

# The Lower Palaeolithic in Southwestern Oman

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Abstract. In the fall months of 1997 an archaeological survey of three months' duration was conducted in the Dhofar district of southwestern Oman in search of early human sites. A total of 67 sites were found, mainly Acheulean, yielding 2,861 artefacts. Of these, 1502 belonged to the Early Acheulean and 1,169 to the Middle Acheulean, the remaining 190 being of more recent origin. The number of sites and density of artefacts indicate a thriving occupation of Oman in Early and Middle Pleistocene times.

#### Introduction

In the fall months of 1997 a group of three Americans undertook an archaeological survey in the Dhofar district of southwestern Oman searching for sites dating back to the earliest human migration out of Africa into Asia about two million years ago. Although sites of Plio-Pleistocene age were not encountered in the survey, 67 Lower and Middle Acheulean sites yielding 2,861 artefacts and dating back to the Middle Pleistocene, were discovered. Later artefacts of Upper Acheulean age were seldom seen. Insofar as our objective focused on the Lower Palaeolithic, artefacts and sites of later periods were generally bypassed.

#### **Dhofar Survey**

The area selected for survey included terraces and escarpments, bordering wadis and springs descending from the northern foothills and slopes of the Qara mountains of Oman southwest of Thumrait. (Fig. 1). Geologically the Dhofar region was particularly suitable for conducting a search for Plio-Pleistocene sites since its hillsides and escarpments consisted of Eocene exposures, 50 million years old, and composed mainly of limestone, the primary source of chert nodules used widely in the manufacture of artefacts (Clarke 1990).

The survey season lasted nearly three months, September to December. Major wadi systems with their tributaries and springs were surveyed for early sites (Fig. 1). Some terraces and escarpments proved to be sterile. The town of Thumrait formed a boundary separating sites to the east from those to the west. Sites east of Thumrait were fewer in number than those to the west. In the western sector of the survey area, wadis farthest to the west (Wadi Madi, Wadi Aydim, and Wadi Ghadun) yielded very few sites due perhaps to their high and steep escarpments making access to the wadis below extremely difficult . On the other hand, jebels bordering Wadi Haluf and Wadi Yistah averaged 10 to 30 meters in height with slopes gradually descending to the wadis. Most of the sites described in this report appeared in areas dominated by those two wadi systems.

Early sites declined in number as the survey extended northward from the mountains into the desert. The greater the distance from the mountains the more recent became the sites. Since our objective was Plio-Pleistocene occu-





Fig. 1: Map of Oman and survey area.



pations, we confined our attention principally to the northern slopes and wadi systems emanating from the Qara mountains where the oldest sites occurred. In the course of field work we examined the slopes of jebels, ascending from the desert floor to higher elevation, walking in linear fashion about 25 meters apart. When a site was found the others converged to the spot for intense reconnaissance and a sample collection of artefacts. The geographical location of each site was determined by a Magellan global positioner, dimensions of the site recorded by laser range finder, photographs taken from different angles, and artefacts deposited in bags appropriately labelled. Although test pits were sunk on larger sites, nothing was recovered from underground.

## **Sites and Artefacts**

All sites encountered in the survey were multicomponent, with two or more cultural periods represented. This circumstance and the aridity of the environment suggest that surface deflation has been in progress for a long time. Sites with early artefacts were often found together with those of Neolithic origin on the same surface. Despite intensive search, no site could be identified corresponding to the Oldowan or Developed Oldowan of East Africa. The oldest artefacts found in the survey were Early Acheulean which date back from half a million to more than a million years ago, e.g., 1.4 mya in Ubeidiya (Bar Yosef and Goren-Inbar 1993) and 1.4 mya in Konso Gardula (Asfaw et al 1992). Identification of artefacts as Early Acheulean was based upon the types and frequencies of artefacts found on each site; the extent of weathering; the degree of patination; and the technology of stone tool manufacture, that is, use of hard hammer percussion producing wide, deep, but short flake scars. In some cases weathering from exposure to wind, sand, and chemical disintegration was so advanced, that only vestiges of flake scars remained. The oldest artefacts had a heavy coat of black patina which became lighter in color with decreasing age. Some Neolithic blades and other artefacts of that more recent period lacked patina altogether.

Of the 2,861 artefacts found during the survey, 1502 were identified as Early Acheulean, 1168 as Middle Acheulean, and the balance of 191 from later periods, mainly Upper Palaeolithic and a few Neolithic samples (Table 1). Early Acheulean tools occurred on 47 sites intermingled with artefacts of later cultural periods. On 28 of the 47 sites, the team collected only Early Acheulean artefacts in keeping with our research design to concentrate on the earliest specimens (Figs. 2-4).

The raw material selected for artefact production in every cultural period was chert derived from the massive deposits of limestone that blanketed the area. The percentages of

Early Acheulean			Middle Acheulean		
	N	<u>%</u>	N	<u>%</u>	
End chopper Side chopper Pointed chopper	295 185 65	19.6 12.3 4.3	52 72 4	4.4 6.2 0.3	
Total choppers	545	36.2	128	10.9	
End scraper Side scraper Misc. scraper	56 52 5	3.7 3.4 0.4	28 45 15	2.4 3.9 1.3	
Total Scrapers	113	7.5	88	7.6	
Biface	29	1.9	358	30.6	
Polyhedron	19	1.3	10	0.8	
Spheroid	5	0.3	5	0.4	
Pick	38	2.6	11	1.0	
Cleaver	15	1.0	13	1.1	
Knife	57	3.8	24	2.1	
Burin	4	0.3	2	0.2	
Notch	10	0.7	2	0.2	
Awl	3	0.2	00	0.0	
Core	297	19.8	239	20.5	
Flake	362	24.1	246	21.0	
Blade	00	0.0	39	3.3	
Hammerstone	5	0.3	3	0.3	
TOTAL	1502	100.0	1168	100.0	

Table 1: Acheulean artefacts in the 1997 survey.



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artefact types are significant. In the Early Acheulean choppers constitute 36% of the total compared with 11 % in Middle Acheulean. On the other hand, bifaces account for 30.6% in Middle Acheulean in contrast to less than 2% in Early Acheulean. The disproportion in choppers and bifaces between Early and Middle Acheulean may not be attributed to chance. A Chi-square test revealed that the probability of chance being responsible for the artefact distribution was less than one in ten thousand (Table 2).

Apart from the distinction in choppers and bifaces the different frequencies between Early and Middle Acheulean artefacts do not appear to be significant. The closely corresponding percentages of scrapers, cleavers, spheroids and small tools in both Early and Middle Acheulean contexts suggest that in some cases



Fig. 2: Early Acheulean artefacts.

- a. biface site 47. b. burin site 67.
- c. biface site 33. d. side scraper site 33.
- e. cleaver site 58. f. side scraper site 29.



Fig. 3: Early Acheulean artefacts. a. biface site 52. b. cleaver site 37. c. biface site 33. d. awl site 33. e. polyhedron site 33. f. spheroid site 64. g. spheroid site 63. h. polyhedron site 33.

similar patterns of activity were pursued in both cultures for a long period of time. The preponderance of choppers in the Early Acheulean implies a greater reliance on plant foods in contrast to the large number of bifacial cutting tools in Middle Acheulean, indicating an increasing dependence on animal foods and products.

## Conclusion

The discovery of so many Acheulean sites in the Dhofar region demonstrates an early and apparently thriving occupation of Oman during the Middle Pleistocene and further underscores the probability that earlier sites of Oldowan affiliation may yet be discovered. If the Dhofar is any precedent, Oman has significant potential for early man research and investigation. There is little doubt that early humans in their odyssey from the Rift valley of Africa, across the mouth of the Red Sea and Yemen, fol-





Fig. 4: Early Acheulean artefacts.a. side chopper site 2.b. side chopper site 46.c. end chopper site 47.d. end scraper site 33.e. pick site 33.f. knife site 34.g. double end chopper site 49.h. polyhedron site 12

lowed a pathway across Oman from the Dhofar to the Musandam peninsula, thence to Iran and the east (Larick and Ciochon 1996). Paleomagnetic dates of 1.8 million years (Myr) for hominid remains in Longgupo Cave in China (Wanpo et al 1995) and the surprisingly early argon/argon dates of 1.81 and 1.66 Myr for crania previously discovered at Mojokerto and Sangiran in Java (Swisher et al 1994) coupled with the recent discovery of two hominid skulls dated 1.77 Myr at the site of Dmanisi in Georgia (Gabunia et al 2000), mandate a departure from Africa about two million years ago. Oman clearly lies on the pathway of early migration into the continent of Asia.

Sites of a very early age have been located in the Arabian peninsula, both in the north and in the south. At Shuwayhitiyah in northern Saudi Arabia a large site comprising sixteen localities was discovered in 1985 that yielded 1517 quartzite artefacts that strikingly resembled the Developed Oldowan of East Africa (Whalen et al. 1986). Similarly, in the Haudramaut of eastern Yemen, a team of Russian scientists excavated six open and three cave sites between 1983 and 1990. At the base of the cave sites were "pebble tools" classified as "pre-Acheulean", that is, Oldowan (Amirkhanov 1987 and 1994). Acheulean handaxes surfaced only in higher levels.

To the west of the Hadhramaut exposures, in southern Yemen, a survey team found on the surface of a single escarpment overlooking Wadi Shahar a series of sites that yielded quartzite artefacts reminiscent in types, in frequency, and in raw material, of those found at Shuwayhitiyah presumably of Developed Oldowan origin (Whalen and Schatte 1997). The identification of early tools in southern Arabia as Oldowan harmonizes well with the corre-

	Biface		Chopper		
	Q	E	Q	E	<u>Total</u>
Early Acheulean	1.9	15.6	36.2	22.5	38.1
Middle Acheuleann	30.6	16.9	10.9	24.6	41.5
Middle Acheuleann	30.6	16.9	10.9	24.6	41.5

Table 2 . Chi Square test of bifaces and choppers.

Chi Sq = 38.46 df= 1 Probability of chance = < 0.0001





Fig. 5 : Site 3.



Fig. 6 : Site 55.



Fig. 7 : Site 59.



Fig. 8 : Site 63.



Fig. 9 : Site 64.

sponding artefact classification at Shuwayhtiyah in northern Arabia. Between those two geographical extremes, each harboring Lower Pleistocene sites, are numerous Early and Middle Acheulean sites scattered throughout the peninsula. A comprehensive survey program undertaken in Saudi Arabia between the years 1976 and 1980, revealed many Acheulean sites in addition to Mousterian and Upper Palaeolithic exposures. Strangely, sites of Upper Acheulean affiliation were seldom encountered suggesting a partial evacuation of the peninsula at that time.

Distinction between Early and middle



Acheulean in Arabia is justified on the basis of tool types, tool frequencies, and method of manufacture. The Levallois technique appeared in Arabia during the Middle Acheulean just as polyhedrons were phasing out and the technique of tool production was shifting toward soft hammer. A survey of eastern Jordan along the Wadi al Sirhan in 1999 confirmed the dichotomy between the Early and Middle Acheulean. In Jordan, as in Oman, the earlier period concentrated on the production of choppers with a few bifaces in contrast to Middle Acheulean, which favored the reverse (Whalen and Kolly 2001). Some changes in adaptation, perhaps triggered by environmental constraints, seem to have taken place in the Arabian Peninsula during the transition between the Early and Middle Acheulean. While many cultural activities and practises apparently remained intact, new patterns of adaptation were being developed, as reflected in the stone tool inventory, the better to cope more efficiently with changing environmental conditions.

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ملخص: في أشهر خريف عام ١٩٩٧م الثلاثة، (سبتمبر – ديسمبر)، أُجري مسح آثاري لمنطقة ضفار، في جنوب غرب سلطنة عُمان، للبحث عن مواقع بشرية قديمة. ونتج عن المسح اكتشاف سبعة وستين موقعاً، يعود معظمها الى العصر الحجري (الأشولي) (Acheulean)؛ واكتشاف ٢٨٦١ قطعة مشغولة. ومن هذه القطع ١٥٠٢ قطعة، تعود الى العصر الأشولي الأول، و ١١٦٨ قطعة تعود الى العصر الأشولي الوسيط، أما الباقي – وهو ١٩١ قطعة – فيعود الى عصور حديثة. ويدل عدد المواقع وكثافة المشغولات، على استيطان متنام في عُمان، إبان العصور الجليدية (الجليدية (Pleistocene))

## Notes:

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