Introduction

Desert societies of the past, and the desert as a human habitat, were often viewed negatively by scholars. Desert people were described as nomads roaming the area, destroying existing cultural remains and leaving no traces of their own (Glueck 1935: 183; 1968: 11-12, 127; 1970: 65), “Always hungry, and unceasingly they cast longing eyes upon lands which to them are lands flowing with milk and honey” (Glueck 1970: 11). The desert “could not sustain a local population for any length of time” (Haiman 1992a: 93), desert societies “could not have existed without the support of a strong stable political and economic body” (Beit-Arieh 1984: 22). The desert population was always “hungry, on the verge of death” (Haiman 1992b: 304). “In the desert areas... groups that practice subsistence economy based on hunting and gathering or animal husbandry... do not leave traceable remains” (Finkelstein and Perevolotsky 1990: 68).

These few quotations represent a broader misconception of the desert environment and populations, and necessitate brief preliminary comments. First, both ancient societies and the more recent bedouin in the deserts of the Southern Levant were never nomads but only semi-nomads, and the cultural differences between the two are great. 1 Second, even true nomads do leave remains (e.g. Cribb 1991), and certainly so semi-nomads, including the bedouin (e.g. Avner 1990; Avni 1992; Banning, and Köller-Rolfsen 1992; Eldar et al. 1992; Goren-Inbar 1993; Saidel 2001). A closer look into the bedouin culture of the Eilat region may shed some light on desert life.

The Haywat

Over the last five centuries, the Eilat region was the domain of the Haywat (or Ahaywat), a small tribe (more accurately a confederation of three small tribes) which numbered some 1000 people before 1948 (Marx 1967: 17). The precise boundaries of the tribe’s territory are somewhat questionable. An unusual document written by the tribe’s members in 1969 and studied by Stewart (1986) presents their territorial claim, ca. 3500 sq km (Fig. 1). In reality, their territory is smaller since the southern part is occupied by the southern branch of the Tarabin, and the north was invaded by the Tiyaha confederation (the ‘Azazme, Shegeirat and Breykat). In the 16th century their territory still included parts of northern Hejjaz, south of’Aqaba (Stewart 1986: 18, with references), and in the early 20th century they still made pilgrimages to a holy tomb a three day walk south of ‘Aqaba (‘Aref al‘Aref 1937: 187). During the 1948 war, families who lived in the Eilat region, between the Egyptian and the Jordanian borders, moved to Southern Jordan, and some 150 families who lived in Sinai remained disconnected from the rest of the tribe. Today, Kibbutz Yotvata maintains contact with Haywat members in Jordan.

1 Full nomads subsist on herding alone, and migrate hundreds of kilometers twice a year. In the Negev and Sinai, both ancient populations and recent Bedouin migrated with the herds only tens of kilometers; they subsisted on a complex economy, which included agriculture and several crafts (Marx 1967; Abu-Rabia‘ 1994). They sometimes altered their mode of life, whether towards more mobility or more sedentism, in response to the political situation or to climate changes (Marx 1992, 1996; Khazarov & Bar- Yosef 1993; Finkelstein 1995).
The Haywat territory is hyper-arid, with an average annual rainfall of only 25-30 mm, in contrast to ca. 4000 mm of annual potential evaporation. As a result, vegetation is restricted to wadi beds and the carrying capacity is low, and most of the area can only be exploited for goat and camel herding. Nevertheless, their territory contained several important assets. One was the water well of Kuntila (Fig. 2), some 70 km northwest of 'Aqaba, adjacent to Darb Ghaza, the major ancient road connecting the Red Sea with the Mediterranean. The water was pure and plentiful, and passing caravans or travelers were obliged to purchase it to replenish their supplies. Another was Wadi 'Uqfi (today 'Uvda Valley) where the tribe was very successful in growing barley and wheat (see below). The third asset was the oasis of 'Ein Ghadhian (today Yotvata), an important water source on the 'Arabah road, with a palm grove (Fig. 3).

The tribe had at least 26 water wells in its territory and many natural, seasonal cisterns that retained water from one to four months, if a flood occurred (Fig. 4). There were also six small springs, nine thmei'at (excavated water holes in wadi gravel) and other water sources.

Another important property was Darb al-Hajj, the Muslim pilgrim road from Cairo to Mecca. The road crossed the Haywat territory in the section from Nakhel to 'Aqaba (some 140 km), and according to centuries old customs, they held the right to escort the Hajj caravans through their section of the road (Fig. 5), and were paid for it by the government (Mamlukian or Ottoman). However, in the 16th century, soon after the Ottoman conquest, the Haywat lost control of the most sensitive section of the road, the section from Ras al-Naqeb to 'Aqaba, to the 'Alawin of the Hwetat confederation, their neighbors from the east. They also lost control of parts of

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2 Musil (1907-8, Ill: 45-46) listed 11 water wells in the Haywat territory. Jennings-Brumley listed 11 water wells in the same area, in an unpublished document written between 1904 and 1907, quoted by Stewart (1986: 36). Both lists are incomplete, and I could add at least 11 more wells and other water sources.
the ‘Arabah roads and the roads leading to St. Catherine, which were still within their territory. In 1883, the British mandate discontinued the annual Hajj caravan through Sinai (Winter 1987:801), and the tribe lost this source of income. Another indication of the tribe’s weakness was that during the 19th century, explorers traveling the major roads crossing their territory were escorted by other tribesmen, not by Haywat.

The Haywat rarely attracted the attention of explorers and scholars. Among the early scholars, Alois Musil was almost the only one who referred to the tribe. He was guided by Haywat members in the Eilat region and the southern ‘Arabah (Musil 1907-8 II/2:178ff), and in his thorough account of the bedouin ethnography (1907-8 III) he frequently, although briefly, addressed the Haywat (among the other tribes), especially in poetry. He also listed the tribe’s water wells (see Note 2). Jennings-Bramley explored Sinai in the very early 20th century, particularly the Haywat territory. He published a series of reports (1905-1914), but only rarely mentioned the tribe (e.g. 1905:127; 1906:25; 1908:30f). He did refer to their borders (ibid), and in an additional, unpublished document he listed their water sources (see Note 2). Woolley and Lawrence (1915) explored the Negev and part of Sinai, but did not mention the Haywat. Major C. S. Jarvis, the British governor of Sinai after World War I, wrote a series of books on the peninsula, but in the three most important volumes (1931, 1936, 1938) did not address the tribe. ‘Aref al ‘Aref, the governor of the Negev after World War I, wrote two books on the Negev bedouin, but mentioned the Haywat only once, and in passing (see above). Fritz Frank surveyed the ‘Arabah Valley and the Eilat region in 1932 and 1933, guided by Haywat members (Frank 1934:246, 248, 261, 266, and see here Fig 16 and Note 7). He referred to the Haywat borders in two places (pp. 233, 266) but provided no further information about the tribe. During the 1970s, Frank Stewart thoroughly studied the Haywat’s legal system and published a series of books (Stewart. 1977, 1986, 1988, 1994, 2003), but did not relate to other aspects of the tribe’s culture. The Haywat were looked down upon by neighboring tribes; Tarabin members in Nuweiba’ and Wadi Watir called them “lizard eaters” (M. Shemtov, pers. comm.).

In light of the harshness of their land, their low attraction for scholars and their poor present situation, one would not expect to find many remains of the Haywat culture. In fact, this impression is inaccurate, as is demonstrated by several sources. One can be found in the Eilat region, where they lived until 1948, and left many “archaeological” remains: tent camps (at/a!, Fig. 6), with scattered sherds of Gaza Ware, and where millstones, wooden bowls and complete jars are occasionally found as well (Figs 7, 15); storage places built in rock shelters (mahzan or matmara, Fig. 8), some still containing various utensils; corrals of various types with layers of animal dung (Fig. 9); open-air herd stationing places (Fig. 10); predator traps built to protect the herds; open-air mosques (Fig. 11) and large

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1 Al Jaziri, mid 16th century, quoted by Stewart 1986:22-23; see also Burckhardt 1822: 512.
2 Burckhardt 1822: 438-440; Rüppell 1839:215, 241; Robinson 1856: 166-168, 173, and see further examples in Stewart 1986: 24-24. In 1845, W. H. Bartlett met with a Hajj caravan west of Ras al-Naqeb and described it vividly (1849: 149-162, and see Fig. 5). On his way from ‘Aqaba to Cairo he was escorted by Hwetat men, not Haywat, as far as Nabil, and there he was obliged to take Tiyaha guides (p. 163).
3 The Haywat is not mentioned either in the other books of T. E. Lawrence, “Revolt in the Desert” (1927) and “Seven Pillars of Wisdom” (1935).
4 Two studies (Murray 1935: 248-251, and Oppenheim 1939-68 Vol 2: 149-153) did mention the Haywat, but Stewart (1989: 2, N. 8) noted that they actually addressed the Safayhil Haywat, a different, separate group.
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Fig. 6. Nahal Girzi (Wadi alGhabiye), the remains of rectangular Bedouin tent

Fig. 7. Pottery from various Bedouin camp sites north of Eilat: 1, 2, 3, 6- Ghaza Ware; 4- 'Othoman, 5- Mamlukian, the latter two were still in use until 1948. No. 1 found by M. Shemtov, No. 2 by El'ad Saragusti, 3-6- by the writer.

Fig. 8. Bedouin storage near Be'er Ora (Bir Hindis).

Fig. 9. Eastern 'Uvda Valley, an ancient corral in a rock-shelter, reused by Bedouin.

Fig. 10. Nahal Tshor (Wadi Suhair), an open-air herd stationing site.

Fig. 11. Wadi Hissy, a small open-air mosque; the niche (mihrab) points southward, towards Mecca.
and small burial grounds (maqbara, Fig. 12). Another source of interest is provided by encounters with the bedouin in Sinai during excursions or archaeological work (1969-1982), and by observing their way of life. No comprehensive ethnographic work has ever been undertaken on the Haywat; however, several of my friends maintained close contacts with tribesmen, and some collected or purchased their old artifacts and utensils.

Bedouin Property and Utensils

Despite the environmental conditions, the Haywat raised fairly large herds of goats and camels (Figs 4, 13), which served as their basic and most stable source of subsistence. In fact, the wide and shallow wadis support quite a rich vegetation, with over 40 plant species edible for animals. The density of corrals and open-air herd stationing sites (Figs 9, 10) indicates the importance of herding for the tribe’s economy. This is true for every bedouin society, since both camels and goats are highly adapted to harsh desert conditions (Shkolnik 1977). They are very efficient in producing food for people, both storable milk products and meat. During years with rich pasture, bedouin enlarge their herds as much as possible in order to trade the animals for other products in city markets, and reserve others as an “insurance” for lean years. Flexibility in herd size is part of the survival strategy of the bedouin.

When visiting a tent camp, one realizes that the bedouin hold a considerable amount and variety of facilities and utensils (Fig. 14). Examples are presented in Figs 15-22, with brief explanations in the captions. The majority of items presented here was photographed from the collection of Alfonso Nussbaumer, Eilat, for the sake of this paper. Many of them have now disappeared, and been replaced by modern substitutes. Although they represent only part of their material culture, these objects do illuminate the bedouin traditional way of life. Basketry, wood, leatherworks and weaving were always part of their everyday practice. Pottery and metal objects were acquired through trade; however, all utensils, including metalworks, were repeatedly repaired by the bedouin, and reused.

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Fig. 12. Yotvata ('Ein Ghadhian), part of the central burial ground of the Haywat (c.f. Musil 1907-8 III:45).
Notice the many tombstones in the photo’s centre

Fig. 13. Qa’al Naqeb, camels and goats of the Haywat.

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7 Frank (1934:246) noted that in previous years the family of ‘Awde Salame, his guide, raised hundreds of goats, but when he met them they had only several dozens, due to a series of lean years.

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8 The old man in Fig. 14 is ‘Awde (=’Ode) Salame, the guide of Fritz Frank in 1932-3. When the photograph was taken, in 1970 in Wadi Tweibeh, he was blind, but his knowledge and memory of the area was phenomenal. He died in 1974.
Fig. 16. Leather utensils: 1. girbeh, a water skin; 2. balla/gar'a, made of camel stomach, for storage of crushed dates or for butter; 3. si’an, for preparation of milk products; 4. garab, made from a lizard skin for storage of tea, coffee and others.

Fig. 17. Basketry of palm leaf and palm fibers: 1. begs (kees); 2. chicken cage; 3. sandals.

Fig. 18. Copper cooking pots (kider). The bottom of the larger, used for communal meals, was replaced three times.

Fig. 19. Coffee and tea utensils: 1. pestle (mehbas/sahbut); 2. mortar (hawan/gurn); 3. frying pen for coffee beans (mahmassa); 4. cup box ('umra); 5. coffee pot (bakra); 6. tea pot (dalla/ibirq); 7. tea and coffee bag (garab); 8. coffee cup (finjan); 9. tea cup (qubayeh)

Fig. 20. Musical instruments: 1. sumsumiya, made of see turtle shell; 2. rababa (single string violine); 3. shubab, flutes improvised from metal tubes.

Fig. 21. Wooden combs from tent camp remains near Be'er Milhan (probably originated in Syria)
Fig. 22. Woman's Jewellery box (quitta)

Fig. 23. Weaving of sheep wool (quite rare among the Haywat), near Kuntila.

Fig. 24. Turkish firearms from the 18th century (barud), found by G. Yahalom and G. Levinstein in Nahal Roded.

Fig. 25. Gun powder containers (qasid), made of wood (left) and copper (right).

Fig. 26. Eastern 'Uvda Valley, a cave storage of agricultural implement, including a wooden plow beam, iron plow tip, two iron sickles, millstones and others.

Fig. 27. Agricultural implements from various parts of the Haywat territory: 1. winnowing fork (zarra/mizreh); 2. stick for cleaning the plow and for picking fruits (minfis); 3. an axe (shareq); 4. sickles (mahesh); 5. millstones (ruha); 6. plow (mahrash). 7. jadem, a saddle for carrying wheat and barley yields on a donkey or camel back (collapsed).
Bedouin Agriculture

While travelling through Haywat land, one can often see ancient remains of cultivated fields in the wide and shallow wadis, with low terraces or embankments. Some are currently cultivated by the tribe, especially around Nakhal and Themed, in the upper Wadi Hesy and in ‘Uvda Valley.

‘Uvda Valley (Wadi ‘Uqfi, or ‘Iqfi in bedouin pronunciation), 40 km north of Eilat, was the most important agricultural area. On the eastern side of the valley the remains of a vast ancient agriculture settlement system, which began in the 6th millennium B.C, has been studied since 1978 (e.g. Avner, 1998, 2002a, b; Avner et al. 2003). During the archaeological survey and excavations we also found many indications of bedouin agriculture. Several caves and rock shelter storages contained agricultural implements, such as iron sickles and hoes, wooden plow beams, iron plow tips, millstones and the like (Fig. 26). Similar equipment is occasionally found in other locations in the Eilat region. Hundreds of bedouin silos are still visible today on the surface (see below), and even plow marks are still visible.

Short, but important descriptions of bedouin cultivating the valley, were provided by several explorers. Musil, who visited the area in 1902, mentioned it while referring to the people of ‘Aqaba: “In Wadi ‘Uqfi, the soil is good for cultivation and the crop is plentiful when the rain is sufficient to create floods. In this valley the citizens (of ‘Aqaba) are renting plots from the Haywat, sowing wheat and barley and living in tents by the fields in the seasons of sowing and harvesting. After the harvest they return to ‘Aqaba with the threshed grain” (Musil 1926:85).

On December 29, 1979, I visited the valley with four Haywat elders who had cultivated the land in the past, in order to learn about their agricultural practices. The visit was undertaken with the assistance of anthropologist F. Stewart, who was at the time studying the tribe’s legal system. Following is the essential information supplied by the elders:

1. Between 1939-1948, the Haywat were able to cultivate the valley four times, i.e. almost every second year, when the amount of rain was sufficient to create floods. However, nearly every year of sowing provided a good yield (see below).11

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2. Approximately 20 days after a flood, while the soil was still moist but not too wet, they sowed barley and wheat by hand. Then they plowed the soil in order to cover the seeds, using light wooden plows pulled by camels.

3. Harvest took place in the late spring-early summer (May-June), using iron sickles, and the threshing season lasted until mid- or late summer (July and August). This was done either on temporary threshing floors in the fields or on the ancient ones, most of which were cut into the rock surface, the Haywat claimed the latter were built by their own fathers. In fact, we did find bedouin remains in most ancient threshing floors. They threshed by animals trampling, as it was practiced in other parts of the Negev and Sinai (Fig. 29), while the threshing sledge was unknown to them.

4. According to the elders, the yields in the ‘Uvda Valley were the highest in their territory, around 800 kg per hectare (translated from their own measurements of weight and area). This enabled them to lease out plots to citizens of ‘Aqaba, in return for a

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11 In August 2004, M. Shemtov found deteriorating wooden plows and other agricultural gear in a rock shelter storage near Bet‘er Ora, and others were previously found by the writer northeast of Timna’, both in the ‘Araabah Valley. No plots cultivated by the Bedouin are known in the southern ‘Araab, besides those near ‘Ein Ghadhian (Yotvata) and ‘Aqaba; however, Qa‘al Sa‘idin, 60 km north of ‘Aqaba, was cultivated by the Sa‘id tribe.

10 Stewart (1986:21, N. 31) quoted Haywat members saying that in the past ‘Uvda Valley was the property of St. Katherine’s monastery. Burenhult (1822:546-548) heard in the monastery of Cairo that all Sinai belonged to St. Katherine’s monastery since the time of Justinian (early 6th cty.). This was reconfirmed by the Ottoman Sultans, but in Burenhult’s time this claim had become meaningless, since the government had no control over the Bedouin tribes of Sinai.
third or half of the yield, and they also sold grain in ‘Aqaba and even in al’Arish. Another portion of the
yield was distributed in the tent camps throughout their territory, and the remainder was stored in silos
within the valley. The stored grain was kept to support the tribe for 2-3 years without flood, and the Haywat claimed that more than 4000 people subsisted on the yields.

Although there is some doubt as to the accuracy of these figures, there are several indications that they are not far from reality. Today, four main clusters of silos (mantara) excavated in the ground are known in the area (Fig. 30), each cluster consisting of 60-110 silos. Together with some small clusters and individual silos, this accounts for at least 400 excavated silos in ‘Uvda. According to the elders, all silos belonged to the Haywat, and each was excavated to hold three tons of clean grain (ten quntar in their measuring system). In addition, they had another mantara, in Nahal Girzi (Wadi Rabiye), 10 km north-west of ‘Uvda, with about 60 shallow silos consisting of cleared circles, 3 m in diameter (Fig. 31). Here they laid first a layer of straw, then built a pile of grain, which they covered with straw and beaten earth (Fig. 32).

Calculations show that the total capacity of the excavated silos in ‘Uvda Valley alone was over 1200 tons of grain. If a bedouin family of five consumed approximately 500 kg annually, then the amount of grain stored after a successful season could have supported at least 2400 families. But, since this yield was to be used over a 2-3 year period, as well as for sowing, we reach an estimation of 800 families or 4000 people. This figure is four times higher than the known tribe’s population before 1948 (see above).

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12. The traditional Bedouin agriculture in the Be’er Sheva area reached yields of 1000 kg wheat per hectare and slightly higher yields of barley (Ben David 1988:46-47). In this area, the agriculture was based on direct rain irrigation, which is usually less productive than flood irrigation. In the traditional agriculture of the Petra area, which generally enjoys good amounts of rain, the wheat yields are similar to those of the Be’er Sheva area, while barley yields are between 200-2000 kg per hectare (Russel 1995:697).

13. An average annual grain consumption of a present-day seven-person rural family in the Levant is approximately 700 kg, and 500-700 kg for a seven-person Arab family is reported from the Samaria area (Dur 1982:327). Consumption of 800 kg of grains for a six person Bedouin family, as documented in Be’er Sheva area, when grains were subsidized and therefore consumption was higher (Ben David 1982:180).

In several studies higher values of annual grain consumption were adopted, 140-230 kg per person (e.g. Brush 1986:42, with refs.; Zorn 1994:43, with references, Gregoire 1999:30-31). In my opinion, these figures are too high, for the following reasons: 1. They usually address adult consumption, while more realistic calculations should take the average between adults and children. 2. Baked bread contains up to 50% water. 200 kg of grain equals ca. 400 kg of bread, i.e. 571 present-day loaves per person per year. This means 1.5 loaves per day, or 2600 kcal, almost the total daily calorie consumption for a working person. Even in a society that subsists on a limited food basket, there is no justification for such a high bread consumption, certainly not for a society which subsists on a combined economy, of herding, fishing and agriculture, as is the case of the Haywat.

14. In order to fully appreciate the reliance of the tribe on agriculture, the nature of rainfall in the Southern Negev and Eastern Sinai must be considered. Concentrated rains that create floods usually fall in the autumn and spring, brought by the “Red Sea depressions”. Winter rains are usually moderate, brought by the Mediterranean depressions, and do not create floods. The concentrated rains are restricted to geographic “cells”, which means that in any given year one part of the tribe’s territory may have flood and the others do not. During years of no flood in ‘Uvda Valley, cultivated fields in the other parts of the tribe’s territory could still have compensated for the want. For the nature of desert rains see Shimun et al. 1967; Finkel & Finkel 1979; Sharon 1979.
Fig. 32. Grain heaps near Be' er Sheva', covered by straw and beaten earth (Marx 1967: Pl. 3).

Fig. 33. Some statues of Salem.

"Uvda air-base was under construction), they repeatedly lamented the loss of "Wadi 'Ijfi, the best soil of the Haywat".

Bedouin Sculpture

Artistic sculpturing is very rare in Arab societies, due to a virtual Islamic prohibition. Some forms of art, which represent a spiritual domain, do exist in the bedouin society, in weaving, embroidery, basketry (see Figs 17, 22, 23), as well as poetry, music (Fig. 20) and dancing. Commonly, these types of art are quite formal, but there are exceptions.

When Israelis started to visit Sinai in 1967, they would occasionally meet bedouin selling small stone statutes of animals. One of them was Salem Hamid of the Haywat who manufactured and sold millstones, as well as small statutes, despite the elders' ban. He was "discovered" by Alfonso Nussbaummer who suggested that he sell statues near a tourist attraction. Salem settled in Wadi Unn Sidra (the "Inscription Canyon") west of Eilat, and later moved to Wadi Merakh, by the Red Sea coast. With time his statues grew larger, up to 70 cm (Fig. 33); he sold many hundreds to tourists, and his statues even reached several exhibitions (Goren and Eben 1990). In 1977 they were exhibited in New York, and the New York Times published an interview with him (by William Parrell). Salem's statues are somewhat "naive" in style (obviously he never studied in any art academy), but they are rich in imagination and symbolism. Today, Salem lives in Wadi Twaibeh, 3 km south of the Tabu border passage, and he is still sculpturing. Salem is certainly a phenomenon, since no other tribe in Sinai produced any real sculpture. This, and the fact that the Haywat elders eventually removed the ban from him, may mean something about this small tribe.

Conclusion

Despite the initial low esteem for the Haywat, a close look at the tribe reveals a society with traditions, a social order reflected in their legal system, a firm material culture with artisans skilled in several crafts, and even successful agriculture. Their spiritual world is also notable, as seen through their crafts, poetry, sculpture and other forms of expression. Since they lived in a small territory, on a mixed economy, they cannot be considered nomads, and certainly, they do leave remains.

If this is true for a small tribe, it is obviously true for the bedouin society in general. More so, this argument should be applied to ancient desert societies as well, who also suffer from scholarly misconceptions.16

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15 The Qur'an often quotes Muhammad condemning the worship of idols, or fighting against idolaters (e.g. 2:22, 220; 4:51; 7:36; 9:115; 22:26-27; 28:64; 35:38), but there is no prohibition on sculpturing in general. This appeared later in the hadith and other types of literature (see Wensinck 1997, with references).

16 In addition to the introduction, above, references to scholars' views of past desert societies, and criticisms, see Avner et al. 1994; Avner 2002b and in press.
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