Neolithic Adaption to Europe’s Environment

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The Neolithic Package refers to a collection of technological and cultural characteristics that originated in the Near East roughly 10,000 BCE, later spreading throughout Afro-Eurasia. Most commonly associated with plant/animal domestication, polished stone axes, and sedentary living, it swept into Europe circa 7000 BCE, changing the continent forever. Nevertheless, it didn’t emerge into a vacuum. Prior the Neolithic’s arrival, Europe was an environmentally diverse landscape, peopled by a high number of sophisticated hunter-gatherer societies.\footnote{Alasdair Whittle, “The First Farmers,” in \textit{The Oxford Illustrated History of Prehistoric Europe}, ed. Barry Cunliffe (Oxford: Oxford University Press, 1994), 137.} These were not people whose lives were nasty or brutish, as Hobbes believed. Indeed, most archaeologists are now in agreement that sedentism is not a lifestyle exclusive to agriculturalists. More importantly, while it spread through both migration and acculturation, the Neolithic Package was not always adopted in full. Instead, populations took what elements they found useful and adapted them to their contemporary environments, while abandoning those that were impractical. Some groups may have disregarded agriculture in favour of wild resources, while others combined foraging/hunting with domestication. This worked because in general hunter-gatherer and agricultural groups favoured different areas: hunter-gatherers preferred estuaries, lakesides, and coasts, while agriculturalists liked open prairie, floodplains, and loess soils.\footnote{Jane McIntosh, \textit{Handbook to Life in Prehistoric Europe} (New York: Facts on File, Inc., 2006), 30-31.} To show how these adaptations worked, I will be looking at two large geographic areas in Europe. First, I will focus on southern Europe,
especially the Mediterranean coast and the Balkans. Afterwards, I will move on to the northern European coast, including the British Isles and Scandinavia.

When migrant farmers first arrive in southern Greece, they found the landscape was not ideal for the cultivation of cereals due to its mountainous nature; luckily, they did not require much land due to their small population size, living in compact valley settlements.\(^3\) However, it was not only through migration that agriculture spread throughout Greece. Franchthi Cave on the Peloponnesian Peninsula was an extensive Mesolithic settlement whose inhabitation was not interrupted by the transfer into the Neolithic. We know this due to the continuation of lithic technology through this time, and in all likelihood the inhabitants adopted small-scale husbandry to supplement the wild pistachios, almonds, and legumes they collected.\(^4\) This rapid adoption of cereals correlated with the expansion of the population outside of the cave.\(^5\)

Farther north on the alluvial plains of Thessaly, elevated tell settlements were built to protect the communities from flooding.\(^6\) This wet and forested landscape was not well-suited to raising caprines, reducing herd size and increasing reliance on other food sources.\(^7\) Climatically, however, these lands were quite similar to those of Anatolia. The

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\(^6\) Barker, The Agricultural Revolution in Prehistory, 348.

\(^7\) Ibid., 348.
same could not be said for the rest of the Balkans, which were dominated by a colder continental climate. Due to this, the winter-hardy and fungi-resistant spelt wheat became increasingly important the farther north one headed.⁸ So, it would have been an important crop for the settlements in the Maritsa Valley in Bulgaria, which were spaced a few kilometres apart so each could take advantage of the different types of local soil.⁹ As in modern gardening, different crops grow best in different soils. It’s also likely that they found that certain soils were best reserved for pasture.

A short distance to the northeast, settlements of the Karanovo I culture based their economy around cereal cultivation and transhumance, with herds moving between upland summer pastures and lowland villages.¹⁰ Interestingly, while in the upland pastures the herders extensively hunted red deer.¹¹ Perhaps there is already a labour division in the Mesolithic between upland hunters and lowland foragers, with these roles being modified by the appearance of domesticates. On the southern Hungarian Plain, a similar situation evolved (if geographically reversed). Here, strings of settlements formed alongside floodplains, creating terraced gardens above while turning the floodplain into pasture.¹² At Starcevo in Serbia, inhabitants relied heavily on wild resources like geese,

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⁹ Whittle, “The First Farmers,” 140.
¹¹ Ibid., 103.
¹² Whittle, “The First Farmers,” 140.
fish, beech nuts, and acorns alongside domesticates like einkorn, millet, goats, and sheep; this could be because their caprines were smaller than those found in Greece.\textsuperscript{13}

Along the Croatian coast, karstic wetlands presented a unique difficulty to Neolithic inhabitants due to their year-round nature.\textsuperscript{14} For them, subsistence was based on seasonally available wild resources (especially European eel) and large cattle herds.\textsuperscript{15} Agriculture remained a minor part of the economy until roughly 4550 BCE, when rapidly lowering lake levels exposed soil perfect for farming.\textsuperscript{16} However, even after this change agriculture remained secondary to herding due to access to year-round pastures.\textsuperscript{17}

From the Balkans the Neolithic Package spread extremely quickly across the Mediterranean, reaching Sicily by 6000 BCE. Here, it was quickly picked up by indigenous foragers, who incorporated it into their existing brushland economy and became pastoralist hunters.\textsuperscript{18} On the plains of northern Puglia, ditched farming villages were formed by either migrants or natives on land that was little-used in foraging.\textsuperscript{19} Far to the north in northern Umbria, Mesolithic foragers adopted agriculture in a way that meshed well with their semi-nomadic lifestyle, planting the gardens of legumes and

\begin{thebibliography}{99}
\bibitem{Cunliffe2005} Cunliffe, \textit{Europe between the Oceans}, 104.
\bibitem{Balbo2016a} Ibid., 8-10.
\bibitem{Balbo2016b} Ibid., 10.
\bibitem{Balbo2016c} Ibid., 11.
\bibitem{Cunliffe2005a} Cunliffe, \textit{Europe between the Oceans}, 117-118.
\bibitem{Barker2005} Barker, \textit{The Agricultural Revolution in Prehistory}, 349.
\end{thebibliography}
cereals and returning to them for harvest.\textsuperscript{20} Alongside such imported staples many Mediterranean societies started cultivating the native chickpeas and fava beans that had long been gathered from the wild.\textsuperscript{21} This suggests domestication by native groups; they took what they learned about seed-growth and applied it to native plants they were extensively invested in.

A similar situation is found with cabbage. Native to the European North Atlantic, it was gathered by Mesolithic inhabitants only to later be domesticated and spread across Europe.\textsuperscript{22} Its salt-tolerance made it a useful crop for those farmers living in saline environments that limited the growth of cereals, such as the coastlines of the British Isles. Here the Neolithic Package spread rapidly: having the introduced around 4100 BCE, by 3800 BCE most of the British Isles had undergone neolithization.\textsuperscript{23} Shortly after the latter date a sophisticated field system had been developed in Ireland, with rectangular, stone-walled fields divided between pasture and garden.\textsuperscript{24} However, in most of Great Britain domesticates were associated with causewayed enclosures use for rituals and feasting.\textsuperscript{25} Many British Neolithic sites turn up large amounts of hazelnut

\begin{thebibliography}{99}
\bibitem{20} Ibid., 350-351.
\bibitem{21} McIntosh, \textit{Handbook to Life in Prehistoric Europe}, 104.
\bibitem{22} Ibid., 104-105.
\bibitem{23} Cunliffe, \textit{Europe between the Oceans}, 137.
\bibitem{25} Barker, \textit{The Agricultural Revolution in Prehistory}, 374-375.
\end{thebibliography}
shells and wild fruit remnants. It is likely that domesticates were primarily reserved for prestige events rather than basic subsistence, as seen in northern Scotland, where most farm plots were small-scale. After all, prior to the Bronze Age Britain was heavily forested, making a gatherer-based diet an easy choice.

The Northern Isles and Outer Hebrides were an exception, with little to no forests/woodland even prior to the Bronze Age. Here, farmers utilize domestic refuse and charcoal to supplement the organic-poor soil. Intriguingly, at many sites cultivation happened on top of refuse middens, with the resulting fields ranging from 20 m² to 500 m². It was not just their own trash they used, as farmers planted crops on top of middens left behind by earlier hunter-gatherers, reworking them into arable land. This explains why farmers may have settled on Mesolithic coastal sites despite having a mostly terrestrial diet.

Prior to the modern period, the North Sea was among the most productive marine environments in the world due to nutrient-rich waters coming from the Polar Sea. Thus, it shouldn’t be a surprise that many of the coastal communities in the area remained marine-focused foragers despite farmers settling the loess soils to the

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28 Guttmann, “Midden Cultivation in Prehistoric Britain,” 231.
29 Ibid., 232-233.
30 Ibid., 234.
31 Ibid., 234-235.
immediate south around 5100 BCE; most didn’t adopt agriculture until 3900 BCE.\textsuperscript{33} However, they did adopt other aspects as seen with the Ertebølle culture. These sedentary marine-specialists of south Scandinavia adopted polished axes and pottery, but not agriculture, from farmers.\textsuperscript{34} Their marine-based economy was so stable and plentiful there was probably a reluctance to embrace a monotonous agricultural lifestyle. Ertebølle societies maintained a balanced reciprocity with farmers, trading furs and amber for domesticates and polished stone.\textsuperscript{35} This presented another reason to remain foragers: trade relatively easily-obtained goods to continental farmers for prestige items. Nevertheless, when they did transition to farming it was extremely rapid; some populations remained on the coast while others moved to inland lake and river sites.\textsuperscript{36}

Being introduced to the Neolithic Package around the same time were the peoples of the eastern Baltic Sea, who adopted almost all parts of the Package except for domestication.\textsuperscript{37} This could be because from 5500 BCE forests became increasingly dense from warmer weather, leading to decreased permeability.\textsuperscript{38} This may have also resulted in more difficult terrain for farmers. It wasn’t until 2800 BCE that domesticates

\begin{thebibliography}{9}
\bibitem{33} Cunliffe, \textit{Europe between the Oceans}, 125.
\bibitem{34} Ibid., 125.
\bibitem{35} Barker, \textit{The Agricultural Revolution in Prehistory}, 366.
\bibitem{36} Cunliffe, \textit{Europe between the Oceans}, 125-126.
\bibitem{37} Milisauskas and Kruk, “Middle Neolithic, Continuity, Diversity, Innovations, and Greater Complexity,” 198.
\bibitem{38} McIntosh, \textit{Handbook to Life in Prehistoric Europe}, 37-38.
\end{thebibliography}
first appeared to be grown in the eastern Baltic, with hemp, millet, and emmer wheat showing up in some quantities at this time.\textsuperscript{39}

According to Jane Mcintosh, “farming communities were for millennia the minority in most of Europe, and in some areas, especially Atlantic regions and the north, hunting and gathering remain the preferred way of life.”\textsuperscript{40} Nevertheless, even in those areas where farming was adopted it was generally meshed into a pre-existing economy adapted to the local environment. Some peoples, like those of coastal Croatia, became pastoralist foragers, while others like the inhabitants of the Hebrides became intensive horticulturalists. However, when societies did decide to adopt agriculture they did so quickly, exhibiting a remarkable ability to comprehend and internalize new information. This shows that the idea of Mesolithic peoples being ignorant savages is laughable at best.

\textsuperscript{39} Milisauskas and Kruk, “Middle Neolithic, Continuity, Diversity, Innovations, and Greater Complexity,” 199.
\textsuperscript{40} Mcintosh, \textit{Handbook to Life in Prehistoric Europe}, 41.
Bibliography


Stable isotope analysis, as a proxy for diet and environment, is used to great effect by Zavodny et al. to explore the separate trajectories of species-specific animal management strategies in the Neolithic of south-east Europe. They focus on stable isotope analysis of bone collagen from early domestic sheep, goat, cattle and pig from five open-air village sites spanning most of the Neolithic period in Dalmatia, Croatia (6000–4700 cal BC). Zavodny, Mesolithic adaptations. The Neolithic Period. The adoption of farming. The late Neolithic Period. Agricultural intensification. Social change. The economic environment. Innovation and development. Early capitalism. Farming extended from central to northern Europe only after a long interval. For a millennium, agriculturalists and hunter-gatherers were in contact and pottery was adopted or exchanged, but domesticated animals and crops were only introduced into northern Germany, Poland, and southern Scandinavia about 4200 BCE, apparently after a decline in the availability of marine food resources. The dam is breaking. Just in at bioRxiv: Abstract: Ancient DNA studies have established that European Neolithic populations were descended from Anatolian migrants who received a limited amount of admixture from resident hunter-gatherers. Many open questions remain, however, about the spatial and temporal dynamics of population interactions and admixture during the Neolithic period. Using the highest-resolution genome-wide ancient DNA dataset assembled to date—a total of 177 samples, 127 newly reported here, from the Neolithic and Chalcolithic of Hungary (6000-2900 BCE, n = 98), Germany (550