ritual purposes on the tower or possibly the route reserved for visiting dignitaries arriving by sea. Conversely, the walkway may also have been used to isolate the passage of individuals leaving the platform enclosure for ritual washing in the inlet. Pottery fragments at the walkway's inlet terminal where pots were being filled and accidentally broken, or within the platform enclosure, where water was being dispensed, could provide a better assessment of this special corridor/barrier feature.

The upper levels of construction associated with these double-rock barriers and the ceremonial walkway is presently an open question. Future excavations could readily determine the purpose of these double wall alignments. The present assumption is these large linear rock structures served to shore-up and contain perishable upper walls stabilized within the inner zone by the flanking rock walls. This hypothesis makes the most sense because these interior zones are







**Figure 6: Unit IV -- East Bank Occupational, Ceremonial & Agricultural Complexes at Khor Kharfot**

### Legend

**A.** Extensive occupation area containing rock walls, habitation platforms & checkdams related to agricultural plot leveling and the containment of subsurface percolation in buried arroyos.

**B.** Midden area containing cultural debris 50 m. down slope below a large rock shelter (10).

1. A complex of circular to ovate rock foundations for huts or conical storage structures.

2. Highly patinated double-rock barrier wall evidently used as a barrier between the occupation/agricultural area (A) & the lagoon.

3. Highly patinated double-rock wall evidently used as a walkway between lagoon & enclosure (4) and as a barrier associated with the lateral double wall (2).

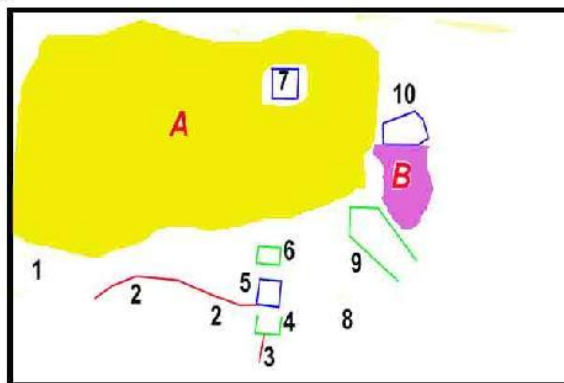
4. Rock enclosure abutting tower's (5) south wall.

5. Tower or stepped pyramid featuring +4 stacked structures exhibiting vertical walls & 90° corners constructed from rock boulders which exhibit the same intensity of patination as on the rock walls.

6. Rock platform situated to the north of the tower (5).

7. Monolith complex containing multiple overhangs and walled-off caves. Several linear carbon inscriptions can be observed on the roof of the southfacing shelter. A series of steps have been hacked into the monolith's western wall for access to its summit.

8. Ceremonial platform possibly containing several graves.



9. Rock wall enclosures probably used for containing livestock. Several walls appear to be recent.

10. Monolith exhibiting a south-facing, multi-roomed rockshelter containing partially buried walls. A buried cave entrance partially obscured by an eroded rock wall is to the west of the rockshelter. The shelter's rear wall exhibits a variety of inscriptions. The northern wall of the monolith has been extended by an artificial terrace contained within a 3 meter high, coursed wall of highly patinated rock boulders.

### Photographs 34-37

34. View looking west across the lagoon with the large mound in the upper left quadrant. This photograph was taken from the "High Point" on top of the monolithic block that contains the Unit IV rock shelter or Feature 10 in Figure 5.
35. View looking north of the ancient walkway connecting the inlet with the mound complex.
36. View looking east of the mound complex.
37. Close-up view looking south of the large mound or stepped pyramid situated in Unit IV. A small portion of intact vertical wall is visible above the rock rubble that litters the tower's north wall.

(Photograph 35 courtesy of Warren Astor)



Photographs 34 - 37





usually filled only with dirt and rock fragments. When this type of wall was used as a barrier, as in case of the walls surrounding the agricultural and living complexes on the west bank (3, 7, 9, 11, 12) or with Feature 2 on the east bank, the interior of the walls either served as a base for hardy thorn bushes that still exist on the site, or contained a series of poles or palisades projecting upward as the primary barrier. Thus, the double rows of rocks simply give those plants or timbers foundational support greater than they would receive by being partially buried in the ground. Thus the double walls insured that the artificial brush thickets or network of poles could not easily be breached or pushed over by animals, raiders, or stiff monsoonal winds.

In contrast, the center areas in the double-rock hut platforms, e.g. feature 8 in Figure 5, were also foundations used to reinforce roof supports and were also possibly filled with networks of reeds and branches. In such an intensely warm tropical environment, the vertical spaces between the reeds or branches helped ventilate the houses which would otherwise become stifling under their thatched roofs. Occupants probably used mud to fill cracks within certain portions of reed or stick walls to facilitate their privacy and also to intensify the movement of air through narrow gaps in those structures. In other words, the inhabitants possibly employed the Venturi effect in their hut's walls to heighten ventilation and promote more effective cooling.

**Feature 10:** The large rock shelter shown as Feature 10 in Figure 6 and in Photographs 38 and 39 is the location of the inscriptions provided in Photograph 5. Other pictographs shown on the shelter's interior wall include both carbon and hematite depictions of animals, boats, people and abstract graphics. Rock wall alignments are evident within the shelter. Excavations within this shelter, which is designated Rockshelter IV-1, and in its spacious midden (*B*) to the south could yield sufficient cultural material to help date its various periods of occupation.

During the *wall building phase*, an elaborately walled terrace was constructed on the north side of this block monolith that houses the Rockshelter IV-1. The supporting wall that retained that terrace is shown in Photographs 40 and 40. This terrace not only furnishes ready access to the top of the limestone block but expands the location where a variety of individuals could attend any 'High Place' rituals that were taking place on the brow of the boulder. Photograph 34, a view of the tower, lagoon and the wadi's western terraces, was taken from the top of this huge block.

More recently this terrace has been used as a temporary occupation. In April a broken ceramic vessel containing hollow mollusk shells and other evidences of cooking was found on its surface. The antiquity of this substantial, well-constructed terrace wall is attested by the dense patina on the rocks in its retaining wall and the fact that several portions of the wall slumped so long ago that much of the detritus associated with those collapses is no longer *in situ* on the adjacent surface.

**Feature 7:** In addition to the top of the stepped tower (Feature 5) and the summit of the Rockshelter monolith (Feature 10), one other possible 'High Place' ritual location in Unit IV has been identified. Feature 7 is certainly the most primitive possible ritual site at Khor Kharfot and may or may not be the earliest. It consists of a series of steps chiseled or hacked into the limestone monolith's sloping northern face to facilitate individual access onto the narrow top of the huge boulder. There is no room on the top of the boulder for two people much less a public demonstration; rather it may have served as the location where a priest once stood for ritual

### Photographs 38-41

38. View looking southeast of the interior of the Unit IV rock shelter, which contains various inscriptions including the writing shown in Photograph 5. Picture was taken in April, 2014, and contains various members of that expedition.
39. View looking northeast at the rock shelter's entrance.
40. View looking southeast of the intact northern portion of the retaining wall at the rear of the Unit IV rock shelter. This wall supports an artificial terrace that allows access to the top of the monolith.
41. View looking west of the southern end of the retaining wall showing how it was constructed against the monolith and has been partially collapsed probably due to large animals climbing on the terrace to feed on the trees and shrubs.

(Photograph 39 courtesy of Kimball Banke)





Photographs 38 - 41



purposes, a common practice in Mesopotamia to the north during the early pre-Islamic dynasties. The possible 'High Place' established on top of Shelter IV-1 (Feature 10) and on the stepped tower (Feature 5) are much more complicated matters since they are both associated with massive public work projects indicative of a large and stratified society.

### **Unit V Assessments**

Figure 7 is a Google map of Unit V, a large area comprising the narrow northeastern coastal terrace of the Kharfot Archaeological District. Like Unit II, its coastal equivalent to the southwest, Unit V contains a unique environmental and cultural content—both fundamental assets containing buried materials that can explain the development and decline of ancient populations residing within Wadi Sayq. Photographs 42 through 44 were taken of Unit V in October and provide indications of the ancient architecture that is displayed in this locality. Unit V contains several village concentrations of habitations and it is now evident this unit was the area where the majority of the *double-wall phase* population resided in the Kharfot district.

Five different types of cultural and natural features have been identified to-date in Unit V. These features include a number of large rock shelter, terrace and platform occupations (see Feature 1) associated with monolithic blocks that are situated at the base or within the talus slope that marks the northwestern perimeter of this unit.

At least three large rock walled communal structures are also evident in Unit V and are readily identifiable in the satellite photograph as Features 2. Like the terrace walls and hut foundations in this Unit, these large stone exposures exhibit advanced degrees of patina indicative of great age.

Feature 3 involves evidences of oval to circular walled habitations. Several of these occupations are visible in the Figure 7 satellite photograph.

The natural features shown in Figure 7 consist of the exposed ridges (Feature 4) where clusters of hut foundations and terrace walls are situated and entrenched flanking arroyos (Feature 5) where water once flowed from ancient springs situated along the upper escarpment.

Photograph 45 shows a shaped limestone portable milling stone measuring ca. 29 x 16 x 8 cm. It apparently was once situated in Unit V in an occupation which was undercut by the surf. During the October expedition slab was discovered off the beach in the low tide surf opposite to the lagoon. Its original point of origin in Unit V is assured since the movement of debris along the beach line is from northeast to southwest; therefore, after being dislodged into the sea the slab gradually was moved westward by the tide for nearly one kilometer until its discovery. Similar ground stone artifacts have been recovered at Upper Paleolithic through Neolithic sites elsewhere in Arabia including at Shisr in south-central Oman.<sup>5</sup> For convenience this milling stone was placed at the junction of Units I and IV where it can easily be recovered for further analysis in the future.

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<sup>5</sup> Op cit., pages 33-35 including artifact 10.1820 in Figure 8.





**Figure 7: Unit V -- Northeast Coastal Terrace Occupation Area at Khor Kharfot**

**Legend**

1. Large rockshelter habitations & occupational terraces associated with large monolith enclosures
2. Large communal occupations (4) consisting of stone walls aligned in circular to ovate configurations
3. Hut foundations consisting of occupational stone walls aligned in circular to ovate configurations
4. Ridge containing numerous circular to ovate occupations within low stone wall enclosures
5. Water channel apparently originally developed by flowing spring and subsequently eroded by extensive runoff episodes occurring during periodic rainy seasons

### **Photographs 42-45**

- 42. View looking west of terrace walls in Unit V discovered during the October, 2014 expedition.**
- 43. View of the rock foundation of an ancient occupation.**
- 44. View looking southwest of a terrace wall overlooking an ancient drainage channel.**
- 45. A ground stone milling tool that probably originated from an eroded occupation in Unit V and was subsequently recovered in the surf about one kilometer to the west.**

(Photographs 42 through 44 courtesy of Matthew Thurmond, Photograph 45 was provided by Warren Aston.)





Photographs 42 - 45





## SUMMARY

The Wadi Sayq inlet began as a deep bay long before man ventured across its horizons. Evidences of early human hunting activities in the zone are suggested by the presence of crude hand choppers or axes observed at two separate loci and circular, single occupant hut foundations, possibly also remnants from those early occupation phases. These evidences of early intrusions into Khor Kharfot may have occurred during the Arabian Bifacial/Ubaid period that terminated in eastern Arabia ca. 5800 years ago.

Additional communities apparently inhabited the zone until the time when the density of the local population coincided with leadership, ritual authority and economic demand for Frankincense, all factors creating the “perfect storm” as manifested in the expansion of architecture during the *wall building phase*, which is hypothesized to have occurred ca. 5500 to 3800 years ago.

Following the *wall building phase* Khor Kharfot probably retained its standing as a small, very unique Frankincense gathering and exporting maritime center all the while the inlet was gradually filling with monsoonal debris associated with seasonal flooding episodes. As the natural resources of the lagoon shrank, its size was constricted by the ever encroaching flood plain. These natural changes plus political changes elsewhere possibly associated with the spice trade or with shifting maritime trade patterns in eastern Arabia, may have contributed to the diminishing importance of the location. There may have come a time when it simply was more lucrative for the people of Khor Kharfot to export their spices by camel up out of the canyon via the western highlands than it was for them to try to bring shipping into their receding lagoon. Whatever the political or economic cause or causes—probably many and varied—the local community began to diminish. Finally, apparently during the Islamic Period, Khor Kharfot entered its final period of occupation consisting of a few seasonal fishermen and herdsman and their families, people again living on an almost subsistence level.

Now the great cycle is almost complete. Khor Kharfot once began as a remote, isolated natural place occasionally visited by humans. Now, in our day—a fatuous time of fast foods and even faster people vying for control of both inner and outer space—Khor Kharfot has returned to its origin as a remote, isolated natural place occasionally visited by humans. Only its archaeology stands as a mute reminder of what once transpired here.