

## **Consumption of crabs in the Mesolithic: side stepping the evidence?**

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A study of the sorted crab from the Mesolithic midden site of Sand has revealed a surprising quantity of remains. An examination of the literature, however, demonstrates that the consumption of crabs is very rarely discussed in Mesolithic studies. Even Grahame Clark, who wrote extensively about the ways in which different types of animal may have been procured, did not consider the crab (see for example Clark 1954).

Some studies of crab are undertaken in other parts of the world and for other periods but it is often noted that there is a lack of research into the exploitation of this animal. Serrand (2004) has recently been studying crab exploitation by the pre-Columbian people of the Antilles and work on crab consumption has been carried out in Oman and the Arabian Gulf by Hogarth and Beech (2002). There is also evidence of crab consumption from some Roman and Medieval sites in Britain (Nicholson 1988; Lindsay Allason-Jones and Terry O'Connor pers. comm.), for example fragments of edible crab were found in late second-century deposits at York (Alcock 2001, 54) but usually the data is only referred to in passing.

So why has the evidence been ignored? For Mesolithic studies the traditional focus of enquiry has concentrated on broad topics such as the overall economy, ranking of resources and calculations of calorific values, meaning that many “unimportant” or “minor” resources (such as shellfish, plants, small mammals etc) gain little or no attention (although see Milner 2002; Wickham-Jones 2003). If these minor resources are considered at all it is often as a foodstuff used in plugging a gap in the seasonal resource cycle (e.g. Rowley-Conwy 1984). Consequently, there persists an androcentric bias with a proliferation of “boys and arrows” narratives directed on the importance of the deer hunt (Finlay 2000).

However, the study of resources should not be explored solely within these empirical frameworks. Ethnography demonstrates the wealth of taboos and rituals which can be associated with hunting, fishing expeditions or shell gathering events and the maintenance of social relations is as fundamental to these activities as the goal of finding the next meal. Equally once a resource is transformed into food it is not merely sustenance; food also creates and constitutes social relationships and is rich in symbolic meaning and metaphor. These aspects of food studies have been explored by historians, anthropologists and social scientists in the last 20 years but archaeology is only beginning to follow their lead (Milner and Miracle 2002; Parker Pearson 2003).

Each species found within a midden is one of many ingredients in the overall diet of the people who used the site. We have no idea how Mesolithic people perceived different animals in terms of ideology and the supernatural, which tastes were favoured, which foods had symbolic significance, whether some were regarded as high or low status food and whether complex prohibitions were played out. From ethnography these types of meanings and metaphors are usually evident but do not necessarily correlate to optimum foraging theories, calorific values, return rates and so on and attitudes will change according to the culture. For instance, the crab is often perceived as a fairly anomalous creature in that it can live in both water and on land and it walks sideways; because in some cultures it does not easily fit into set

categories it becomes proscribed (e.g. Douglas 1966) but in others it is valued as a rich and tasty food. In this sense, perhaps a different approach can be taken which considers all foods equally worthy of study. Therefore, rather than dismissing crab as an unimportant resource the study of crab remains can lead to questions such as: how were they procured? were they eaten or used as bait? were they cooked? where were they deposited? This paper is therefore concerned with the procurement, processing, consumption and deposition of the remains thus providing a more intimate picture of people and their life on the seashore and at the rock shelter.

### The evidence

The material from the midden was sorted initially by students at Edinburgh University and any crab remains were separated out. The part of the body that appeared to survive best was the claw (figure xxx). Claws are fairly robust, especially in the larger crabs but they are also the more easily identifiable part of a crab and perhaps during sorting were recognised more often than some other parts of the animal. It is also possible that some of the specimens may be lobster but currently it is difficult to be sure. Some parts of the walking legs survive but there are far fewer examples of these. There were also some fragments which appear to belong to the carapace (exoskeleton) of larger specimens (figure xxx). These can be recognised because the rough texture of this part of the crab is usually very distinct. There was no clear evidence of abdomens or other less robust parts of the crab such as the flattened fifth legs which belong to some species, e.g. the swimming or harbour crab *Liocarcinus depurator*.



Figure xxx: range of crab claws



Figure xxx: some fragments which appear to belong to the carapace of larger crabs.

In sum, the more robust parts of the skeleton appear to survive best which is perhaps not surprising. Many factors could have affected the survival of the crab skeleton. The crabs may have been cooked in a variety of ways (which is discussed below) and burning, which is evident in some cases, may have made the bone more brittle and liable to fragmentation. Some crabs may have been broken up intentionally in order to get to the meat, in which case there is less chance of preservation. The elements will also have been subject to a range of taphonomic factors such as physical, chemical and biological processes, following deposition on or in the midden and consequently some elements may have been destroyed (O'Connor 2000).

There is no easy way to quantify the material: many cultural and natural processes will have had their varied affects on the remains and any quantification will only provide a figure of how many crab claws are found in the excavated part of the midden. It is very difficult to say how many crabs were caught overall during the duration of the accumulation of the midden and any calculations used in this way could vastly under-represent the nature of crab catching and consumption. There are added complications in that each crab has two claws which in turn have two parts (upper and lower) therefore each crab has four pieces of claw to be counted; it is almost impossible to match any of these up, although no doubt some of them were once joined. Although an MNI could be calculated by dividing the total by 4 it only provides a figure which can be used to demonstrate that crab was relatively unimportant in the overall economic picture. Instead a very rough quantification was

made: the intention was not to produce a final figure but rather to obtain an approximate representation of the amount of crab found in the midden.

The different sizes of crab, the species of crab and ways in which the crab had been processed were also noted. The crab remains had been sorted by context but no detailed study of variation between context was made because evidence for crab consumption was found across the midden and in this preliminary study there were no obvious differences between areas or contexts. The crab claws were divided by eye into arbitrary categories of small, middle and large sizes and the numbers tallied across the site. No measurements were made because there was no measurable component due to the fact that very few claws were complete. As can be seen from table 1, there is a total of 545 crab claws in the midden which vary quite significantly in size (table xxx and figure xxx).

Small claws	Middling sized claws	Large claws
205	245	95

Table 1: table to show the numbers of claws, or significant pieces of claw found throughout the midden.

Although the claws in general were also quite worn it is possible to tentatively identify some of them to species. Differences in crab claw morphology are distinctive between species but these tend not to be described or drawn in any detail in reference works (Ingle 1980, 1996). It was therefore important to use modern controls which could be used to help distinguish different species. A number of dead modern crabs were collected from Filey beach, East Yorkshire after a spring storm had thrown up a large amount of seaweed and marine animals onto the beach. The crabs were macerated in water with a very weak solution of bleach over a period of about a month (with frequent changes of water) which cleaned out the rotting flesh but unfortunately did erode away some of the more fragile elements such as the carapace and abdomen. However, (as seen in the midden) the more robust claws and legs remained intact.



Figure xxx: modern and archaeological crab claws. The modern claws on the left hand side show the variation between 3 different species. The archaeological specimens on the right hand side show some of the variation in size, shape and surface contours in the midden assemblage (these are not matched to the modern specimens).

In the midden there appear to be at least three species but there are probably several more. It is thought that the well known edible crab, *Cancer pagurus*, is fairly abundant in the midden and perhaps most of the large claws actually belong to this species. Some claws had very distinctive striations along the claw and these might match with either *Macropipus tuberculatus* or *Liocarcinus depurator* (figure xxx). There were also other crab claws which were not similar to either of these kinds of crab and they could belong to a number of other species which at the moment remain unidentified although it is likely that many of the smaller claws belong to the common shore crab *Carcinus maenas*. In addition, as already mentioned, some may be lobster claws. The different species of crabs will be found in different places in the natural environment; for instance, *Carcinus maenas* is predominantly a shore and shallow water species and can be found on all types of shore. *Cancer pagurus* on the other hand is usually found on the lower shore, shallow sublittoral and offshore to about 100m, under boulders or in muddy sands.



Figure xxx: bottom- modern claw of crab with striations compared with archaeological specimen on right (with striations) and archaeological specimen on left (large and without striations which probably belongs to *Cancer pagurus*).



Figure xxx: an assortment of crab claws which demonstrate burning and breakage (burning is particularly clear on the middle claw which is blue in colour).

It was also noted that some of the crabs had been burnt, particularly on the tips of their claws figure xxx, and interestingly this is something that has been found on crabs from the Roman site of South Shields (Lindsay Allason-Jones pers. comm.). The tips had turned blue-white in some cases which is characteristic of a fairly high temperature although they do not appear to show thermal cracks (Lyman 1994). Bones on a site can be burnt for a number of reasons; they can be thrown on a fire as fuel, accidentally burnt because fires are created on top of a midden, or in cooking. The pattern of burning on the claws does however suggest that in at least some cases the latter explanation is probably true. Many of the claws had also been partially broken. Again breakage can occur for post depositional reasons, such as trampling, but it is likely that people were also breaking up the claws for meat.

### **A picture of procurement, processing, consumption and deposition**

There are many ways to catch a crab. A well known method often used to entertain children at the seaside is 'gillying', which is like fishing. Bait is tied to a weighted line and dropped to the bottom and the line is carefully drawn up if movement or tugging is felt. Different baits can be used because naturally crabs eat a wide variety of foods such as prawns, topshells, dogwhelks, mussels, barnacles and so on (Ingle 1996). They use their claws to break open live shelled animals but also will eat dead

matter and rotting material. Long lines may also be used with bait placed at regular intervals which will catch several crabs at a time and these need to be laid along the seabed.

Some of the smaller crabs, like *Carcinus maenas*, can be found under rocks along the seashore or they can 'tickled' out from rockpools. Here it is necessary to put one's hand under the seaweed in the pool and carefully feel around for a crab lurking beneath. Perhaps surprisingly, if done carefully, this does not lead to being pinched. As well as being caught by hand, Fenton (1978, 543) describes how crabs can be drawn from their hiding places with a hook and there is an evocative description in the Irish folk autobiography of Michael Kirby (1990, 12) when as a child he goes to the beach with his father and learns how to use a rod to poke a lobster from its hiding place and how to pick it up so as not to incur a pinch. Some crabs bury themselves in the sand and these can usually be found by torchlight at night-time when they surface and scuttle sideways across the beach (Ingle 1996). However, to catch crabs with the bare hand when they run over the beach is difficult, although it is easier with the slower moving hermit crabs (von Brandt 1984, 11). Renfrew (1993, 17) suggests that in prehistory crabs and lobsters were probably collected in "weighted baskets- the forerunners of modern lobster pots". Again bait can be used in these and they have the advantage that they can be left for periods of time. Fenton (1997, 543) talks about using small nets, "baited with any kind of garbage" for catching lobsters in the eighteenth century.

It is fairly easy to conjure up pictures of how people may have gone about catching crabs in the Mesolithic and at the beach at Sand. There was plenty of opportunity at this location with its rocky coastline, figures xxx. Bait would have been easily available, whether it was the leftovers of a meal, or perhaps some shellfish collected specifically for that purpose. Limpets may have been used as bait in that they could have been fixed firmly to a piece of string without a hook: it is speculative but a hole punched in the shell of the limpet could be threaded or tied onto string and shells with holes in them are prevalent on the midden (Hardy this volume). It is also important when using bait in this way to use some tough meat which cannot be quickly eaten by the crab and again limpets may have worked well in this respect. They may also have been left to rot slightly, the crab being attracted to the decaying flesh.





Figure xxx: picture of the beach at Sand. The incoming sea has just covered a stretch of rocks which are exposed at low tide (see figure xxx). The coastline to the right and left of the sand is exposed rocky crag.

The beach would often have been used by the people at Sand when leaving and returning in boats, gathering shellfish and fishing from rocky crags. Therefore, whenever people were in these places it would have been possible to look for the smaller species of crab which inhabit spaces under rocks and in amongst the seaweed fringed rock pools, figures xxx and xxx. The larger *Cancer pagurus* is not usually found in rock pools but in deeper water and so was probably caught using baskets and lines, either from the crags to the side of the beach which may have provided shelter, or it is possible that baskets or lines were dropped further off shore from boats. It is even possible that if baskets were being used for fishing that some crabs may be caught incidentally in this way (Parks this volume).



Figure xxx: exposed rocky area at low tide, ideal for shell gathering and searching out small crabs in the seaweed fringed rockpools.



Figure xxx: small crab found in one of the rock pools

Once collected, the crabs would have been processed by breaking them up and cooking them. Some of the crab claws found are very small suggesting that very little meat could have been extracted from them. These crabs may have been cooked whole, either roasted on hot stones or above a fire, or perhaps even boiled in water heated with hot stones. It is also possible that some of the foods such as crab, shellfish, fish or seaweed were cooked up together, perhaps in hot water to create a seafood broth.

A large crab can provide plenty of meat and will supply enough food for several people to share. The larger crabs may have been roasted over a fire as there is evidence of burning on the tips of some of the claws. Once cooked, they must have been broken open and processed. Today, larger crabs are usually processed by breaking off the legs and claws which is supposed to make the extraction of meat easier. The central under-body can then be pushed away from the shell. The small stomach sac behind the crab's mouth is usually discarded, as are the gills (also known as dead man's fingers) and in female crabs the "apron" which contains the eggs is also thrown away. The remaining white meat can then be used. There is also a brown flesh which can be scooped out from the shell and this is intensely flavoured. The flesh from the central part can then be used and cooked in different ways and perhaps combined with other foods. The meat is removed from claws and legs by breaking them up with a sharp knock and picking out the flesh. This is only one modern method of preparing crabs and in the past it is possible that other methods were used as well.

An alternative to direct consumption is the use of crab as bait. Fenton (1978, 539) describes how a net can be lowered to the bottom of the water and then a bait of mashed crabs is thrown out. Once the sillocks (young saithe) congregate the net can be hauled up and the fish caught. However, any crabs used in this way would probably be invisible archaeologically and would not have been found on the midden.

After consumption the shell of the crab was deposited in the midden. However, the carapace of the larger crabs may also have been used as containers for other things once they were removed, e.g. their size and their shape allows liquids to be held in them, figure xxx. Perhaps these in turn were used for holding the crab meat, or even used in cooking other foods, protecting the food from direct heat. In addition, these parts of the animal may have even been taken elsewhere to other places for other purposes.



Figure xxx: empty carapace of *Cancer pagurus*

## Conclusion

It would be quite easy to dismiss crabs as a very minor resource in this midden assemblage based on the quantity present and relative calorific contribution. However, it is possible to open up other perspectives which consider individual actions and day to day activities. This approach serves as reminder that resources were transformed into food through the performance of procurement, preparation and consumption and through these activities social relationships would have been created and maintained.

We can begin to see how crabs would have contributed to Mesolithic meals and may have been regarded as one of very many tasty foods that could easily be procured just a short walk down from the rock shelter. Children may have been shown how to find crabs beneath stones and within rock pools by their parents, other kin or friends. Larger crabs may have been caught in baskets further offshore. Many of these catches would have been taken back to the rock shelter and processed. They could have been cooked in a variety of ways and the food created could have been shared out between people. Although there is no way of knowing at present exactly which methods were used, it is likely that all the ones described would have been possible for the Mesolithic people at Sand.

It is perhaps time to stop side-stepping some species and instead integrate all the faunal and floral evidence into our perceptions of the past. Through further analysis of crab remains at other sites (species present, processing methods and the study of deposition within contexts) and the study of all other species found within middens

we should be able to build up more complex narratives of consumption activities at these sites.

### **Acknowledgements**

I am grateful to Terry O'Connor, Lindsay Allason-Jones and Geoff Bailey for discussion of this topic. I would also like to thank Eva Laurie for helping macerate the crabs in the lab. Much of my personal knowledge is a result of learning at a young age from my aunt, Patty Posnett, how to procure crabs from rock pools. And I am also grateful to Adrian Nash for schooling me on how to prepare and eat crab.

### **References**

- Alcock, J.P. *Food in Roman Britain*, Stroud: Tempus Publishing Ltd
- Clark, J.G.D. 1954. *Prehistoric Europe. The Economic Basis*. London: Methuen & Co. Ltd
- Douglas, M. 1966. *Purity and danger. An analysis of the concepts of pollution and taboo*, London: Routledge and Kegan Paul
- Fenton, A. 1978. *The Northern Isles: Orkney and Shetland*, East Lothian: Tuckwell Press
- Finlay, N. 2000. Deer Prudence, in C.Conneller (ed.) *New approaches to the Palaeolithic and Mesolithic, Archaeological Review from Cambridge*, 17:1, 67-79
- Hogarth, P.J. and Beech, M.J. 2002. Modelling ancient crab consumption in the Arabian Gulf and Gulf of Oman,  
<http://www-users.york.ac.uk/~mjb117/ICAZ2002.htm>
- Ingle, R.W. 1980. *British crabs*, London: British Museum
- Ingle, R.W. 1996. *Shallow-water crabs, key notes for identification of the species*, Shrewsbury: Field Studies Council
- Kirby, M. 1990. *Skelligside*. Dublin: Lilliput Press Ltd
- Lyman, R.L. 1994. *Vertebrate taphonomy*, Cambridge: Cambridge University Press
- Milner, N. 2002. Oysters, cockles and kitchenmiddens: changing practices at the Mesolithic/Neolithic transition, in P. Miracle and N. Milner (eds.) *Consuming passions and patterns of consumption*, Cambridge: McDonald Institute, 89-96
- Milner, N. and Miracle, P. 2002. Introduction. Patterning Data and Consuming Theory. In P. Miracle and N. Milner (eds.) *Consuming passions and patterns of consumption*, Cambridge: McDonald Institute, 1-6
- Nicholson, R. 1988. The marine molluscs and crustaceans, in C. O'Brien, L. Bown, S. Dixon, and R. Nicholson (eds.) *The origins of the Newcastle Quayside Excavations at*

*Queen Street and Dog Bank Monograph Series 3*, Tyne and Wear: Society of Antiquaries of Newcastle Upon Tyne

O'Connor, T. 2000. *The Archaeology of animal bones*, Stroud: Sutton Publishing

Rowley-Conwy, P. 1984. The Laziness of the short-distance hunter: the origins of agriculture in Western Denmark, *Journal of Anthropological Archaeology* 3, 300-324

Parker Pearson, M. 2003. Food, identity and culture: an introduction and overview, in M. Parker Pearson (ed.) *Food, culture and identity in the Neolithic and Early Bronze Age*, Oxford: BAR International Series 1117

Renfrew, J. 1993. Prehistoric Britain, in P. Brears, M. Black, G. Corbishley, J. Renfrew and J. Stead (eds.) *A taste of history, 10 000 years of food in Britain*, London: British Museum Press

Serrand, N. 2004. Exploitation of marine and terrestrial invertebrates by the Saladoid and post-Saladoid populations of the Northern Lesser Antilles (" 500 BC-AD 1200): case studies and comparisons, *The Archaeo+malacology group newsletter Issue Number 5* (access on-line: [http://triton.anu.edu.au/issue\\_5.htm](http://triton.anu.edu.au/issue_5.htm))

von Brandt, A. 1984. *Fish catching methods of the world*. Surrey: Fishing News Books Ltd

Wickham-Jones, C. 2003. The tale of the limpet. *British Archaeology* 71,