**Archaeology and History in Your Backyard—The Solutrean Hypothesis**

Hello everyone, this **Archaeology and History Your Backyard** and my name is \_\_\_\_\_\_\_\_\_\_\_\_ and this program was written by Bob Berglund. KXNM 88.7 FM and the Torrance County Archaeological Society are pleased to bring you a series of programs designed to acquaint you, our listening audience with little known people, places, and events that took place in the past. Our goal is to inform, educate, and possibly enlist your help in preserving and protecting the past.

 As was discussed in a previous program the idea that Clovis people were the first people in the Americas has been shown to be not true—there is just too much evidence that the Americas were widely settled before Clovis and possibly as early as 35,000 plus years ago. In a previous program the “Mammoth Steppe Hypothesis” was argued. The “Mammoth Steppe” was a grassland that extended from central Europe, across Asia, and into North America from Alaska to northern Mexico, and it existed from about 67,000 years ago until 27,000 years ago, ending at the beginning of the last ice age. The argument is that people were adapted to northern climates and were perfectly capable of moving east across the Bering Strait and into North America as early as 40,000 years ago. There are mammoth and mastodon kill sites that support that early an entrance into the Americas. This does not mean that this was the only way into the Americas, or that other migrations did not follow, but it is a plausible hypothesis.

 Other possibilities include coastal migrations. As the last ice age developed the ocean levels dropped because of all the water tied up in glaciers on land. At the peak of the last ice age ocean levels were at least 120 meters lower than they are today—that is about 400 feet lower. All along the Gulf coast and up the East Coast the continental shelf was dry land for anywhere from 30 to 100 miles out from today’s coast. There were periods when the sea level was relatively stable and at other times it rose or fell quickly. When it was rising quickly the sea shore moved inland as much as a mile per year in some areas. The continental shelf sloped very gradually except where rivers cut canyons through it, and the shelf was no doubt a vibrant ecosystem with all the wild life a coastal plain could support, and with everything people needed to thrive. The sea level drop on the west coast was the same, but there is very little continental shelf to expose. In any case, it is pretty certain that the rise of sea levels by 400 feet has resulted in the inundating of many, many pre-Clovis archaeological sites under up to 400 feet of water.

 In 1970 a fishing boat trawling for deep sea scallops 62 miles out to sea off the Virginia Capes dredged up several bones from a mastodon along with a stone tool described as a “Solutrean-style laurel leaf biface”. The biface is a thin flat stone tool pointed on both ends and about 7 ½ inches long, and it is made of stone that was quarried near Emmitsburg, Maryland, far inland from where it was found on the continental shelf under 250 feet of water. The bones were dated to about 23,000 years ago by radiocarbon dating methods. The tool shows a wear pattern indicating it was used as a knife for butchering. The underlying soils at that location were typical of a marshy area near the sea coast. It is near certain people were living and hunting on the now inundated outer continental shelf. This is certainly logical as the seacoasts are a particularly rich ecosystem in which humans can thrive.

 The “Solutrean hypothesis” is that people living in Europe on the coast of Spain and southern France 15,000 to 25,000 years ago worked their way north and across the Atlantic along the edge of the ice and into North America—and that these Solutrean people brought with them a unique method of making stone tools. They could have used animal skin boats to travel along the edge of the northern ice, which would have been rich in fish, seals, walrus, and sea birds. It is easy to assume the Atlantic was an insurmountable barrier, but that is clearly underestimating the intelligence of our ancestors. After all, humans sailed far over the horizon to land in Australia 50,000 years ago and they were living north of the Arctic Circle and killing mammoths in Asia 45,000 years ago. Our human ancestors were fully functioning homo sapiens back then and not to be underestimated.

Since the bones and stone tool were dredged up from the sea floor several other similar stone tools have been found in the Chesapeake Bay area, and they have been found in sediments that predate Clovis. The tools were made by a flaking technique that allows making large thin blades. This “overshot” technique is technically quite difficult and is similar to the technique used in Europe by the Solutrean people. It is worth pointing out that no such technique was used in eastern Asia and so it could not have been brought to America from that direction.

 Recent developments in DNA analysis point to most Native Americans coming from eastern Asia in maybe as many as three major migrations. However, there is a hint in the DNA of a marker that is not found in eastern Asians but is found in Europeans and Native Americans, and this marker is more common in eastern North America. Who is to say that a small population originating in Europe was not eventually overwhelmed and absorbed by more numerous peoples originating in eastern Asia. And maybe those European peoples passed on useful technologies that endured. This leads to further speculation. Could the stone working technique of highly technical overshot flaking brought over by the Solutrean people have eventually led to the similar highly technical methods used to produce Clovis points?

 This is where the “Solutrean Hypothesis” gets interesting. Two well respected scientists, Bruce Bradley from the University of Exeter and Dennis Stanford of the Smithsonian Institution propose that the Solutrean method of producing stone tools may have led to the very technically difficult method of making Clovis points. They argue that the similarities are remarkable from the initial selection of and preference for exotic stone, the common use of overshot flaking, through the final edge treatment. Overshot flaking occurs when a flake struck from one edge extends across the face of the tool and removes part of the opposite edge. Only highly skilled flintknappers can use this technique to produce wide thin tools. According to Stanford and Bradley the use of overshot flaking as a regular tool making technique was only used by the Solutrean and Clovis cultures.

 To say that the Solutrean flintknapping technique evolved into the Clovis tool making method is considered a stretch by most archaeologists. The two cultures were separated by the Atlantic Ocean and by about 5000 years. Stanford and Bradley assert that the technologies are remarkably similar, and stone points found in pre-Clovis sites in Maryland and Virginia are nearly identical to those found at Solutrean sites in Europe. And they say that if Solutrean sites were found in eastern Asia it would be readily accepted as to the Solutrean origin of Clovis. To be sure, there is no doubt that Solutrean style biface tools that pre-date Clovis have been found in eastern North America. How and why the Clovis culture suddenly burst on the scene about 13,200 years ago with their beautiful stone points has to remain the subject for speculation in a future program.

 As a side note to this program, and to change the subject…

 Archaeologists like to date sites through analysis of a radioactive isotope of carbon known as carbon 14. It decays at a known rate, but its concentration in the atmosphere has varied over time. Therefore the radiocarbon dates must be adjusted to account for this variance. Dates reported by archaeologists can be either radiocarbon dates or dates before present, and this can lead to some confusion. This calibration results in radiocarbon dates for Clovis era carbon being adjusted by dividing by approximately .85 to arrive at calendar years before present. This results in a radiocarbon date of 11,200 years being adjusted to approximately 13,200 calendar years before present. So, when you hear different dates for the same time, such as for Clovis, be mindful of this cause for confusion. There is a lot more information about this subject on the web.

 Torrance County Archaeological Society meets the first Tuesday of each month from March through November. We always have interesting expert speakers and guests are welcome. This radio program can be heard on Monday at 1 PM, Tuesday at 7 PM, Friday at 1 AM, and Saturday at 4 PM. You can also go to the KXNM 88.7 website, click on programs, and listen to any of the previous programs.

Thank you for listening.