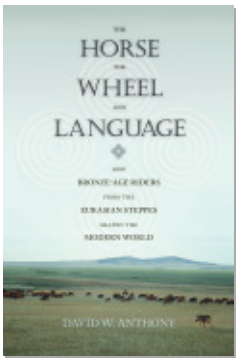
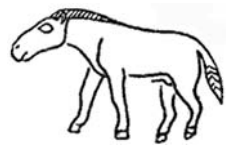
The Horse, the Wheel, and Language

David W. Anthony



Published by Princeton University Press

Chapter Eight



First Farmers and Herders
The Pontic-Caspian Neolithic

At the beginning of time there were two brothers, twins, one named Man (**Manu*, in Proto-Indo-European) and the other Twin (**Yemo*). They traveled through the cosmos accompanied by a great cow. Eventually Man and Twin decided to create the world we now inhabit. To do this, Man had to sacrifice Twin (or, in some versions, the cow). From the parts of this sacrificed body, with the help of the sky gods (*Sky Father, Storm God of War, Divine Twins*), Man made the wind, the sun, the moon, the sea, earth, fire, and finally all the various kinds of people. Man became the first priest, the creator of the ritual of sacrifice that was the root of world order.

After the world was made, the sky-gods gave cattle to "Third man" (**Trito*). But the cattle were treacherously stolen by a three-headed, six-eyed serpent (**Ng^{w}hi*, the Proto-Indo-European root for *negation*). Third man entreated the storm god to help get the cattle back. Together they went to the cave (or mountain) of the monster, killed it (or the storm god killed it alone), and freed the cattle. **Trito* became the first warrior. He recovered the wealth of the people, and his gift of cattle to the priests insured that the sky gods received their share in the rising smoke of sacrificial fires. This insured that the cycle of giving between gods and humans continued.[1]

These two myths were fundamental to the Proto-Indo-European system of religious belief. **Manu* and **Yemo* are reflected in creation myths preserved in many Indo-European branches, where **Yemo* appears as Indic *Yama*, Avestan *Yima*, Norse *Ymir*, and perhaps Roman *Remus* (from **iemus*, the archaic Italic form of **yemo*, meaning "twin"); and Man appears as Old Indic *Manu* or Germanic *Mannus*, paired with his twin to create the world. The deeds of **Trito* have been analyzed at length by Bruce Lincoln, who found the same basic story of the hero who recovered primordial lost cattle from a three-headed monster in Indic, Iranian, Hittite, Norse, Roman and Greek myths. The myth of Man and Twin established the importance of

the sacrifice and the priest who regulated it. The myth of the "Third one" defined the role of the warrior, who obtained animals for the people and the gods. Many other themes are also reflected in these two stories: the Indo-European fascination with binary doublings combined with triplets, two's and three's, which reappeared again and again, even in the metric structure of Indo-European poetry; the theme of pairs who represented magical and legal power (Twin and Man, Varuna-Mitra, Odin-Tyr); and the partition of society and the cosmos between three great functions or roles: the priest (in both his magical and legal aspects), the warrior (the Third Man), and the herder/cultivator (the cow or cattle).[2]

For the speakers of Proto-Indo-European, domesticated cattle were basic symbols of the generosity of the gods and the productivity of the earth. Humans were created from a piece of the primordial cow. The ritual duties that defined "proper" behavior revolved around the value, both moral and economic, of cattle. Proto-Indo-European mythology was, at its core, the worldview of a male-centered, cattle-raising people—not necessarily cattle nomads but certainly people who held sons and cattle in the highest esteem. Why were cattle (and sons) so important?

Domesticated Animals and Pontic-Caspian Ecology

Until about 5200–5000 BCE most of the people who lived in the steppes north of the Black and Caspian Seas possessed no domesticated animals at all. They depended instead on gathering nuts and wild plants, fishing, and hunting wild animals; in other words, they were foragers. But the environment they were able to exploit profitably was only a small fraction of the total steppe environment. The archaeological remains of their camps are found almost entirely in river valleys. Riverine gallery forests provided shelter, shade, firewood, building materials, deer, aurochs (European wild cattle), and wild boar. Fish supplied an important part of the diet. Wider river valleys like the Dnieper or Don had substantial gallery forests, kilometers wide; smaller rivers had only scattered groves. The wide grassy plateaus between the river valleys, the great majority of the steppe environment, were forbidding places occupied only by wild equids and saiga antelope. The foragers were able to hunt the wild equids, including horses. The wild horses of the steppes were stout-legged, barrel-chested, stiff-maned animals that probably looked very much like modern Przewalski horses, the only truly wild horses left in the world.[3] The most efficient hunting method would have been to ambush horse bands in a ravine, and the easiest opportunity would have been when they came into the river

valleys to drink or to find shelter. In the steppe regions, where wild horses were most numerous, wild equid hunting was common. Often it supplied most of the foragers' terrestrial meat diet.

The Pontic-Caspian steppes are at the western end of a continuous steppe belt which rolls east all the way to Mongolia. It is possible, if one is so inclined, to walk, 5,000 km from the Danube delta across the center of the Eurasian continent to Mongolia without ever leaving the steppes. But a person on foot in the Eurasian steppes feels very small. Every footfall raises the scent of crushed sage, and a puff of tiny white grasshoppers skips ahead of your boot. Although the flowers that grow among the fescue and feathergrass (*Festuca* and *Stipa*) make a wonderful boiled tea, the grass is inedible, and outside the forested river valleys there is not much else to eat. The summer temperature frequently rises to 110–120˚F (43–49˚C), although it is a dry heat and usually there is a breeze, so it is surprisingly tolerable. Winter, however, kills quickly. The howling, snowy winds drive temperatures below –35˚F (–37˚C). The bitter cold of steppe winters (think North Dakota) is the most serious limiting factor for humans and animals, more restricting even than water, since there are shallow lakes in most parts of the Eurasian steppes.

The dominant mammal of the interior steppes at the time our account begins was the wild horse, *Equus caballus*. In the moister, lusher western steppes of Ukraine, north of the Black Sea (the North Pontic steppes), there was another, smaller equid that ranged into the lower Danube valley and down to central Anatolia, *Equus hydruntinus*, the last one hunted to extinction between 4000 and 3000 BCE. In the drier, more arid steppes of the Caspian Depression was a third ass-like, long-eared equid, the onager, *Equus hemionus*, now endangered in the wild. Onagers then lived in Mesopotamia, Anatolia, Iran, and in the Caspian Depression. Pontic-Caspian foragers hunted all three.

The Caspian Depression was itself a sign of another important aspect of the Pontic-Caspian environment: its instability. The Black and Caspian Seas were not placid and unchanging. Between about 14,000 and 12,000 BCE the warming climate that ended the last Ice Age melted the northern glaciers and the permafrost, releasing their combined meltwater in a torrential surge that flowed south into the Caspian basin. The late Ice-Age Caspian ballooned into a vast interior sea designated the Khvalynian Sea. For two thousand years the northern shoreline stood near Saratov on the middle Volga and Orenburg on the Ural River, restricting east-west movement south of the Ural Mountains. The Khvalynian Sea separated the already noticeably different late-glacial forager cultures that prospered east

and west of the Ural Mountains.[4] Around 11,000–9,000 BCE the water finally rose high enough to overflow catastrophically through a southwestern outlet, the Manych Depression north of the North Caucasus Mountains, and a violent flood poured into the Black Sea, which was then well below the world ocean level. The Black Sea basin filled up until it overflowed, also through a southwestern outlet, the narrow Bosporus valley, and finally poured into the Aegean. By 8000 BCE the Black Sea, now about the size of California and seven thousand feet deep, was in equilibrium with the Aegean and the world ocean. The Caspian had fallen back into its own basin and remained isolated thereafter. The Black Sea became the Pontus Euxeinos of the Greeks, from which we derive the term *Pontic* for the Black Sea region in general. The North Caspian Depression, once the bottom of the northern end of the Khvalynian Sea, was left an enormous flat plain of salty clays, incongruous beds of sea shells, and sands, dotted with brackish lakes and covered with dry steppes that graded into red sand deserts (the Ryn Peski) just north of the Caspian Sea. Herds of saiga antelopes, onagers, and horses were hunted across these saline plains by small bands of post-glacial Mesolithic and Neolithic hunters. But, by the time the sea receded, they had become very different culturally and probably linguistically on the eastern and western sides of the Ural-Caspian frontier. When domesticated cattle were accepted by societies west of the Urals, they were rejected by those east of the Urals, who remained foragers for thousands of years.[5]

Domesticated cattle and sheep started a revolutionary change in how humans exploited the Pontic-Caspian steppe environment. Because cattle and sheep were cultured, like humans, they were part of everyday work and worry in a way never approached by wild animals. Humans identified with their cattle and sheep, wrote poetry about them, and used them as a currency in marriage gifts, debt payments, and the calculation of social status. And they were grass processors. They converted plains of grass, useless and even hostile to humans, into wool, felt, clothing, tents, milk, yogurt, cheese, meat, marrow, and bone—the foundation of both life and wealth. Cattle and sheep herds can grow rapidly with a little luck. Vulnerable to bad weather and theft, they can also decline rapidly. Herding was a volatile, boom-bust economy, and required a flexible, opportunistic social organization.

Because cattle and sheep are easily stolen, unlike grain crops, cattle-raising people tend to have problems with thieves, leading to conflict and warfare. Under these circumstances brothers tend to stay close together. In Africa, among Bantu-speaking tribes, the spread of cattle raising seems to have

led to the loss of matrilineal social organizations and the spread of male-centered patrilineal kinship systems.[6] Stockbreeding also created entirely new kinds of political power and prestige by making possible elaborate public sacrifices and gifts of animals. The connection between animals, brothers, and power was the foundation on which new forms of male-centered ritual and politics developed among Indo-European-speaking societies. That is why the cow (and brothers) occupied such a central place in Indo-European myths relating to how the world began.

So where did the cattle come from? When did the people living in the Pontic-Caspian steppes begin to keep and care for herds of dappled cows?

The First Farmer-Forager Frontier in the Pontic-Caspian Region

The first cattle herders in the Pontic-Caspian region arrived about 5800–5700 BCE from the Danube valley, and they probably spoke languages unrelated to Proto-Indo-European. They were the leading edge of a broad movement of farming people that began around 6200 BCE when pioneers from Greece and Macedonia plunged north into the temperate forests of the Balkans and the Carpathian Basin (figure 8.1). Domesticated sheep and cattle had been imported from Anatolia to Greece by their ancestors centuries before, and now were herded northward into forested southeastern Europe. Genetic research has shown that the cattle did interbreed with the native European aurochs, the huge wild cattle of Europe, but only the male calves (traced on the Y chromosome) of aurochs were kept, perhaps because they could improve the herd's size or resistance to disease without affecting milk yields. The cows, probably already kept for their milk, all were descended from mothers that had come from Anatolia (traced through MtDNA). Wild aurochs cows probably were relatively poor milk producers and might have been temperamentally difficult to milk, so Neolithic European farmers made sure that all their cows were born of long-domesticated mothers, but they did not mind a little cross-breeding with native wild bulls to obtain larger domestic bulls.[7]

Comparative studies of chain migration among recent and historical pioneer farmers suggest that, in the beginning, the farming-and-herding groups that first moved into temperate southeastern Europe probably spoke similar dialects and recognized one another as cultural cousins. The thin native population of foragers was certainly seen as culturally and linguistically Other, regardless of how the two cultures interacted.[8] After an initial rapid burst of exploration (sites at Anzabegovo, Karanovo

Figure 8.1 The migrations of pioneer farmers into Greece and across Europe between 6500 and 5500 BCE, including the colonization of the eastern Carpathian piedmont by the Criş culture.

I, Gura Baciului, Cirçea) pioneer groups became established in the Middle Danube plains north of Belgrade, where the type site of Starčevo and other similar Neolithic settlements are located. This central Danubian lowland produced two streams of migrants that leapfrogged in one direction down the Danube, into Romania and Bulgaria, and in the other up the Mureş and Körös Rivers into Transylvania. Both migration streams created similar pottery and tool types, assigned today to the Criş culture (figure 8.2).[9]

First Farmers in the Pontic Region: The Criş Culture

The names Criş in Romania and Körös in eastern Hungary are two variants of the same river name and the same prehistoric culture. The northern Criş people moved up the Hungarian rivers into the mountains of Transylvania and then pushed over the top of the Carpathian ridges into

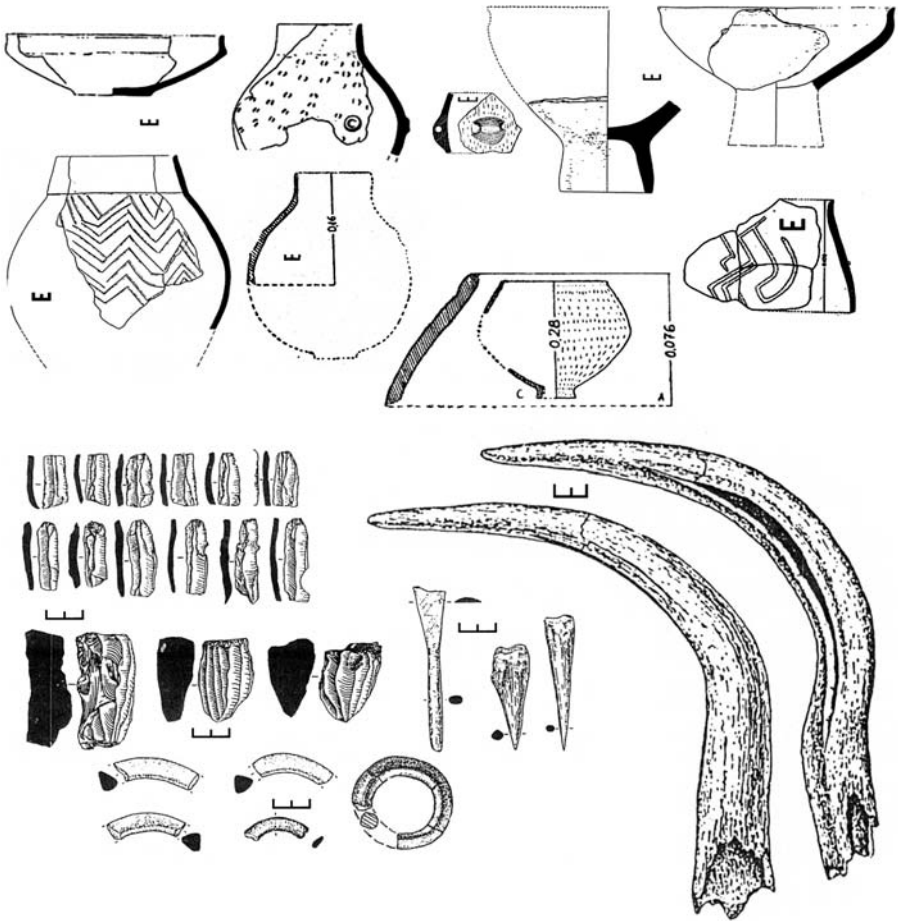


Figure 8.2 Criş-culture ceramic shapes and decorative motifs (*top half*), flint blades and cores (*left*), antler and bone tools (*right*), and ceramic rings (*bottom*) dated 5700–5300 BCE. After Dergachev 1999; and Ursulescu 1984.

an ecologically rich and productive piedmont region east of the Carpathians. They herded their cattle and sheep down the eastern slopes into the upper valleys of the Seret and Prut rivers about 5800–5700 BCE. (Criş radiocarbon dates are unaffected by reservoir effects because they were not measured on human bone; see table 8.1.) The other migration stream in the lower Danube valley moved into the same eastern Carpathian piedmont from the south. These two groups created a northern and a southern variant of the East Carpathian Criş culture, which survived from about 5800 to about 5300 BCE. Criş farms in the East Carpathian piedmont

Table 8.1
Radiocarbon Dates for the Late Mesolithic and Early Neolithic of the Pontic–Caspian Region.

Lab Number	*BP Date*	*Sample*	*Calibrated Date*
1. Criş Culture Farming Settlements			
Trestiana (Romania), phase III of the Criş culture			
GrN-17003	6665±45	Charcoal	5640–5530 BCE
Cârcea–Viaduct (Romania), phase IV of the Criş culture			
Bln-1981	6540±60	?	5610–5390 BCE
Bln-1982	6530±60	?	5610–5380 BCE
Bln-1983	6395±60	?	5470–5310 BCE
2. Linear Pottery (LBK) Farming Settlements			
Tirpeşti, Siret River, (Romania)			
Bln-800	6170±100	?	5260–4960 BCE
Bln-801	6245±100	?	5320–5060 BCE
3. Bug–Dniester Mesolithic–Neolithic Settlements			
Soroki II, level 1 early Bug–Dniester, Dniester valley			
Bln-586	6825±150	?	5870–5560 BCE
Soroki II, level 2 pre-ceramic Bug–Dniester, Dniester valley			
Bln-587	7420±80	?	6400–6210 BCE
Savran settlement, late Bug–Dniester, Dniester valley			
Ki-6654	6985±60	?	5980–5790 BCE
Bazkov Ostrov settlement, with early ceramics, South Bug valley			
Ki-6651	7235±60	?	6210–6010 BCE
Ki-6696	7215±55	?	6200–6000 BCE
Ki-6652	7160±55	?	6160–5920 BCE
Sokolets II settlement, with early ceramics, South Bug valley			
Ki-6697	7470±60	?	6400–6250 BCE
Ki-6698	7405±55	?	6390–6210 BCE
4. Early Neolithic Elshanka-type Settlements, Middle Volga Region			
Chekalino 4, Sok River, Samara oblast			
Le-4781	8990±100	shell	8290–7960 BCE

Table 8.1 (*continued*)

Lab Number	*BP Date*	*Sample*	*Calibrated Date*
GrN-7085	8680±120	shell	7940–7580 BCE
Le-4783	8050±120	shell	7300–6700 BCE
Le-4782	8000±120	shell	7080–6690 BCE
GrN-7086	7950±130	shell	7050–6680 BCE
Le-4784	7940±140	shell	7050–6680 BCE
Chekalino 6, Sok River, Samara oblast			
Le-4883	7940±140	shell	7050–6650 BCE
Ivanovka, upper Samara River, Orenburg oblast			
Le-2343	8020±90	bone	7080–6770 BCE
5. Steppe Early Neolithic Settlements			
Matveev Kurgan I, very primitive ceramics, Azov steppes			
GrN-7199	7505±210	charcoal	6570–6080 BCE
Le-1217	7180±70	charcoal	6160–5920 BCE
Matveev Kurgan II, same material culture, Azov steppes			
Le-882	5400±200	charcoal	4450–3980 BCE
Varfolomievka, Layer 3 (bottom ceramic layer), North Caspian steppes			
GIN-6546	6980±200	charcoal	6030–5660 BCE
Kair-Shak III, North Caspian steppes			
GIN-5905	6950±190	?	6000–5660 BCE
GIN 5927	6720±80	?	5720–5550 BCE
Rakushechni Yar, lower Don shell midden, layers 14–15			
Ki-6479	6925±110	?	5970–5710 BCE
Ki-6478	6930±100	?	5970–5610 BCE
Ki-6480	7040±100	?	6010–5800 BCE
Surskii Island, Dnieper Rapids forager settlement			
Ki-6688	6980±65	?	5980–5780 BCE
Ki-6989	7125±60	?	6160–5910 BCE
Ki-6690	7195±55	?	6160–5990 BCE
Ki-6691	7245±60	?	6210–6020 BCE

were the source of the first domesticated cattle in the North Pontic region. The Criş pioneers moved eastward through the forest-steppe zone in the piedmont northwest of the Black Sea, where rainfall agriculture was possible, avoiding the lowland steppes on the coast and the lower courses of the rivers that ran through them into the sea.

Archaeologists have identified at least thirty Criş settlement sites in the East Carpathian piedmont, a region of forests interspersed with natural meadows cut by deep, twisting river valleys (figure 8.3). Most Criş farming hamlets were built on the second terraces of rivers, overlooking the floodplain; some were located on steep-sided promontories above the floodplain (Suceava); and a few farms were located on the high forested ridges between the rivers (Sakarovka I). Houses were one room, built with timber posts and beams, plaster-on-wattle walls, and probably reed-thatched roofs. Larger homes, sometimes oval in outline, were built over dug-out floors and contained a kitchen with a domed clay oven; lighter, smaller structures were built on the surface with an open fire in the center. Most villages consisted of just a few families living in perhaps three to ten smoky thatched pit-dwellings, surrounded by agricultural fields, gardens, plum orchards, and pastures for the animals. No Criş cemeteries are known. We do not know what they did with their dead. We do know, however, that they still prized and wore white shell bracelets made from imported *Spondylus*, an Aegean species that was first made into bracelets by the original pioneers in Early Neolithic Greece.[10]

Criş families cultivated barley, millet, peas, and four varieties of wheat (emmer, einkorn, spelt, and bread wheats). Wheat and peas were not native to southeastern Europe; they were exotics, domesticated in the Near East, carried into Greece by sea-borne immigrant farmers, and propagated through Europe from Greece. Residues inside pots suggest that grains were often eaten in the form of a soup thickened with flour. Charred fragments of Neolithic bread from Germany and Switzerland suggest that wheat flour was also made into a batter that was fried or baked, or the grains were moistened and pressed into small whole-grain baked loaves. Criş harvesting sickles used a curved red deer antler inset with flint blades 5–10 cm long, angled so that their corners formed teeth. Their working corners show "sickle gloss" from cutting grain. The same type of sickle and flint blade is found in all the Early Neolithic farming settlements of the Danube-Balkans-Carpathians. Most of the meat in the East Carpathian Criş diet was from cattle and pigs, with red deer a close third, followed by sheep—a distribution of species reflecting their largely forested environment. Their small-breed cows and pigs were slightly different from the

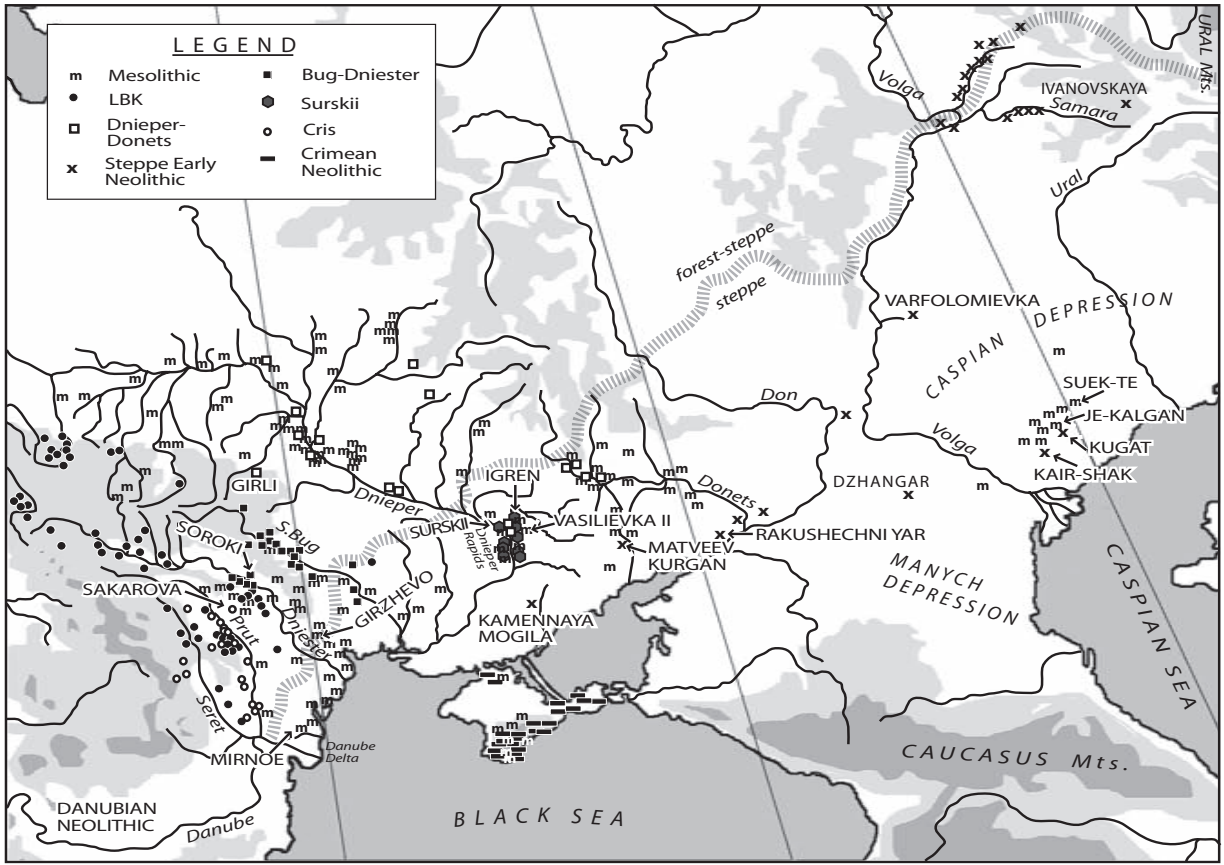


Figure 8.3 Mesolithic and Neolithic sites from the Carpathian Mountains to the Ural River.

local wild aurochs or wild boar but not markedly so. The sheep, however, were exotic newcomers, an invasive species like wheat and peas, brought into the steep Carpathian valleys by strange people whose voices made a new kind of sound.[11]

Criş ceramic vessels were hand-made by the coiling method, and included plain pots for cooking and storage, and a variety of fine wares with polished reddish-brown surfaces—tureens, bowls, and cups on pedestals (figure 8.2). Decorative designs were incised with a stick on the clay surface before firing or were impressed with a fingernail. Very rarely they were painted in broad brown stripes. The shapes and designs made by Criş settlers in the East Carpathians were characteristic of periods III and IV of the Criş culture; older sites of stages I and II are found only in eastern Hungary, the Danube valley, and Transylvania.

Criş farmers never penetrated east of the Prut-Dniester watershed. In the Dniester valley they came face-to-face with a dense population of local foragers, known today as the Bug-Dniester culture, named after the two river valleys (Dniester and South Bug) where most of their sites are found. The Bug-Dniester culture was the filter through which farming and stock-breeding economies were introduced to Pontic-Caspian societies farther east (figure 8.3).

The Criş people were different from their Bug-Dniester neighbors in many ways: Criş flint tool kits featured large blades and few scrapers, whereas the foragers used microlithic blades and many scrapers; most Criş villages were on the better-drained soils of the second terrace, convenient for farming, and most foragers lived on the floodplain, convenient for fishing; whereas Criş woodworkers used polished stone axes, the foragers used chipped flint axes; Criş pottery was distinct both in the way it was made and its style of decoration; and Criş farmers raised and ate various exotic foods, including mutton, which has a distinctive taste. Four forged cylindrical copper beads were found at the Criş site of Selishte, dated 5800–5600 BCE (6830±100 BP).[12] They show an early awareness of the metallic minerals in the mountains of Transylvania (copper, silver, gold) and the Balkans (copper), something the foragers of southeastern Europe had never noticed.

Some archaeologists have speculated that the East Carpathian Criş culture could have been an acculturated population of local foragers who had adopted a farming economy, rather than immigrant pioneers.[13] This is unlikely given the numerous similarities between the material culture and economy of Criş sites in the Danube valley and the East Carpathians, and the sharp differences between the East Carpathian Criş culture and the

local foragers. But it really is of no consequence—no one seriously believes that the East Carpathian Criş people were *genetically* "pure" anyway. The important point is that the people who lived in Criş villages in the East Carpathians were *culturally* Criş in almost all the material signs of their identity, and given how they got there, almost certainly in nonmaterial signs like language as well. The Criş *culture* came, without any doubt, from the Danube valley.

The Language of the Criş Culture

If the Starcevo–Criş–Karanovo migrants were at all similar to pioneer farmers in North America, Brazil, southeast Asia, and other parts of the world, it is very likely that they retained the language spoken in their parent villages in northern Greece. Forager languages were more apt to decline in the face of agricultural immigration. Farmers had a higher birth rate; their settlements were larger, and were occupied permanently. They produced food surpluses that were easier to store over the winter. Owning and feeding "cultured" animals has always been seen as an utterly different ethos from hunting wild ones, as Ian Hodder emphasized. The material and ritual culture and economy of the immigrant farmers were imposed on the landscapes of Greece and southeastern Europe and persisted there, whereas the external signs of forager identity disappeared. The language of the foragers might have had substrate effects on that of the farmers, but it is difficult to imagine a plausible scenario under which it could have competed with the farmers' language.[14]

What languages were spoken by Starčevo, Criş, and Karanovo I pioneers? The parent language for all of them was spoken in the Thessalian plain of Greece, where the first Neolithic settlements were founded about 6700–6500 BCE probably by seafarers who island-hopped from western Anatolia in open boats. Katherine Perlés has convincingly demonstrated that the material culture and economy of the first farmers in Greece was transplanted from the Near East or Anatolia. An origin somewhere in western Anatolia is suggested by similarities in pottery, flint tools, ornaments, female figurines, pintadera stamps, lip labrets, and other traits. The migrants leapfrogged to the Thessalian plain, the richest agricultural land in Greece, almost certainly on the basis of information from scouts (probably Aegean fishermen) who told their relatives in Anatolia about the destination. The population of farmers in Thessaly grew rapidly. At least 120 Early Neolithic settlements stood on the Thessalian plain by 6200–6000 BCE, when pioneers began to move north into the temperate forests

of southeastern Europe. The Neolithic villages of Thessaly provided the original breeds of domesticated sheep, cattle, wheat, and barley, as well as red-on-white pottery, female-centered domestic rituals, bracelets and beads made of Aegean *Spondylus* shell, flint tool types, and other traditions that were carried into the Balkans. The language of Neolithic Thessaly probably was a dialect of a language spoken in western Anatolia about 6500 BCE. Simplification and leveling should have occurred among the first colonist dialects in Thessaly, so the 120 villages occupied five hundred years later spoke a language that had passed through a bottleneck and probably was just beginning to separate again into strongly differentiated dialects.[15]

The tongue spoken by the first Criş farmers in the East Carpathian foothills about 5800–5600 BCE was removed from the parent tongue spoken by the first settlers in Thessaly by less than a thousand years—the same interval that separates Modern American English from Anglo-Saxon. That was long enough for several new Old European Neolithic languages to have emerged from the Thessalian parent, but they would have belonged to a single language family. That language family was not Indo-European. It came from the wrong place (Anatolia and Greece) at the wrong time (before 6500 BCE). Curiously a fragment of that lost language might be preserved in the Proto-Indo-European term for bull, **tawro-s*, which many linguists think was borrowed from an Afro-Asiatic term. The Afro-Asiatic super-family generated both Egyptian and Semitic in the Near East, and one of its early languages might have been spoken in Anatolia by the earliest farmers. Perhaps the Criş people spoke a language of Afro-Asiatic type, and as they drove their cattle into the East Carpathian valleys they called them something like **tawr-*.[16]

Farmer Meets Forager: The Bug-Dniester Culture

The first indigenous North Pontic people to adopt Criş cattle breeding and perhaps also the Criş word for bull were the people of the Bug-Dniester culture, introduced a few pages ago. They occupied the frontier where the expansion of the Criş farmers came to a halt, apparently blocked by the Bug-Dniester culture itself. The initial contact between farmers and foragers must have been a fascinating event. The Criş immigrants brought herds of cultured animals that wandered up the hillsides among the deer. They introduced sheep, plum orchards, and hot wheat-cakes. Their families lived in the same place all year, year after year; they cut down the trees to make houses and orchards and gardens; and they spoke a foreign language.

The foragers' language might have been part of the broad language family from which Proto-Indo-European later emerged, although, since the ultimate fate of the Bug-Dniester culture was extinction and assimilation, their dialect probably died with their culture.[17]

The Bug-Dniester culture grew out of Mesolithic forager cultures that dwelt in the region since the end of the last Ice Age. Eleven Late Mesolithic technological-typological groups have been defined by differences in flint tool kits just in Ukraine; other Late Mesolithic flint tool-based groups have been identified in the Russian steppes east of the Don River, in the North Caspian Depression, and in coastal Romania. Mesolithic camps have been found in the lower Danube valley and the coastal steppes northwest of the Black Sea, not far from the Criş settlement area. In the Dobruja, the peninsula of rocky hills skirted by the Danube delta at its mouth, eighteen to twenty Mesolithic surface sites were found just in one small area northwest of Tulcea on the southern terraces of the Danube River. Late Mesolithic groups also occupied the northern side of the estuary. Mirnoe is the best-studied site here. The Late Mesolithic hunters at Mirnoe hunted wild aurochs (83% of bones), wild horse (14%), and the extinct *Equus hydruntinus* (1.1%). Farther up the coast, away from the Danube delta, the steppes were drier, and at Late Mesolithic Girzhevo, on the lower Dniester, 62% of the bones were of wild horses, with fewer aurochs and *Equus hydruntinus*. There is no archaeological trace of contact between these coastal steppe foragers and the Criş farmers who were advancing into the upland forest-steppe.[18]

The story is different in the forest-steppe. At least twenty-five Bug-Dniester sites have been excavated in the forest-steppe zone in the middle and upper parts of the South Bug and Dniester River valleys, in the transitional ecological zone where rainfall was sufficient for the growth of forests but there were still open meadows and some pockets of steppe. This environment was favored by the Criş immigrants. In it the native foragers had for generations hunted red deer, roe deer, and wild boar, and caught riverine fish (especially the huge river catfish, *Siluris glanis*). Early Bug-Dniester flint tools showed similarities both to coastal steppe groups (Grebenikov and Kukrekskaya types of tool kits) and northern forest groups (Donets types).

Pottery and the Beginning of the Neolithic

The Bug-Dniester culture was a Neolithic culture; Bug-Dniester people knew how to make fired clay pottery vessels. The first pottery in the Pontic-Caspian region, and the beginning of the Early Neolithic, is asso-

ciated with the Elshanka culture in the Samara region in the middle Volga River valley. It is dated by radiocarbon (on shell) about 7000–6500 BCE, which makes it, surprisingly, the oldest pottery in all of Europe. The pots were made of a clay-rich mud collected from the bottoms of stagnant ponds. They were formed by the coiling method and were baked in open fires at 450–600°C (figure 8.4).[19] From this northeastern source ceramic technology diffused south and westward. It was adopted widely by most foraging and fishing bands across the Pontic-Caspian region about 6200–6000 BCE, before any clear contact with southern farmers. Early Neolithic pottery tempered with vegetal material and crushed shells appeared at Surskii Island in the Dnieper Rapids in levels dated about 6200–5800 BCE. In the lower Don River valley a crude vegetal-tempered pottery decorated with incised geometric motifs appeared at Rakushechni Yar and other sites such as Samsonovka in levels dated 6000–5600 BCE.[20] Similar designs and vessel shapes, but made with a shell-tempered clay fabric, appeared on the lower Volga, at Kair Shak III dated about 5700–5600 BCE (6720±80 BP). Older pottery was made in the North Caspian at Kugat, where a different kind of pottery was stratified beneath Kair Shak-type pottery, possibly the same age as the pottery at Surskii Island. Primitive, experimental ceramic fragments appeared about 6200 BCE also at Matveev Kurgan in the steppes north of the Sea of Azov. The oldest pottery south of the middle Volga appeared at the Dnieper Rapids (Surskii), on the lower Don (Rakushechni Yar), and on the lower Volga (Kair Shak III, Kugat) at about the same time, around 6200–6000 BCE (figure 8.4).

The earliest pottery in the South Bug valley was excavated by Danilenko at Bas'kov Ostrov and Sokolets II, dated by five radiocarbon dates about 6200–6000 BCE, about the same age as Surskii on the Dnieper.[21] In the Dniester River valley, just west of the South Bug, at Soroki II, archaeologists excavated two stratified Late Mesolithic occupations (levels 2 and 3) dated by radiocarbon to about 6500–6200 BCE. They contained no pottery. Pottery making was adopted by the early Bug-Dniester culture about 6200 BCE, probably the same general time it appeared in the Dnieper valley and the Caspian Depression.

Farmer-Forager Exchanges in the Dniester Valley

After about 5800–5700 BCE, when Criş farmers moved into the East Carpathian foothills from the west, the Dniester valley became a frontier between two very different ways of life. At Soroki II the uppermost

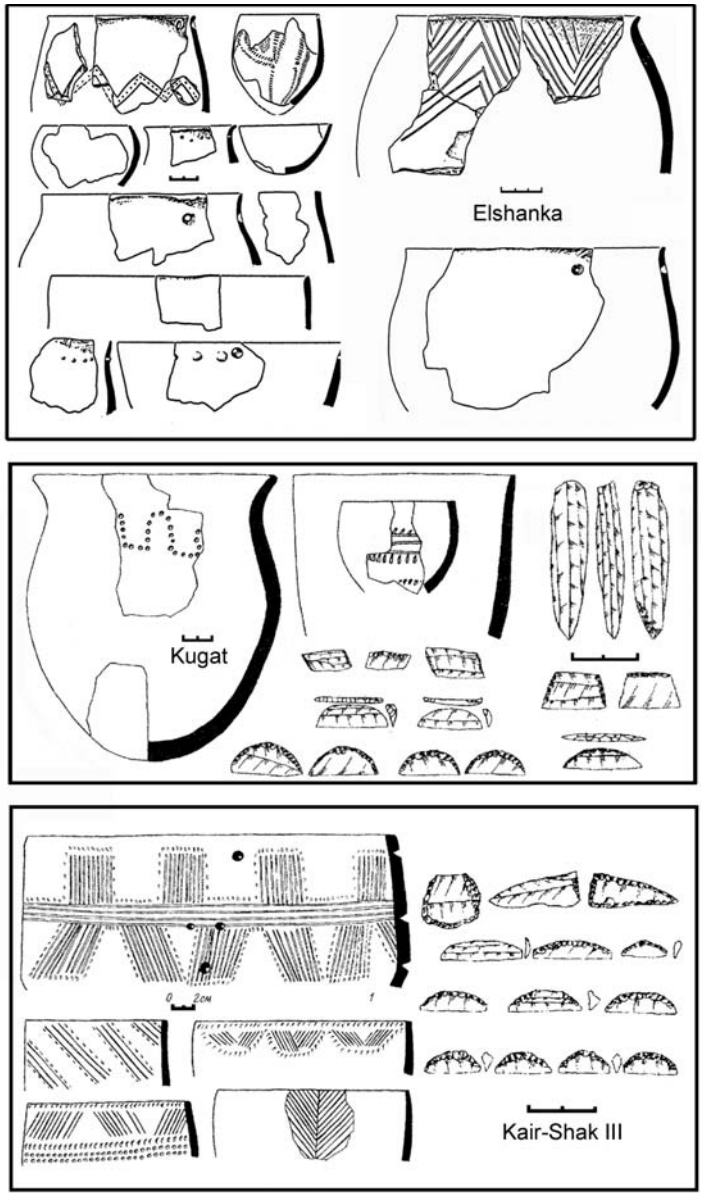


Figure 8.4 Top: Early Neolithic ceramics of Elshanka type on the middle Volga (7000–6500 BCE); *middle*: ceramics and flint tools from Kugat (perhaps 6000 BCE), North Caspian; *bottom*: ceramics and flint tools from Kair-Shak III (5700–5600 BCE) North Caspian. After (*top*) Mamonov 1995; and (*middle and bottom*) Barynkin and Kozin 1998.

occupation level (1) was left by Bug-Dniester people who clearly had made contact with the incoming Criş farmers, dated by good radiocarbon dates at about 5700–5500 BCE. Some of the ceramic vessels in level 1 were obvious copies of Criş vessels—round-bodied, narrow-mouthed jars on a ring base and bowls with carinated sides. But they were made locally, using clay tempered with sand and plant fibers. The rest of the pottery in level 1 looked more like indigenous bag-shaped South Bug ceramics (figure 8.5). Continuity in the flint tools between level 1 and the older levels 2 and 3 suggests that it was the same basic culture, and all three levels are traditionally assigned to the Bug-Dniester culture.

The Bug-Dniester people who lived at Soroki II in the level 1 camp copied more than just Criş pottery. Botanists found seed impressions in the clay vessels of three kinds of wheat. Level 1 also yielded a few bones from small domesticated cattle and pigs. This was the beginning of a significant shift—the adoption of an imported food-production economy by the native foragers. It is perhaps noteworthy that the exotic ceramic types copied by Soroki II potters were small Criş pedestaled jars and bowls, probably used to serve drink and food rather than to store or cook it. Perhaps Criş foods were served to visiting foragers in jars and bowls like these inside Criş houses, inspiring some Bug-Dniester families to re-create both the new foods and the vessels in which they were served. But the original decorative motifs on Bug-Dniester pottery, the shapes of the largest pots, the vegetal and occasional shell temper in the clay, and the low-temperature firing indicate that early Bug-Dniester potters knew their own techniques, clays, and tempering formulas. The largest pots they made (for cooking? storage?) were shaped like narrow-mouthed baskets, unlike any shape made by Criş potters.

Three kinds of wheat impressions appeared in the clay of early Bug-Dniester pots at two sites in the Dniester valley: Soroki II/level 1 and Soroki III. Both sites had impressions of emmer, einkorn, and spelt.[22] Was the grain actually grown locally? Both sites had a variety of wheats, with impressions of chaff and spikelets, parts removed during threshing. The presence of threshing debris suggests that at least some grain was grown and threshed locally. The foragers of the Dniester valley seem to have cultivated at least small plots of grain very soon after their initial contact with Criş farmers. What about the cattle?

In three Early Bug-Dniester Neolithic sites in the Dniester valley occupied about 5800–5500 BCE, domesticated cattle and swine averaged 24% of the 329 bones recovered from garbage pits, if each bone is counted for the NISP; or 20% of the animals, if the bones are converted into a

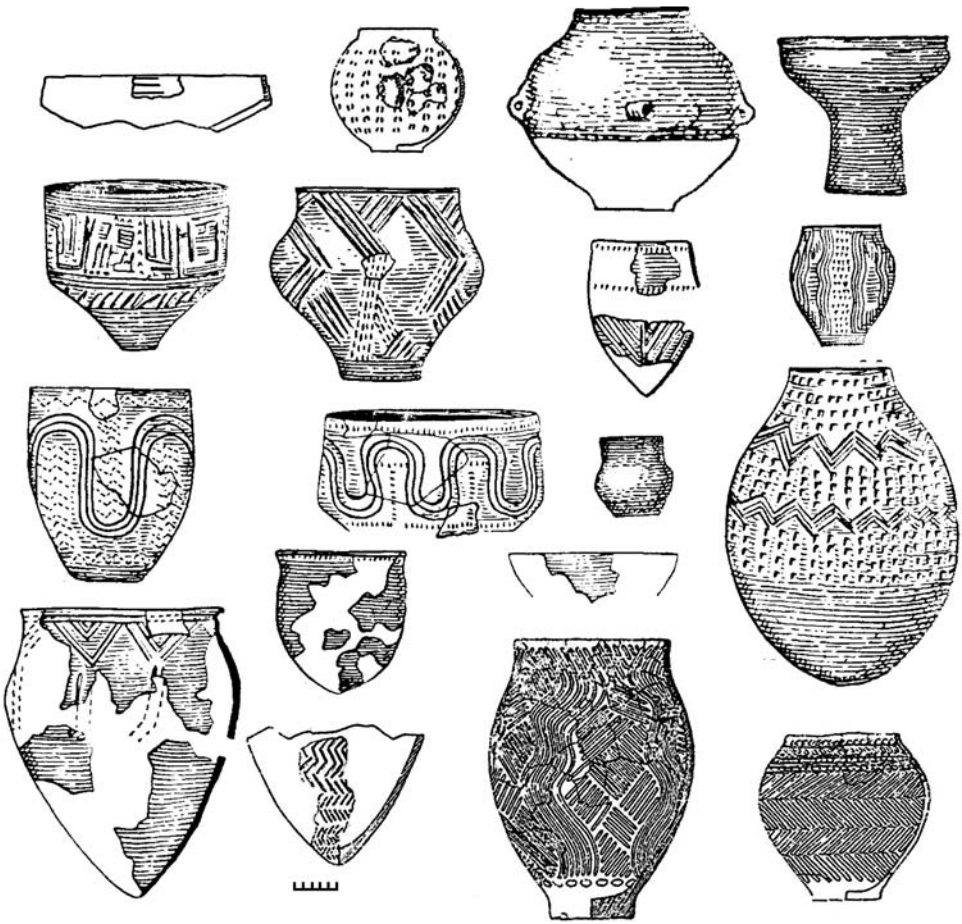


Figure 8.5 Pottery types of the Bug-Dniester culture. The four vessels in the top row appear to have been copied after Criş types seen in Figure 8.2. After Markevich 1974; and Dergachev 1999.

minimum number of individuals, or MNI. Red deer and roe deer remained more important than domesticated animals in the meat diet. Middle Bug-Dniester sites (Samchin phase), dated about 5600–5400 BCE, contained more domesticated pigs and cattle: at Soroki I/level 1a, a Middle-phase site, cattle and swine made up 49% of the 213 bones recovered (32% MNI). By the Late (Savran) phase, about 5400–5000 BCE, domesticated pigs and cattle totaled 55% of the animal bones (36% MNI) in two sites.[23] In contrast, the Bug-Dniester settlement sites in the South

Bug valley, farther away from the source of the domesticated animals, never showed more than 10% domesticated animal bones. But even in the South Bug valley a few domesticated cattle and pigs appeared at Bas'kov Ostrov and Mit'kov Ostrov very soon after the Criş farmers entered the Eastern Carpathian foothills. The "availability" phase, in Zvelebil's three-phase description of farmer-forager interactions, was very brief.[24] Why? What was so attractive about Criş foods and even the pottery vessels in which they were served?

There are three possibilities: intermarriage, population pressure, and status competition. Intermarriage is an often-repeated but not very convincing explanation for incremental changes in material culture. In this case, imported Criş-culture wives would be the vehicle through which Criş-culture pottery styles and foods should have appeared in Bug-Dniester settlements. But Warren DeBoer has shown that wives who marry into a foreign tribe among tribal societies often feel so exposed and insecure that they become hyper-correct imitators of their new cultural mores rather than a source of innovation. And the technology of Bug-Dniester ceramics, the method of manufacture, was local. Technological styles are often better indicators of ethnic origin than decorative styles. So, although there may have been intermarriage, it is not a persuasive explanation for the innovations in pottery or economy on the Dniester frontier.[25]

Was it population pressure? Were the pre-Neolithic Bug-Dniester foragers running out of good hunting and fishing grounds, and looking for ways to increase the amount of food that could be harvested within their hunting territories? Probably not. The forest-steppe was an ideal hunting territory, with maximal amounts of the forest-edge environment preferred by deer. The abundant tree pollen in Criş-period soils indicates that the Criş pioneers had little impact on the forest around them, so their arrival did not greatly reduce deer populations. A major component of the Bug-Dniester diet was riverine fish, some of which supplied as much meat as a small adult pig, and there is no evidence that fish stocks were falling. Cattle and pigs might have been acquired by cautious foragers as a hedge against a bad year, but the immediate motive probably was not hunger.

The third possibility is that the foragers were impressed by the abundance of food available for feasting and seasonal festivals among Criş farmers. Perhaps some Bug-Dniester locals were invited to such festivals by the Criş farmers in an attempt to encourage peaceful coexistence. Socially ambitious foragers might have begun to cultivate gardens and raise cattle to sponsor feasts among their own people, even making serving bowls and cups like those used in Criş villages—a political explanation,

and one that also explains why Criş pots were copied. Unfortunately neither culture had cemeteries, and so we cannot examine graves to look for evidence of a growing social hierarchy. Status objects seem to have been few, with the possible exception of food itself. Probably both economic insurance and social status played roles in the slow but steady adoption of food production in the Dniester valley.

The importance of herding and cultivation in the Bug-Dniester diet grew very gradually. In Criş settlements domesticated animals contributed 70–80% of the bones in kitchen middens. In Bug-Dniester settlements domesticated animals exceeded hunted wild game only in the latest phase, and only in the Dniester valley, immediately adjacent to Criş settlements. Bug-Dniester people never ate mutton—not one single sheep bone has been found in a Bug-Dniester site. Early Bug-Dniester bakers did not use Criş-style saddle querns to grind their grain; instead, they initially used small, rhomboidal stone mortars of a local style, switching to Criş-style saddle querns only in the middle Bug-Dniester phase. They preferred their own chipped flint axe types to the smaller polished stone Criş axes. Their pottery was quite distinctive. And their historical trajectory led directly back to the local Mesolithic populations, unlike the Criş culture.

Even after 5500–5200 BCE, when a new farming culture, the Linear Pottery culture, moved into the East Carpathian piedmont from southern Poland and replaced the Criş culture, the Dniester valley frontier survived. No Linear Pottery sites are known east of the Dniester valley.[26] The Dniester was a cultural frontier, not a natural one. It persisted despite the passage of people and trade goods across it, and through significant cultural changes on each side. Persistent cultural frontiers, particularly at the edges of ancient migration streams, usually are ethnic and linguistic frontiers. The Bug-Dniester people may well have spoken a language belonging to the language family that produced Pre-Proto-Indo-European, while their Criş neighbors spoke a language distantly related to those of Neolithic Greece and Anatolia.

Beyond the Frontier: Pontic-Caspian Foragers before Cattle Arrived

The North Pontic societies east of the Dniester frontier continued to live as they always had, by hunting, gathering wild plants, and fishing until about 5200 BCE. Domesticated cattle and hot wheatcakes might have seemed irresistibly attractive to the foragers who were in direct contact with the farmers who presented and legitimized them, but, away from

that active frontier, North Pontic forager-fishers were in no rush to become animal tenders. Domesticated animals can only be raised by people who are committed morally and ethically to watching their families go hungry rather than letting them eat the breeding stock. Seed grain and breeding stock must be saved, not eaten, or there will be no crop and no calves the next year. Foragers generally value immediate sharing and generosity over miserly saving for the future, so the shift to keeping breeding stock was a moral as well as an economic one. It probably offended the old morals. It is not surprising that it was resisted, or that when it did begin it was surrounded by new rituals and a new kind of leadership, or that the new leaders threw big feasts and shared food when the deferred investment paid off. These new rituals and leadership roles were the foundation of Indo-European religion and society.[27]

The most heavily populated part of the Pontic-Caspian steppes was the place where the shift to cattle keeping happened next after the Bug-Dniester region. This was around the Dnieper Rapids. The Dnieper Rapids started at modern Dnepropetrovsk, where the Dnieper River began to cut down to the coastal lowlands through a shelf of granite bedrock, dropping 50 m in elevation over 66 km. The Rapids contained ten major cascades, and in early historical accounts each one had its own name, guardian spirits, and folklore. Fish migrating upstream, like the sudak (*Lucioperca*), could be taken in vast quantities at the Rapids, and the swift water between the cascades was home to wels (*Silurus glanis*), a type of catfish that grows to 16 feet. The bones of both types of fish are found in Mesolithic and Neolithic camps near the Rapids. At the southern end of the Rapids there was a ford near Kichkas where the wide Dnieper could be crossed relatively easily on foot, a strategic place in a world without bridges.

The Rapids and many of the archaeological sites associated with them were inundated by dams and reservoirs built between 1927 and 1958. Among the many sites discovered in connection with reservoir construction was Igren 8 on the east bank of the Dnieper. Here the deepest level F contained Late Mesolithic Kukrekskaya flint tools; levels E and E1 above contained Surskii Early Neolithic pottery (radiocarbon dated 6200–5800 BCE); and stratum D1 above that contained Middle Neolithic Dnieper-Donets I pottery tempered with plant fibers and decorated with incised chevrons and small comb stamps (probably about 5800–5200 BCE but not directly dated by radiocarbon). The animal bones in the Dnieper-Donets I garbage were from red deer and fish. The shift to cattle keeping had not yet begun. Dnieper-Donets I was contemporary with the Bug-Dniester culture.[28]

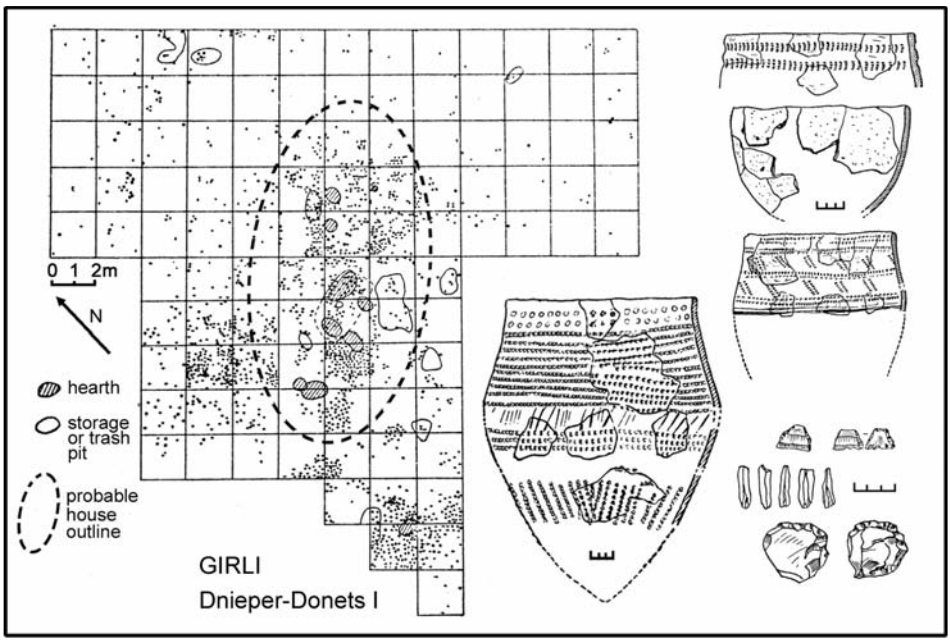


Figure 8.6 Dnieper-Donets I camp at Girli, Ukraine, probably about 5600–5200 BCE. After Neprina 1970 , Figures 3, 4, and 8.

Campsites of foragers who made Dnieper-Donets I (DDI) pottery have been excavated on the southern borders of the Pripet Marshes in the northwest and in the middle Donets valley in the east, or over much of the forest-steppe and northern steppe zone of Ukraine. At Girli (figure 8.6) on the upper Teterev River near Zhitomir, west of Kiev, a DDI settlement contained eight hearths arranged in a northeast-southwest line of four pairs, each pair about 2–3 m apart, perhaps representing a shelter some 14 m long for four families. Around the hearths were thirty-six hundred flint tools including microlithic blades, and sherds of point-based pots decorated with comb-stamped and pricked impressions. The food economy depended on hunting and gathering. Girli was located on a trail between the Dnieper and South Bug rivers, and the pottery was similar in shape and decoration to some Bug-Dniester ceramics of the middle or Samchin phase. But DDI sites did not contain domesticated animals or plants, or even polished stone axes like those of the Criş and late Bug-Dniester cultures; DDI axes were still chipped from large pieces of flint.[29]

Forager Cemeteries around the Dnieper Rapids

Across most of Ukraine and European Russia post-glacial foragers did not create cemeteries. The Bug-Dniester culture was typical: they buried their dead by ones and twos, often using an old campsite, perhaps the one where the death occurred. Graveside rituals took place but not in places set aside just for them. Cemeteries were different: they were formal plots of ground reserved just for funerals, funeral monuments, and public remembrance of the dead. Cemeteries were visible statements connecting a piece of land with the ancestors. During reservoir construction around the Dnieper Rapids archaeologists found eight Mesolithic and forager Neolithic cemeteries, among them Vasilievka I (twenty-four graves), Vasilievka II (thirty-two graves), Vasilievka III (forty-five graves), Vasilievka V (thirty-seven graves), Marievka (fifteen graves), and Volos'ke (nineteen graves). No comparable cluster of forager cemeteries exists anywhere else in the Pontic-Caspian region.

Several different forager populations seem to have competed with one another around the Dnieper Rapids at the end of the Ice Age. Already by about 8000 BCE, as soon as the glaciers melted, at least three skull-and-face types, a narrow-faced gracile type (Volos'ke), a broad-faced medium-weight type (Vasilievka I), and a broad-faced robust type (Vasilievka III) occupied different cemeteries and were buried in different poses (contracted and extended). Two of the nineteen individuals buried at Volos'ke and two (perhaps three) of the forty-five at Vasilevka III were wounded by weapons tipped with Kukrekskaya-type microlithic blades. The Vasilievka III skeletal type and burial posture ultimately spread over the whole Rapids during the Late Mesolithic, 7000–6200 BCE. Two cemeteries that were assumed to be Early Neolithic (Vasilievka II and Marievka) because of the style of the grave now are dated by radiocarbon to 6500–6000 BCE, or the Late Mesolithic.

Only one of the Dnieper Rapids cemeteries, Vasilievka V, is dated to the Middle Neolithic DDI period by radiocarbon dates (5700–5300 BCE). At Vasilevka V thirty-seven skeletons were buried in supine positions (on their backs) with their hands near the pelvis, with their heads to the northeast. Some were buried singly in individual pits, and others apparently were layered in reused graves. Sixteen graves in the center of the cemetery seem to represent two or three superimposed layers of burials, the first hint of a collective burial ritual that would be elaborated greatly in the following centuries. Eighteen graves out of thirty-seven were sprinkled with red ochre,

again a hint of things to come. The grave gifts at Vasilievka V, however, were very simple, limited to microlithic flint blades and flint scrapers. These were the last people on the Dnieper Rapids who clung to the old morality and rejected cattle keeping.[30]

Foragers on the Lower Volga and Lower Don

Different styles of pottery were made among the Early Neolithic foragers who lived even farther east, a longer distance away from the forager/farmer frontier on the Dniester. Forager camps on the lower Volga River dated between 6000 and 5300 BCE contained flat-based open bowls made of clay tempered with crushed shell and vegetal material, and were decorated by stabbing rows of impressions with a triangular-ended stick or drawing incised diamond and lozenge shapes. These decorative techniques were different from the comb-stamps used to decorate DDI pottery in the Dnieper valley. Flint tool kits on the Volga contained many geometric microliths, 60–70% of the tools, like the flint tools of the earlier Late Mesolithic foragers. Important Early Neolithic sites included Varfolomievka level 3 (radiocarbon dated about 5900–5700 BCE) and Kair-Shak III (also dated about 5900–5700 BCE) in the lower Volga region; and the lower levels at Rakushechni Yar, a dune on the lower Don (dated 6000–5600 BCE).[31] At Kair Shak III, located in an environment that was then semi-desert, the economy was based almost entirely on hunting onagers (*Equus hemionus*). The animal bones at Varfolomievka, located in a small river valley in the dry steppe, have not been reported separately by level, so it is impossible to say what the level 3 Early Neolithic economy was, but half of all the animal bones at Varfolomievka were of horses (*Equus caballus*), with some bones of aurochs (*Bos primigenius*). Fish scales (unidentified) were found on the floors of the dwellings. At Rakushechni Yar, then surrounded by broad lower-Don valley gallery forests, hunters pursued red deer, wild horses, and wild pigs. As I noted in several endnotes in this chapter, some archaeologists have claimed that the herding of cattle and sheep began earlier in the lower Don-Azov steppes, but this is unlikely. Before 5200 BCE the forager-farmer frontier remained confined to the Dniester valley.[32]

The Gods Give Cattle

The Criş colonization of the Eastern Carpathians about 5800 BCE created a robust and persistent cultural frontier in the forest-steppe zone at

the Dniester valley. Although the Bug-Dniester culture quickly acquired at least some domesticated cereals, pigs, and cattle, it retained an economy based primarily on hunting and gathering, and remained culturally and economically distinct in most ways. Beyond it, both in the forest-steppe zone and the steppe river valleys to the east, no other indigenous societies seem to have adopted cereal cultivation or domesticated animals until after about 5200 BCE.

In the Dniester valley, native North Pontic cultures had direct, face-to-face contact with farmers who spoke a different language, had a different religion, and introduced an array of invasive new plants and animals as if they were something wonderful. The foragers on the frontier itself rapidly accepted some cultivated plants and animals but rejected others, particularly sheep. Hunting and fishing continued to supply most of the diet. They did not display obvious signs of a shift to new rituals or social structures. Cattle keeping and wheat cultivation seem to have been pursued part-time, and were employed as an insurance policy against bad years and perhaps as a way of keeping up with the neighbors, not as a replacement of the foraging economy and morality. For centuries even this halfway shift to partial food production was limited to the Dniester valley, which became a narrow and well-defined frontier. But after 5200 BCE a new threshold in population density and social organization seems to have been crossed among European Neolithic farmers. Villages in the East Carpathian piedmont adopted new customs from the larger towns in the lower Danube valley, and a new, more complex culture appeared, the Cucuteni-Tripolye culture. Cucuteni-Tripolye villages spread eastward. The Dniester frontier was breached, and large western farming communities pushed into the Dniester and South Bug valleys. The Bug-Dniester culture, the original frontier society, disappeared into the wave of Cucuteni-Tripolye immigrants.

But away to the east, around the Dnieper Rapids, the bones of domesticated cattle, pigs, and, remarkably, even sheep began to appear regularly in garbage dumps. The Dnieper Rapids was a strategic territory, and the clans that controlled it already had more elaborate rituals than clans elsewhere in the steppes. When they accepted cattle keeping it had rapid economic and social consequences across the steppe zone.