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Intercultural relations between South and Southwest Asia

Studies in commemoration of
E.C.L. During Caspers (1934-1996)



Eric Olijdam & Richard H. Spoor (eds)

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*Intercultural relations between South and Southwest Asia.
Studies in commemoration of E.C.L. During Caspers (1934-1996)*

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Preface

I spent a year in the mouth of a whale
with a flame and a book of signs.
You'll never know how hard I've failed
trying to make up for lost time.

Sheryl Crow, *Riverwide*

It is more or less customary to honour influential scholars with a Festschrift when they reach a milestone age or when they acquire the emeritus status. Whatever the exact justification for the Festschrift, it is usually to celebrate a happy occasion. The sudden early retirement of our teacher E.C.L. 'Inez' During Caspers in September 1995 and her subsequent demise in January 1996 meant that we were deprived of this possibility. In an academic career spanning more than 30 years, Inez left an impressive legacy and a lasting impression on the archaeology of South and Southwest Asia. It therefore seemed only fitting to honour her posthumously with a commemoration volume.

Eric Olijdam had been toiling with the idea for quite some time and early 2000 the idea had matured to compile a volume in Inez' memory to appear on the occasion of her 70th birthday. He prepared a flyer outlining the idea and at the 2000 *Seminar for Arabian Studies* and the 2001 *South Asian Archaeology* conference received very enthusiastic responses to his initiative. Once it was established that this project was viable and actually going to happen two fellow students, Richard Spoor en Wendy Deitch-Van der Meulen, were contacted to join the editorial board. We invited friends and colleagues of Inez to contribute and have managed to strike a good balance between established and young researchers as well as in the topics of the contributions. The result is a commemoration volume with a respectable 40 papers, most of which closely follow Inez' archaeological interests. Prof. Igor Klotchkov, Editor-in-Chief of *Vestnik Drevnej Istorii*, was also contacted because Inez' last article was published in Russian in the third issue of 1997 of this journal and we thought it would be a good idea to include the original English version and make it available to a larger audience.

The bulk of contributions to this volume were already written in 2000, 2001 and 2002. However, a plethora of unforeseen problems (such as family crises, health problems as well as a changed World Order following the horrific events of 2001) have, in one way or another, led to the serious delay of this volume. For this we apologise and we are the contributors very grateful that they have stayed committed to the project. Sadly, one of them, Prof. Brentjes, has passed away in the meantime. Despite the delay the papers are still relevant and constitute a fitting tribute to one of the pioneers of an integrated archaeology of South and Southwest Asia. We are therefore pleased to present *Intercultural relations between South and Southwest Asia. Studies in commemoration of E.C.L. During Caspers (1934-1996)*.

Unfortunately, Wendy had to abandon the project in 2001 due to other commitments. We would like to take this opportunity to express our gratitude to her contributions during the initial stages of the project. Special thanks are due to Rob Carter, Sharri Clark, Jack Frazier, Derek Kennet, Mark Kenoyer, Pierre Lombard, Heather Miller, Heidi Miller, Dan Potts and particularly St John Simpson, editor of the *Society for Arabian Studies Monographs*, for their generous help at various stages of the publication. Finally, we are grateful to David Davison of *Archaeopress* for presenting us the opportunity to publish this volume as part of the acclaimed BAR International Series.

Oona praesentis cape laetus horae!

Eric Olijdam,
Rilland.

Richard Spoor,
Haarlem.

Zooarchaeological Evidence for Trade in Marine Resources in South-East Arabia

Mark Beech, Peter Hogarth & Carl Phillips

One of the keen research interests of Elisabeth During Caspers throughout her career was prehistoric trade and the re-evaluation of prehistoric mercantile enterprise in the Arabian Gulf and neighbouring regions (e.g. 1970; 1971a; 1971b; 1972; 1979; 1982; 1983; 1984; 1985). In her paper entitled "Corals, Pearls and Prehistoric Gulf Trade" (During Caspers 1983), she discusses various documentary sources which refer to marine resources which may have been traded throughout the Gulf region.

Although our knowledge of the coastal sites in this region has been enhanced by much zooarchaeological research carried out over the past two decades (e.g. Badstöber 2000; Beech 1998; 2000; 2004; Desse 1988; Desse & Desse-Berset 1990; 2000; Glover 1991; 1995; 1997; Hoch 1979; 1991; 1995; Mosseri-Marlio 2000; Uerpmann & Uerpmann 1994; 1997; Van Neer & Gautier 1993; Van Neer & Uerpmann 1994; von den Driesch 1994; von den Driesch & Manhart 2000), few archaeological sites located within the interior of the Arabian peninsula have provided information concerning which marine resources were brought there from coastal areas. Bone preservation is often poor at many sites located within the interior of the peninsula (Uerpmann 1989). Where inland sites have yielded vertebrate assemblages, these often consist of only mammalian vertebrate remains (e.g. Jabal al-Buhais 18, Sharjah Emirate, United Arab Emirates: Uerpmann & Uerpmann 2000). Coastal contacts are nonetheless indicated by the presence of marine mollusca, sometimes in the form of worked beads, at a number of these sites (including Jabal al-Buhais 18).

This paper presents details of one of the few archaeological sites which is not a coastal site, but nevertheless provides bioarchaeological evidence for contacts with coastal communities. The fish and crab remains recovered from the Iron Age settlement site of Rafaq 2 provide a new insight into the variety of marine resources imported some distance inland. The significance of the fish and crab remains are discussed, and comparisons are drawn with another recently published assemblage from the inland site of Mleiha which dates from the 3rd/4th century A.D.

Rafaq 2: the archaeological site

Rafaq 2 is situated east of Huwaylat in the Wadi al-Qawr

[Fig. 1]. This *wadi* is located at the northern end of the Hajar mountains and provides an east-west corridor between the northern Batinah coast and the inland Madam plain. Rafaq is approximately 20 km from the Gulf of Oman/Batinah coast. An initial archaeological survey of the region was carried out by Beatrice de Cardi and Brian Doe in 1982 (de Cardi & Doe 1983; de Cardi 1984). This demonstrated the presence of 3rd millennium B.C. *bee-hive* tombs and a variety of tombs and settlements, provisionally dated from the middle to late 1st millennium B.C. Subsequent work by Carl Phillips showed that pre-Islamic occupation of the *wadi* and its catchment area was more dense and continuous than had previously been thought, indicated by more tombs and settlements dating from ca. 3000 to ca. 300 B.C. (Phillips 1997: 205).

At Naslah, located at the eastern end of the Wadi al-Qawr, three tombs dating to the late Wadi Suq/Early Iron Age have been recorded (Phillips 1997: Naslah 1, 2 and 4). Nearby, on the south side of the *wadi*, the partial remains of an Early Iron Age settlement were discovered (Phillips 1997: Naslah 3), and a short distance west of this site are traces of another Early Iron Age settlement, Rafaq 1. Excavations at this site uncovered similar rectangular structures to those recorded at Naslah 3, with the addition of a number of circular (? animal) enclosures situated adjacent to the main structures (Phillips 1997: 213). Directly opposite Rafaq 1, on the north side of the *wadi*, is another Iron Age site, Rafaq 2. It is sited on top of a prominent hill with a commanding view of the *wadi*. Excavations uncovered the plan of a multi-roomed building with courtyard areas and a flight of steps leading from the *wadi* up towards a building at the northern end of the site (Phillips 1997: 215). The excavation also revealed typical Late Iron Age pottery which, in Magee's proposed chronology for the Iron Age of Southeast Arabia (1996b), would correspond with the Iron III period, ca. 600-300 B.C. Some of the upper layers excavated were mixed contexts (i.e. they contained possible contamination from more recent occupation) and finds from these layers were excluded from the present analysis.

Archaeological material was retrieved during the excavation using 3 mm mesh dry sieving for all excavated layers. Moderate quantities of mammalian and fish vertebrate remains were recovered during the excavation of these deposits. In addition, a large number of marine mollusca were retrieved. These include the gastropod

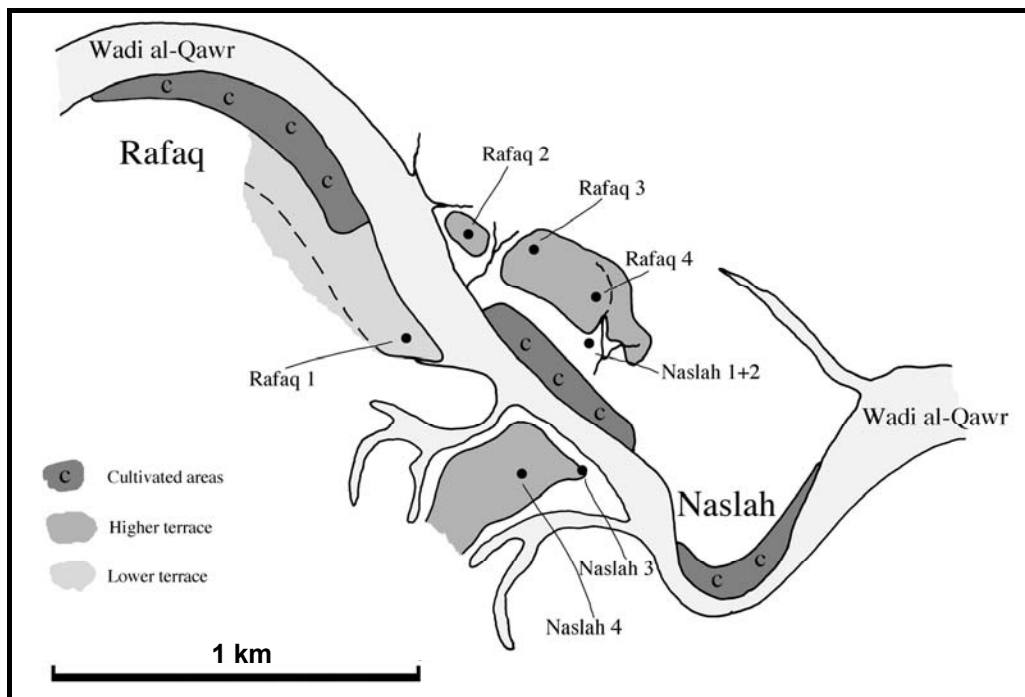


Fig. 1: The Rafaq and Naslah sites in the Wadi al-Qawr.

Table 1: Fish taxa Rafaq 2

Taxon	Common Name	SWF	% SWF	NISP	% NISP	W (g)	% W
<i>Carcharhinidae: Carcharhinus</i> sp.	Requiem shark	9	21.4	14	8.5	8.83	7.0
<i>Pristidae</i> , indet.	Sawfish	2	4.8	2	1.2	5.60	4.4
<i>Chondrichthyes</i> , indet.	Shark, Ray, Skate	2	4.8	13	7.9	2.66	2.1
<i>Serranidae: Epinephelus</i> sp.	Grouper	2	4.8	2	1.2	4.11	3.2
<i>Serranidae</i> , indet.	Grouper	3	7.1	5	3.0	7.46	5.9
<i>Carangidae: Scomberoides</i> sp.	Queenfish	1	2.3	1	0.6	2.09	1.6
<i>Lutjanidae</i> , indet.	Snapper	2	4.8	2	1.2	2.12	1.7
<i>Lethrinidae: Lethrinus</i> sp.	Emperor	1	2.3	1	0.6	0.75	0.6
<i>Sparidae</i> , indet.	Seabream	2	4.8	2	1.2	0.98	0.8
<i>Scombridae: Euthynnus affinis</i> (Cantor 1849)	Little eastern tuna	2	4.8	4	2.4	1.62	1.3
<i>Scombridae: Thunnus</i> sp.	Tuna	2	4.8	2	1.2	1.13	0.9
<i>Scombridae (Thunninae)</i> , indet.	Tuna	34	81.0	85	51.8	78.48	61.9
<i>Perciformes</i> , indet.		4	9.5	6	3.7	3.20	2.5
Unknown fish		9	21.4	25	15.2	7.71	6.1
Total		42	100	164	100	126.74	100

Quantification by number of samples containing fish (SWF), number of identified specimens (NISP), and bone weight (W). For a more detailed explanation of these quantification methods see Beech 2004.

species, *Terebralia palustris*, and the rock oyster, *Saccostrea cucullata* (Glover 1997: Table 1).

Vertebrate fauna: the fish

The mammalian remains recovered at Rafaq 2 included sheep/goat and small quantities of cattle. The analysis of these is currently under way (Mosseri-Marlio in prep.). This paper concerns itself, however, with the analysis of the fish bones recovered from the excavation.

Fish remains occurred in 42 samples at the site, mostly represented by vertebrae. A total of 164 fish bone fragments were examined, of which 120 (73%) could be identified to the level of family, genus or species [Table 1]. Eight families were represented: requiem sharks (*Carcharhinidae*), sawfish (*Pristidae*), groupers (*Serranidae*), jacks (*Carangidae*), snappers (*Lutjanidae*), emperors (*Lethrinidae*), seabream (*Sparidae*) and tuna (*Scombridae*, *Thunninae*).

Preservation of the fish bones, based on a qualitative assessment of bone texture, was very similar between all

Taxon	Common name	MA	QU	CLE	AV	CV	CVP	CVU	V	F	T
<i>Carcharhinidae: Carcharhinus</i> sp.	Requiem shark	0	0	0	0	14	0	0	0	0	14
<i>Pristidae</i> , indet.	Sawfish	0	0	0	0	2	0	0	0	0	2
<i>Chondrichthyes</i> , indet.	Shark, Ray, Skate	0	0	0	0	13	0	0	0	0	13
<i>Serranidae: Epinephelus</i> sp.	Grouper	0	0	0	1	1	0	0	0	0	2
<i>Serranidae</i> , indet.	Grouper	0	0	0	3	2	0	0	0	0	5
<i>Carangidae: Scomberoides</i> sp.	Queenfish	0	0	0	0	1	0	0	0	0	1
<i>Lutjanidae</i> , indet.	Snapper	2	0	0	0	0	0	0	0	0	2
<i>Lethrinidae: Lethrinus</i> sp.	Emperor	0	0	0	0	1	0	0	0	0	1
<i>Sparidae</i> , indet.	Seabream	0	0	0	0	2	0	0	0	0	2
<i>Scomberidae: Euthynnus affinis</i> (Cantor 1849)	Little eastern tuna	0	1	0	3	0	0	0	0	0	4
<i>Scomberidae: Thunnus</i> sp.	Tuna	0	0	0	0	0	0	2	0	0	2
<i>Scomberidae (Thunninae)</i> , indet.	Tuna	0	0	0	6	34	45	0	0	0	85
Perciformes, indet.		0	0	0	0	6	0	0	0	0	6
Unknown fish		0	0	2	0	1	0	0	2	20	25
Total		2	1	2	13	77	45	2	2	20	164

Key: MA = maxillar, QU = quadrate, CLE = cleithrum, AV = abdominal vertebra, CV = caudal vertebra, CVP = penultimate caudal vertebra, CVU = ultimate caudal vertebra/caudal peduncle, V = unknown vertebra, F = unknown fragment, T = total.

layers. The majority of fragments were hard and compact, only a very small percentage being soft and flaky. The only bone to show clear traces of burning to its surface was a single tuna vertebra. No butchery traces, teeth marks or signs of digestion were observed to the surface of any of the bones.

The most ubiquitous taxa present were tuna. They occurred in the majority of excavated layers containing fish bones [Table 1]. Six tuna specimens could be identified more precisely. Four of these belonged to kawakawa/little eastern tuna, *Euthynnus affinis* (Cantor 1849). Three articulating second, third and fourth abdominal vertebrae from the same individual were recovered (layer 5.5), as well as a quadrate (layer 42.3). This latter specimen, based on visual comparison with modern reference material, probably came from a kawakawa/little eastern tuna with a fork length of about 50-60 cm. Two scombrid caudal peduncles (layer 6.18 and 50.7) were identified to the genus *Thunnus* sp. on the basis of their general morphology. Although most of the scombrid remains could only be identified to the level of family, these all seemed to belong to *Thunninae* rather than to mackerels. They consisted entirely of vertebrae, the majority of which were caudal (40%) and penultimate/posterior caudal (53%) vertebrae [Table 2].

Requiem sharks (*Carcharhinidae*) and sawfish (*Pristidae*) were both represented by small numbers of calcified vertebrae. Groupers (*Serranidae*) including the genus *Epinephelus*, jacks/trevallies (*Carangidae*), including the genus *Scomberoides*, emperors (*Lethrinidae: Lethrinus* sp.), and seabream (*Sparidae*), were also only represented by vertebrae. Snappers (*Lutjanidae*) were represented by two maxillae. Visual comparison of these two fragments with modern reference material suggested that individuals with a fork length of about 30-40 and 50-60 cm were present.

Analysis of the vertebra size data suggests that mostly medium to large-sized fish were present at Rafaq, the only smaller vertebrae present being largely from seabream [Fig. 2]. It should be noted, however, that this may be partly an effect of the recovery procedure utilised on the excavation as only bones larger than 3 mm were recovered.

The fish taxa present at Rafaq originate from a variety of marine habitats. Requiem sharks occur within inshore waters as well as at moderate depths. Sawfish generally occur in muddy sandy inshore waters. Groupers and snappers occupy a wide variety of habitats from coral reefs to inshore waters up to moderate depths. Queenfish can be caught in shallow inshore waters as well as in moderately deep offshore habitats. Many of the emperor and seabream species can be caught in sandy inshore waters up to moderate depths. The kawakawa/little eastern tuna (*Euthynnus affinis*) and longtail tuna (*Thunnus tonggol*), however, are epipelagic species, which are generally only caught in deeper offshore waters (Carpenter *et al.* 1997; Randall 1995). The range of fish taxa represented at Rafaq demonstrate that fishing on the coast clearly took place in both shallow inshore waters as well as in deeper offshore waters for certain pelagic species. Tuna has a marked seasonal occurrence in the region at the present day, and clearly may have been targeted in certain coastal regions at particular times of year (Beech 2004).

The crabs

Crab remains occurred in 30 samples at the site, represented for the most part by fragments of chelae. Chelae are the most heavily calcified portions of living crabs, hence differentially survive taphonomic and fossilisation processes (Plotnick, Baumiller & Wetmore 1988; Schäfer

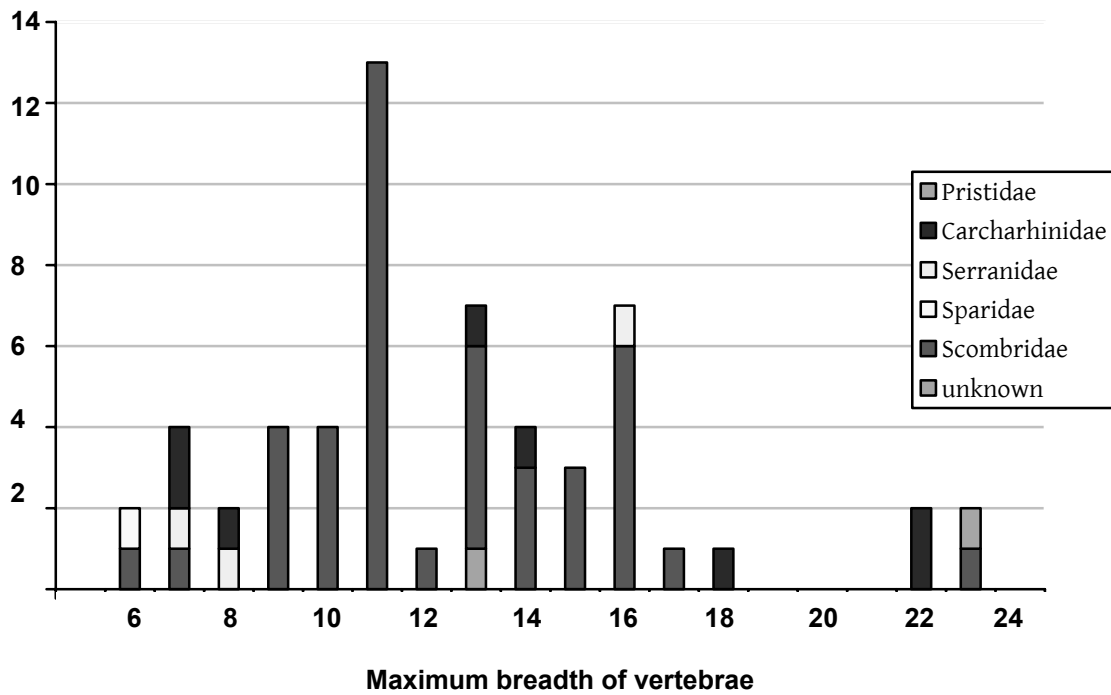


Fig 2: Size of all the fish vertebrae from Rafaq. Maximum breadth of vertebrae measured to nearest millimetre (N=57).

Table 3: Crab taxa Rafaq 2						
Taxon	SWC	%SWC	NISP	%NISP	W (g)	%W
Portunus	4	13.3	5	2.8	2.66	0.6
Scylla	25	83.3	170	93.4	429.43	98.4
Ocypode	3	10.0	4	2.2	2.32	0.5
other crab	3	10.0	3	1.6	1.98	0.5
Total	30	100	182	100	436.39	100

Quantification by number of samples containing crab (SWC), number of identified specimens (NISP), and bone weight (W).

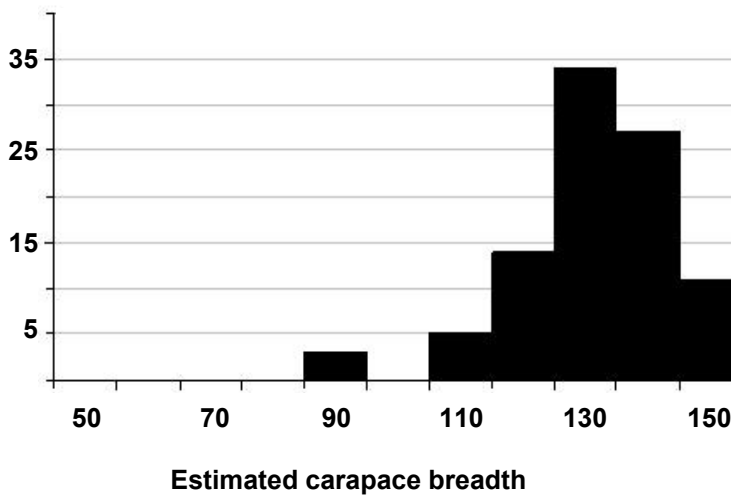


Fig. 3: Estimated carapace breadths (mm) of *Scylla serrata* from Rafaq. Chela fragments (N=94) were compared with the chelae of a range of modern specimens and carapace breadth estimated from regression equations.

1972). These consisted largely of chelae of the mangrove crab *Scylla serrata*, which occurred in 25 of the 30 samples and constituted more than 98% by weight of total crab fragments in these samples. Four samples contained remains of *Portunus*, probably *Portunus pelagicus*. Three samples contained chela fragments of small ghost crab *Ocypode*. Although not identifiable to species, these were presumably *Ocypode rotundata*, at the present day the only species of *Ocypode* that occurs within the Arabian Gulf (Türkay, Sakai & Apel 1996). A further three unidentified crab fragments belonging to none of the above species. Relative numbers and weight of identifiable crab remains are shown in Table 3.

Ocypode are in principle edible, but are agile and difficult to catch. Together with their relatively small size, this suggests that the few fragments reported here do not result from deliberate human collection for food. *Ocypode* and the other small crabs probably arrived by accidental carriage, possibly by birds.

The portunid swimming crabs *Portunus pelagicus* and *Scylla serrata* are important food species in the Western Indian Ocean at the present day: *Scylla* is economically the most important edible crab of the Indo-Pacific region (Guinot 1966). *Portunus pelagicus* is frequently seen in fish markets in the United Arab Emirates (personal observation). In contrast, *Scylla*, although common along the Omani coast, has not been reliably recorded from the Gulf of Oman or the Arabian Gulf, although Apel & Spiridonov (1998) discuss circumstantial evidence of its occurrence in the mangroves of Ras al-Khaimah. In the course of the present study, one of us (MB) caught—and ate—a specimen of *Scylla serrata* from the same location, the first confirmation of its presence in the present day Arabian Gulf.

A high proportion of the chelae of *Scylla* was sufficiently intact to use in estimating the size (carapace breadth) of the intact crab by comparison with modern specimens. Figure 3 shows the estimated size distribution of *Scylla serrata* from Rafaq. Only two of the 5 *Portunus* chelae fragments recovered were sufficiently intact to enable body size estimates: these gave carapace breadth estimates of approximately 119 and 134 mm, again indicating relatively large adults. The size distribution of *Portunus* and *Scylla* therefore suggests selective catching (by trapping or spearing) of relatively large individuals, rather than opportunistic collection.

Scylla serrata is a species strongly associated with mangrove habitats, while *Portunus pelagicus* occurs both in mangroves and in a wide variety of non-mangrove habitats. The dominance of *Scylla* indicates significant dependence of the human population of early Iron Age Rafaq on coastal mangroves. This confirms the picture obtained from the marine mollusca retrieved from Rafaq (Glover 1997). The gastropod species *Terebralia palustris* is an obligate mangrove species (in its adult phase), and the rock oyster, *Saccostrea cucullata*, is frequently found in mangrove cemented to a variety of hard substrates. It is worth noting that *Terebralia palustris* and *Marcia* sp. were recorded as being the most common molluscan species at the Iron Age settlement of Muweilah (Magee 1996a), located some 15 km from the coast. Coastal mangroves and mudflats were also clearly being regularly exploited within the hinterland of this site.

Discussion

The diverse range of marine fish, as well as the presence of crabs, at the Iron Age site of Rafaq demonstrates a clear connection between the coastal and inland regions of south-east Arabia. Rafaq is located some 20 km from the eastern coast of the United Arab Emirates. Whilst fresh fish may have been transported to the site from the coast, as the distance represents about a day's journey, it is also possible that the fish arrived at the site in dried form. The majority of the fish remains included vertebrae, only snappers and tuna (*Euthynnus*) being represented by a few cranial elements. Differential preservation may, however, partly explain this bias towards the preservation of largely vertebrae. Many of the tuna vertebrae were posterior caudal vertebrae, which survive better than other anterior elements. Nevertheless it is interesting that tail vertebrae were carried so far inland. This may suggest that the more recently observed preparation methods used to process tuna, which leave all the vertebrae intact within the fish (Beech 2004), have a long tradition in the region. The diversity of the fish assemblage present at Rafaq suggests that the trade in fish from the coast to the interior was already well established by this time. Most scombrids occur on the east coast within the space of a couple of months each year. Modern fisheries landings data for 1976-1977 and 1978-1979 from Khor Fakkan, located on the east coast of the United Arab Emirates, suggests that between 46-53% of all annual catches of scombrids were made during the month of April alone (Ali & Thomas 1979; Ali, Thomas & Marji 1980). Surplus catches of such fish clearly may have been preserved by drying and salting for storage and subsequent export/trade.

At the inland site of Mleiha in Sharjah Emirate, fish bones were reported from both the remains of a 3rd-4th century A.D. fort, as well as from adjacent houses (Mashkour & van Neer 1999). The Mleiha assemblage was very similar to Rafaq, being dominated by the remains of tuna. Taxa recorded included kawakawa/little eastern tuna (*Euthynnus affinis*), with smaller amounts of longtail tuna (*Thunnus* sp.), seabream (*Rhabdosargus* sp), jacks (including *Carangoides* sp.), mullets (*Mugilidae*) and requiem shark (*Carcharhinidae*). Mleiha is located at least ca. 50 km from the east coast and 80 km from the west coasts of the United Arab Emirates, so these fish remains must also represent deliberate imports to the site.

The crab remains recovered from Rafaq largely comprise chelae from mangrove crabs (*Scylla*). A small number of *Scylla* remains have also been observed amongst a 5th millennium B.C. assemblage from Umm al-Qaiwain within the Gulf (Hogarth & Beech in prep.). At the present day, *Scylla* is virtually absent from the Gulf, although it is quite common along the Oman coast and has been recorded from Kalba (Apel & Spiridonov 1998). The present rarity of *Scylla* in the Gulf may result from loss of mangrove habitat, or from over-fishing. Alternatively, the species may never have been abundant in the Gulf. Either way, it is almost certain that the *Scylla* found at Rafaq originated from the east coast and thus corroborate the molluscan evidence regarding access to a coastal area characterised, at least in part, by mangroves. It is inter-

esting to note that almost identical size material has been recovered from Bronze and Iron Age levels at a site in Kalba, located not far from the extensive mangroves at Khor Kalba (Hogarth & Beech in prep.). However, Khor Kalba is not the only area of mangroves found on the Batinah coast. They are also present at Shinas which is nearer still to the Wadi al-Qawr.

The fish and crab remains from Rifaq 2, as well as the fish assemblage from Mleiha, clearly demonstrate that marine products contributed a significant part of the economy of these inland sites. It is possible that the trade in such food items was as important as it has been in more recent times. Further careful and systematic investigation of archaeological sites located within this region will continue to provide important evidence for the trade in marine resources, aspects of its organisation and possible associations with other traded goods. At the very least, this present contribution adds to our growing knowledge of the Iron Age of south-east Arabia. Following attempts at defining a chronology for this region (Magee 1996b), there has been an increased interest in understanding the subsistence basis of Iron Age communities (Magee 1996a; 1996c). The acquisition of marine resources and interaction between inland and coastal areas, as indicated by the bioarchaeological data presented here, was clearly of some importance.

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