FOOD, DRINK AND CULINARY PRACTICES IN THE EUROPEAN NEOLITHIC

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When reconstructing any prehistoric environment, it is essential to encompass the totality of day to day existence. A particular practice that has been ignored for the main part by most interpretative centres is that of cooking, food preparation and storage. Displays of pottery and textiles are a common place at such centres. A token acknowledgement of culinary practices is usually a quern for grinding flour in the corner of a dwelling. Food and shelter in that order are the prime objectives of any culture from the Mesolithic to the present day. Food research leads to many other fields of research that are inter-linked. Not just cooking techniques, but food preparation and storage would have been important aspects of day to day life in the European Neolithic. The transition from hunter-gatherer practices involves not just ceramic production for storage but many types of basketry for food storage and preservation. The prime objective of this new sedentary lifestyle would have been to conserve their crops for use in the winter. The community for the first time must stay in one place to tend their domestic animals and land. They would not been able to obtain the meat of the roaming herds of wild animals because of the distances to winter pastures. Consequently, the main difference in actuality between a hunter and an farmer is food.

Grain

Bread, the staple of life, is mentioned many times by classical writers, and a yeasted bread was also discovered from the Late Neolithic levels at Douanne on lake Bienne in Switzerland (AUDOUZE & BUCHSENSCHUTZ 1991, 125). It is not at all difficult to produce a yeasted loaf of bread as one might imagine. Yeast production today – and throughout history – has been linked with the brewing of beer and wine. “The interdependence between the grain and the yeast, between bread and fermenting liquor, was certainly established in the earliest times and has persisted throughout history” (DAVID 1977, 90). Certain fruits are host to large amounts of wild yeasts on their skins, such as the grape, and in Northern Europe the elderberry (Sambucus nigra). Fermenting wine or beer can be added to flour, to produce leavened bread. Plinius the Elder commented on this practice (Plinius vol. 5, book 18, 68): “When the corn of Gaul and Spain of the kinds we have stated is steeped to make beer the foam that forms on the surface in the process for leaven, in consequence of which those races have a lighter kind of bread than others”. This is not the opinion we generally have of the barbarian Celts bread. One would assume that the Roman bread was lighter and finer than that of the Celts; if this were so, I am sure Plinius would have made a point of stating this. It is possible – l
have found from my own research in this field – to preserve a wild yeast concentrate for some months until required for use. It is well known that the Celts in particular were very fond of wine and beer; Strabo comments on the European Celts. The fermenting of grains to make alcohol is thought to have begun at the same time as the first cultivation of grains. The growing of grain had become widespread between Iran and Turkey around 10,000 years ago (HARRIS 1997, 8). In ancient Mesopotamian texts in the 3rd millennium BC there are said to be a list of 19 different types of beer made according to the combinations of grains and herbs used in their manufacture (DAVIDSON 1992, 23). Yet growing grain does not seem to appear in Northern Europe until the Neolithic approx. 6,000 years ago (ROBINSON 1993, 35). In Britain a small quantity of impressions of grain have been found on Neolithic pottery at Abingdon causeway enclosure in Oxfordshire (avery 1982, 48), which give us concrete evidence that Emmer wheat (Triticum dicoccum) and six-row barley (Hordeum vulgare) were in some quantity cultivated during this period. Widespread evidence of grain cultivation in Britain however is not found until the Bronze Age approx. 3,500 years ago.

I am often asked how prehistoric people might have discovered the process of beer making. I believe it has a lot to do with the storage of grain in pits. The classical historian Diodorus Siculus comments on how the ancient Britons harvested their grain (Siculus 5: 22): “They dwell in mean cottages, covered for the most part with reeds or sticks. In the reaping of their corn, they cut off the ears from the stalks, and so house them in repositories underground”. There is widespread archaeological evidence for these grain storage pits throughout Europe.

“Storage pits can be distinguished from innumerable pits found all over protohistoric settlements by their characteristic shape. They are usually circular in plan and generally small, being only rarely more than 3 m in diameter. The depth is usually equal to or greater than the maximum diameter. The opening was originally smaller in diameter than the maximum diameter of the pit. These characteristics stem from the need to have a storage capacity as large as possible with the smallest possible opening, which usually seems to have been worked out so as to allow a man to get inside. A. Villes has observed that in Champagne in the La Tène period the average diameter of the aperture was 60–70 cm” (Audouze & Buchsenschutz 1991, 129).

In different regions these pits vary in shape and size, but the basic principle is the same: A large hole is dug into the ground most commonly a bell shape, essentially a large rounded hole with a narrow neck at the top. Grain is poured into the pit after the harvest and presumably a plug of clay was used to cover it. Followed by a layer of turf on top to stop the clay from drying out. Although there is no evidence for these clay plugs, they are the most logical top for the pits, and could have been ploughed out over the centuries to leave no traces of their existence. The grain on the edge of the pit had contact with the damp earth. This grain then began to germinate; as it germinated it used up all the remaining oxygen in the sealed pit, releasing carbon dioxide in exchange. When the oxygen is used, the germinating grain died and formed a crust on the outer edge of the pit. The grain within was sealed in a vacuum and would keep for years without deteriorating. Some re-
search into the use of these types of storage pits was undertaken by P. Reynolds at Butser Ancient Farm (REYNOLDS 1976, 41), and it was found that the grain stored for a year in the pit was in a better condition than grain stored in a modern electrically heated granary for the same length of time. However, in the following spring almost all the grain had been removed and used from the pits. The grain that was left would begin to germinate. Germinating wheat and barley taste very pleasant, very much like liquorice. I am sure this would have been a popular food during the springtime. Unfortunately, it is only at the beginning stage of the germination that it tastes good. If left a week too long the germinating grain goes mouldy – and is wasted as a food. It is not unrealistic to assume that someone made an attempt to preserve this sprouting grain, by drying it in a kiln. Once baked the grain sprouts change to malt, a completely different and pleasant smelling food. This malted grain ground to a flour on a quern, and added to water, makes an enjoyable malt drink. It also becomes an important food, as there are more vitamins and minerals in the malted grain than in its un-sprouted state. This is because sprouting grain releases the plants energy pack of sugars and starches in order to make a new plant. It is also not hard to imagine a refreshing tasty drink was made of the malted grain in large quantities, and as a consequence a surplus might have been left for another day. This would have started to ferment – and the additional possibilities of alcohol discovered.

Connecting the growing of grains to the production of beer (and as a by-product yeasted bread) gives us a totally different conception of the staple food of prehistoric Europe. Coupled to this the comment by Plinius the Elder that the bread of the barbaric Celts was of finer quality than that of the civilised Romans, demonstrates how an assumption can be depicted without looking at the evidence. The assumption being that because the Romans built roads and cities, they must – as a consequence – have had a fonder diet than the barbarians they came to civilise. The cultivation of these cereal crops however, was interdependent with the domestication of animals. “Although cattle were fully domesticated at least by the sixth millenium B.C., they were not systematically used as traction animals until the latter fourth millenium, when a specific technology was developed to make use of this. The most important applications were the plough and the cart. The plough increased production and made economic the cultivation of a range of poor quality soils; it thus resulted in the colonisation of a wider area than had been possible under previous systems of cultivation. Both the ox-cart and the horse, as well as the pack-donkey, opened up the possibilities of bulk transport” (SHERRATT 1981, 262).

Animals were much more important to primitive societies than being just another meat source. Large numbers of female animals would have been needed so there would have been a working stock, and a breeding population of animals for these agricultural societies. Therefore the growing of cereal crops and the ensuing need for large herds of draught animals would have occupied increasing amounts of the time of the first farmers. More substantial dwellings and storage facilities would be needed as a consequence. In an article by P. Rowley-Conwy he suggests, that cultivating the land was not necessarily an inevitable advance for hunter-gatherer so-
sieties. “We call hard but boring work ‘the daily grind’ – a reference to milling cultivated grain, and current research is showing that you didn’t take up farming unless you had to” (ROWLEY-CONWY 1997, 7). However hard work though it might have been for the first farmers, the multitudinous benefits of the sedentary lifestyle and resultant development of new technologies such as ceramics and metallurgy, would have far outweighed the drudgery.

**Dairy Food**

There is little doubt that dairy foods were an important part of the prehistoric diet of Northern Europe, from as early as Neolithic times. The ‘secondary products revolution’ – a term created by A. Sherratt – categorises the secondary uses of draught animals for milk.

“Milk has several advantages. From a dietary point of view, it supplies the amino-acid lysine, which is missing in a cereal-based food. It contains fat, protein and sugar in a balanced form, and is a useful source of calcium. Being liquid it is easily handled, and can be converted into a variety of storable products” (SHERRATT 1981, 276).

Archaeology has now concrete evidence that milk products were consumed throughout Europe from Neolithic times due to a new testing technique developed by R. P. Evershed and S. N. Dudd. “The stable carbon isotope compositions of individual fatty acid components of remnant fats preserved in archaeological pottery vessels show that dairying was a component of archaeological economies” (EVERSHED & DUDD 1998, 1478). At many causeway camps in Southern Britain, a high proportion of the bones excavated, were of calves. “The cattle bones from Hambledon Hill are primarily those of older females and young calves. One archaeologist has interpreted these as the kill residue from a dairying herd kept in the settlement enclosure of Hambledon Hill” (PARKER PEARSON 1993, 48). This indicates not just the consumption of veal, but a need for a large supply of milk for the community. The management of cattle herds continued through the Bronze Age and in some way took on a ritual significance at various burial mounds. Perhaps it was an indication of a person’s prestige and wealth as to how many cattle were consumed at the burial feast. Displaying the quantity consumed by covering the tomb with the heads of the cattle consumed. At Irthingborough one of these mounds excavated revealed 184 cattle skulls (PARKER PEARSON 1993, 78). Also, Strabo tells us that one of the trade goods exported to Europe from Britain prior to the Roman invasion was that of hides (Strabo 11: 253). It bears grain, cattle, gold, silver and iron. These things are exported from the island as also hides, slaves and dogs. Strabo also comments on the cattle in Britain when he talks about the inhabitants of the Cassiderides though to be the Scilly Isles and Cornwall (Strabo 11: 157): “They live off their herds ... As they have mines of tin and lead, they give these metals and the hides from their cattle to the sea traders”. These quotations support the conclusion that large herds of cattle were a common sight in ancient Britain. Milk would have been available all year round due to good animal hus-
bandry. Although the milk would have been more plentiful, sweet and rich in the spring. The storing of surplus dairy produce would have been important to such a culture, as plentiful supplies of milk would subside during the winter months. This problem was overcome in part by storing butter in wooden containers and burying them in marshlands or peat bogs. Deep in the peat levels of the marsh the surplus butter would keep fresh during the summer months. Only to be removed when required during the winter. Archaeologists in Ireland have discovered large quantities of this bog butter. “Many discoveries of this ‘bog butter’ have been made, ranging in quantity from a few pounds to as much as a hundredweight” (RENFREW 1985, 15). I have held a wooden stave bucket containing at least 5 kilo of ancient butter from the Royal Cornwall Museum store in Truro. H. Maulsley found this butter in the neighbourhood of Ougherard, County Galway, Ireland, in 1906. He reported: “This cask containing Irish butter was found when turf was being cut five feet below the surface in solid peat.” It is a pale yellow in colour and a grainy consistency, and it smells quite dreadful. Fascinating though to think that this particular bucket full of rancid butter was churned by someone in Ireland, a couple of thousand years ago, when the map of Europe was dominated by Roman legions.

Cooking techniques

Cooking techniques in ancient times must also have varied quite considerably throughout Europe. In Ireland, Britain and Sweden there is evidence for a type of cooking method using heated stones and a water pit. In Ireland these sites are called Filacht Fiaadh (O’DRISCEOIL 1990, 157) where more than 4000 sites of this type have been identified. They appear as mounds of fire cracked stones usually in a crescent or horseshoe shape. In the centre of this horseshoe is a typical watertight trough or pit when excavated, in which the heated stones were dropped into during use. There is a reference to this practice in ‘History of Ireland’ (KEATING 1908, 326): “It was their custom to send their attendants about noon with whatever they had killed in the mornings hunt to an appointed hill, to kindle raging fires thereon, and put in them a large number of stones; and to dig two pits in the yellow clay of the moorland, and put some meat on spits to roast before the fire: and then to bind another portion of it with grasses in bundles. And set it to boil in the larger of the two pits, and keep plying with stones that were in the fire, making them seethe often until they were cooked. And these fires were so large that their sites are seen today in Ireland burnt to blackness and these sites are called ‘Filacht Fiaadh’ by the peasantry meaning cooking places”.

Athenaeus quoting Posidonius also mentions the Celts in Europe cooking meat in water (TIERNEY 1960, 247): “Their food consists of a few loaves of bread, but large quantities of meat prepared in water or roasted over coals on spits”. This account mirrors the Irish one very well I feel. Last year in Biskupin in Poland (a substantial Iron Age lake dwelling reconstruction), I was demonstrating this particular technique amongst others, to the general public there. It is a very effective method of cooking any joint of meat. The basic principles for cooking meat in this way are the
dropping of red-hot stones into a water filled, wood lined trough. The size of the
meat joints that I used in my experimentation at Biskupin averaged 5 kilos each.
Each day we were plied with three such joints of beef or pork to cook, and on two
occasions a whole lamb was supplied. The stones my team and I found in the lo-
cality were fine-grained granite, similar to the ones that I had used previously in
Cornwall. These stones were heated in a fierce fire for about one hour until they
were red-hot. About a dozen were then dropped into the water trough and the en-
suing sizzle and whistling noise was quite deafening. It takes approximately 15 min-
utes for red-hot stones to release most of their heat into the water, consequently
the water gradually came to the boil as a pan might on a conventional cooker. The
meat was wrapped in long fresh wayside grasses, in the fashion described by
KEATING (1908) in his description from Irish folklore. These grasses had to be tied
tightly with string, on this occasion spun nettle fibre. Linen string is a good alter-
native but it tends to have not the elasticity of the nettle fibre, and on some occasi-
ons goes slack in the water. Once the water was boiling, the grass wrapped meat
was ready to drop into the trough. Every so often over the course of two hours hot
stones were added to the trough just to keep the water simmering. At the end of
this time the meat was taken out, and the grasses removed to reveal on each oc-
casion consistently well cooked meat. All that was required was to crisp up the
sides on some hot stones taken out of the fire, and it was ready to eat. The festival
at Biskupin, that I was demonstrating these techniques at, lasted 9 days, so my
team were also able to demonstrate how raw materials might have been utilised on
a daily basis. One member of my team made the bones of the previous day’s joints
into bone needles. The other two members made platters and serving baskets out
of local grasses, and sewed them together with the bone needles.
Another cooking technique that was demonstrated was the clay baking of fish.
There are some archaeological indications for the cooking of food in clay in stone
lined pits. At Wooley Barrows in North Cornwall an excavation was undertaken by
E. A. K. HIGGENBothAM (1976, 10) at a Neolithic long barrow and a Bronze Age
round barrow. The excavation of the long barrow exposed a large stone area ex-
tending up to 9 m from the edge of the mound. Resting upon this stone surface
was a small hearth, 0.6 m by 0.7 m, bounded by siltstone blocks, at the centre of
which the soil had been scorched to a light red colour. On top of this contempo-
rary stone surface were small fragments of amorphous, slightly burnt and redden-
de clay. These were suggested by E. A. K. Higgenbotham to be contemporary
with the Neolithic flint in the barrow.
Another example of these peculiar lightly fired clay fragments, can be found at an
excavation on Bodmin Moor at the Bronze Age cairns at Stannon. This area of
Bodmin Moor is rich in prehistoric monuments. Within two kilometres there are
three stone circles, innumerable hut circles and enclosures including a Bronze Age
settlement (HARRIS, HOOPER & TRUDGLAN 1984, 141). Cairn 1 exposed at its
centre a pit that had been dug into the subsoil to a depth of 35 cm. The pit was
round and 1 m in diameter. Its sides sloped to the bottom rather like a cauldron and
were lined with small stones. The bottom of the pit contained large carbonised
chunks of wood, which were reasonably preserved due to the wet conditions. This
pit had been back filled with soil and a flat stone had been placed on top. Around the edge of the carefully infilled pit eight stones were placed. These acted as supports for eight larger stones, which were placed leaning against them. This was repeated several times in what appeared to be a spiral pattern. Over this structure was piled a large number of small moorland stones. In cairn 2 there were two pits, one was long and rectangular, the other was a small round pit next to it. The rectangular pit had a soil infill and the small round one contained traces of charcoal. However, between these two pits was a piece of soft shapeless lightly fired clay. The third pit was a typical cairn burial containing a decorated biconical urn. This suggests that as only one cairn contained a burial, that the other two were in some way part of a ceremony connected with it. Especially cairn 1, which was so carefully covered by a flat stone supporting the petal-like structure of stones on top. It could be possible that some sort of “wake meal” at the burial was consumed. The small fragment of soft anomalous clay found between the two pits in cairn 2 suggests, that some food might have been baked in it, as it was not comparable to any typical ceramic find. One would have expected quite a considerable amount of this partly fired clay, if this were the case. It is impossible to suggest why there was only one piece, maybe the relations took home a piece of the clay from the “wake of the deceased”, as a momento of their farewell meal. This is pure conjecture, but plausible – I feel – as a hypothesis. Ceremonial earth ovens associated with funerals are well documented by anthropologists studying the Maori peoples of New Zealand and in Polynesia. In the Maori Whakau ceremony the oven was large enough to cook a meal for the entire funeral party. In other ceremonies, such as those connected with exhumation and the Tohi rite over children, a number of ovens were prepared to provide a meal for all present (BUCK 1974, 501). On Tikopia Island in Polynesia the earth oven was also used, and described as a pit in the ground in which food is cooked by being laid on hot stones and covered with leaves (FIRTH 1957, 94).

I have reconstructed the Stannon cairn 1-pit and found the cauldron shape had a spectacular effect on the ferocity of the fire within it. This being due to the smooth airflow in and out of the pit. When reconstructing this pit it became apparent that the stone lining in the pit was there for a specific purpose as the base for possible northern European earth oven. The fire can be lit directly on top of the stones in the pit to be clamped, a second hearth nearby can heat the other half of the stones needed for the top. During my experimentation I found that because of the fierce fire in the pit induced by the free flowing air, the stone lining in the pit became red-hot in half the usual time. A joint of meat wrapped in a few giant burdock leaves (Arctium minus) was placed onto the hot stones, after the un-burnt wood was taken out. The stones from the second hearth were added to the top and turf was layered on this to keep the heat in. After three hours the meat was taken out of the pit cooked to perfection and the original stone lining left intact for use on another occasion. This cairn pit – when reconstructed – proved to be a very efficient earth oven base that indicates it could have been used for culinary purposes.

An indication that food was clay baked in a settlement situation was found at Trethellan (NOWAKOWSKI 1991, 57 and 140), a Bronze Age lowland settlement.
In house 142 the description strongly suggests the remains of a clay baked meal: "The most significant feature about this hearth was the amount of burnt clay it produced, the only context within the entire settlement which produced burnt clay fragments in this quantity. Much of the clay was found as hard baked amorphous lumps, many of which displayed surfaces apparently smoothed and moulded by hand and through the careful piecing together of some fragments; it was discovered that some originally formed parts of a shallow clay dish ... also found in pit 3046 similar pieces of clay a deep red in colour. Very friable pieces of fired clay of which only two pieces join to form the edge of what appears to be the triangular rim of a larger flat based object."

This interpretation is quite plausible, but the triangular shaped pieces do not suggest a dish on closer inspection. During my research into the possible methods of clay baking foods I have found, that when a joint of meat is wrapped in river clay it is very difficult to carry it to the fire to dry before baking. If, however, a piece of wood is placed underneath it, it makes the task much simpler. This wooden plank enables one to move and turn the clay covered joint around the fire before baking. When the clay is dry, the joint is dropped on top of the fire and the wooden plank is burnt away during the cooking process. The clay at the end of the allotted cooking time – usually two hours for a 3 kilo joint – has to be broken apart. But it is always soft and friable because river clay was used. This clay is freely available in Cornwall as it borders most streams. It is not plastic enough to be used for pottery, but it is wholly adequate when it is used to clay bake food.

I conducted the same experiment at the Pile Dwelling Museum at Lake Ledro in Northern Italy. On this occasion I used the fine white lakeside clay to cover one fish, and some raku ceramic clay to cover the other. After an hour in a fierce open fire the two fish were examined. The raku clay, which is usually considered the best type of clay for bonfire firing ceramics, had cracked open and the fish had been exposed to the ferocity of the fire; there was little more than a charred fish skeleton remaining! The other fish covered in this otherwise useless white silty clay was still perfectly sealed. When it was cracked open a perfectly cooked succulent fish was revealed. It was interesting to find that the good ceramic clay was inadequate for the purpose, yet the clay conversely useless for ceramic manufacture was perfect for this specific task! It is because it is not of ceramic quality that its residue in archaeology is soft and friable and can be misinterpreted as daub. During my demonstrations in Poland, some river clay was smeared over a 3 kilo King Carp, which had been previously wrapped in wild herbs and tied with nettle fibre string. The fish was placed onto a split log and put to the side of a fire pit for one hour, then turned and dropped onto the fire for 1 hour and 30 minutes. At the end of this time the clay was broken off and the fish was cooked to perfection. The rough pieces of biscuit fired clay however, took on almost identical appearance to some of the clay fragments found at Trethellan.

A typical feature of prehistoric settlements in Cornwall are piles of small round pebbles, thought to be either for sling shot use or as pot boilers. I have conducted a great deal of research into the uses of these small stones in cooking, and have found them to be surprisingly efficient. A layer of small beach stones was arranged
on the ground and a fire was made on top of them. On this particular occasion I was researching possible soft cheese-making techniques using pot boilers. A large pot was placed on a low table a few metres away from the fire. Into this pot was poured one litre of whole milk, and a small bowl of sour cream to increase the acidity and help separate the curds and whey. With the use of a pair of hazel stick tongs, five stones were dropped into the milk. The stones do not tend to release their heat immediately, but after a few minutes the milk began to steam. More stones were added (three in all) and the milk began to boil. Almost immediately the curds separated from the whey, which were subsequently strained through some rushes (Juncus effusus), and the soft cheese remained. The practicability of using hot stones to heat the contents of cooking pots became immediately apparent. Especially if one has had some experience, as I have, of stirring pots of food over a smoky fire. Food can be prepared at some distance from the fire leaving a space for people to either warm themselves or spit-roast some meat. All that is needed to keep many different pots simmering, is the addition every so often of a few fire-stones. As the stones cooled in the pots they could be thrown back into the fire for re-heating. This technique was also used in Hawaii, but instead of dropping hot stones into a ceramic pot a calabash (which is a hollowed out gourd shell) was used as the container. Fish was thought to be delicious by the Hawaiian Islanders when cooked in a calabash with hot stones (WISE 1965, 99).

At Lake Ledro another interesting cooking technique was found in the archaeology. A loaf made from the flour of coarsely ground cereals was discovered looking like a large doughnut. It is suggested that the dough had been wrapped around a previously heated stone that was found at the site (TOMASI 1982).

The similarity of the ethnographic evidence to the remains found in northern European archaeology cannot be disregarded. The efficiency of the earth oven as a cooking technique must have occured to primitive cultures on a global scale – not only does the method leave the community free from work for four or five hours, it saves considerable amounts of fuel. The “Fulacht Fladh” – if the local geology is appropriate – also fulfilled a need as a successful method of cooking food for hunting expeditions – the number of such sites in Ireland substantiates this. The use of pot boilers from my own experience is a far superior method to cooking liquids in pots on the edge of a smoky fire, also leaving the fireside free for the community to warm themselves.

Conclusion

Although this paper mentions various quotations from Roman texts about Celtic European practices it is not inconceivable to assume that these practices were not carried out from Neolithic times. There is archaeological evidence for the use of pot boilers and stones in fire pits – also the remains of soft friable clay pieces – at Neolithic barrow sites, that indicate that food could have been clay baked during funeral ritualistic practices. It is also essential as I mentioned at the beginning of this paper to understand our past and demonstrate all aspects of food tech
nology when attempting to interpret the day to day life on any period of prehistory and history. Food is the pivot that must be central to any society, no matter how primitive or sophisticated. Therefore, the cooking, preparation and storage of this commodity are vital if one is to interpret the European Neolithic.

References

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