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# The History of Archeological Research at Medicine Creek Reservoir

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Medicine Creek is a tributary which flows southeast into the Republican River, which in turn contributes to the Kansas River. The drainage basin is in southwest Nebraska and is about 75 km or 50 miles in length. It drains an area of slightly under 700 square miles.

Medicine Creek Reservoir (Reservoir) was completed in 1949. It was built primarily to control destructive flooding on both the Medicine and Republican drainages. It is also part of the Frenchman-Cambridge Irrigation Project, administered by the Bureau of Reclamation (Reclamation).

The area around the Reservoir is covered by a deep mantel of wind blown or water redeposited loess, which has enhanced the burial and preservation of archeological sites. The terraces of this deposit have themselves been the focus of scientific inquiry.[1,2] Where bedrock is exposed, it is the Cretaceous Niobrara Formation, which includes a major source of raw material for prehistoric stone tools. This material is usually called Niobrara, Smoky Hill or Republican River Jasper, and it occasionally occurs in numerous beds which may be several feet thick at a given exposure.

*Excavation of house floor at Medicine Creek. River Basin Surveys photo.*

In addition to the Niobrara Jasper, several other natural features made Medicine Creek a focal point for prehistoric populations. The creek is spring fed, and was a very reliable source of good quality water, even in periods of drought. The large deposits of clam shell in some archeological sites on the Reservoir attest to the availability of aquatic food sources. This corner of Nebraska is often referred to locally as the "Banana Belt" because the area consistently has the warmest winter temperatures in the state.

Another draw to the area is the Fort McPherson Trail which followed the divide between the Deer and Medicine Creek drainages and was a military trail in the historic period, but no doubt used in prehistoric times as well.[3]

### *The History of Archeological Research*

Prior to the planning of Medicine Creek reservoir, several archeological sites had been recorded along the Medicine Creek Drainage, though not all were within the boundaries of the federal reservoir. These sites were identified by the early explorations by William Duncan Strong and A.T Hill[3] and Waldo Wedel in 1931.[4, 5] Paleontologist Erwin H. Barbour,[6, 7] also doing research in the area, identified two species of shovel tusked mammoths as well as other extinct species.

In August 1946, planning for the Reservoir was begun by Reclamation. Marvin Kivett and J. Mett Shippee spent eight days looking for archeological sites in the proposed Reservoir area. They found 14 Upper Republican sites and one Woodland site which encouraged a return for further excavation in 1947.[8] In the spring of 1947, a Nebraska State Historical Society (NSHS) crew led by A.T. Hill began excavations. In September, October, and early November, a River Basin Surveys crew led by Marvin Kivett continued the work.[9]

From the end of March through August 1948, both the RBS and the NSHS had crews

working at the Reservoir. These crews comprised as many as 15 to 20 men mostly provided by Reclamation. It was during this 1947-48 work that large-scale mechanical stripping of the sod was first used in the excavations; this also was done with Reclamation equipment. The 1946 to 1949 work by River Basin Surveys and NSHS focused on archeology from the Woodland and Upper Republican periods. In all, 21 sites were investigated with 49 houses and many other features excavated.

Somewhat overlapping the time of these excavations was a series of excavations by the University of Nebraska State Museum (UNSM).[10] This work focused exclusively on Paleo-Indian and paleontological sites in the Reservoir area, specifically Lime Creek (25FT41), Red Smoke (25FT42) and Allen (25FT50). This research took place from 1946 to 1952, under the leadership of C. Bertrand Schultz and W. D. Frankforter,[11] Preston Holder and Joyce Wike,[12] and E. Mott Davis.[13, 14] All work at the Reservoir from 1946 to 1952 was research directly related to construction of the Medicine Creek dam.

In the fall of 1967, additional research was undertaken at the Reservoir. A University of Missouri seminar class on central plains archeology, taught by W. Raymond Wood, excavated the Mowry Bluff Site, a single Upper Republican phase house. For comparison, a second house of the Nebraska Phase also was excavated along the Missouri River. The field work was completed in September with the analyses taking place during the following fall semester. A comparison of the information recovered from the two houses was detailed and interpreted in a "Memoir of the Plains Anthropologist" edited by Wood.[15]

In the 1970s and 1980s, the UNSM[16, 17, 18] and Anthropology Department, University of Nebraska, Lincoln (UNL)[19] continued to assist Reclamation by salvaging archeological and paleontological materials exposed by construction at the Reservoir. In the 1980s, Reclamation archeologists became concerned with shoreline erosion and began a series of small surveys in advance of construction projects around the Reservoir. At this time, 35 sites had been recorded on federal land at the Reservoir. Jeff and Suzanne (Bradley) Kenyon began working at the Reservoir,[20, 21] along with Donna Roper, then working for Gilbert Commonwealth under a contract with Reclamation, to identify and evaluate sites being destroyed by shoreline erosion. In 1987, the author and Brad Coutant, working for Reclamation, became involved in the archeology at Medicine Creek. That same year, during a six-week stay at the Reservoir, they discovered mammoth bone in an eroding high cut bank. Steve Holen and David May began salvage excavation and research on this mammoth site in 1988. The site is approximately 18,500 years old and contains bone flakes, impact points, and other patterns which seem to indicate human involvement. Holen has revisited this site regularly in the succeeding years to continue research and protect newly exposed material.[22, 23] In 1988, the author relocated to Grand Island Nebraska as the Nebraska-Kansas Area Archeologist, and began to visit the Reservoir regularly.[24, 25, 26]

The 1990s saw a more methodical attempt to fully inventory and evaluate all archeological sites around the Reservoir. A series of cooperative agreements between Reclamation and area universities were implemented to aid with this work. This began in 1990 with the UNL field school under the direction of Douglas Bamforth. Bamforth continues to re-evaluate collections from the 1940s and 1950s work of UNSM through his current position at the University of Colorado, Boulder. Additional field schools have followed, including several seasons of research by Don Blakeslee (Wichita State University) and Donna Roper (now with Kansas State University). Members of the Nebraska Archeological Society, a statewide amateur group, have donated time making some significant contributions to the various field projects. Virtually all federal lands at Medicine Creek have now been surveyed and more than 350 archeological sites have been recorded.

### *Archeology*

Medicine Creek Reservoir is located in an area of low population density where federal land is scarce. Federal reservoirs are important to local archeological research in the area because they are the only large areas examined extensively. Because funding for excavation on private land is often difficult to procure, federal reservoirs also provide a large percentage of the excavated sites in the region.

The work done at Medicine Creek has contributed heavily to the definition of at least three cultural units. The work by the UNSM identified what was called the Frontier Complex. These are the only late Paleo-Indian sites found in the area.

*Using ground penetrating radar to map buried prehistoric living surfaces. Photo by the author.*

The Kieth Site and other Woodland material were excavated in 1947 and 1948 at the Reservoir. These provided much of the information used to define the Kieth Focus.[27] The wealth of research data recovered from the many houses excavated by the NSHS and River Basin Surveys in the late 1940s has provided much of the basis for defining the Upper Republican Phase, although this name had been used as a broad designation as early as 1933.[28] With sites like the 18,000-year-old La Sena mammoth, the potential for additional cultural units being defined at the Reservoir is promising.

Work at the Reservoir has spawned some very innovative methods. Probably foremost was the use of heavy power equipment in the 1940s to expose sites, necessitated by the rush to complete excavations before reservoir construction and flooding. It was discovered that the heavy equipment, which seemed so potentially destructive to underlying archeological deposits, actually allowed a much better understanding of the extent and relative locations of the features. It also revealed many additional features that would have been missed had the heavy equipment not been used. A much better understanding of relationships within a site was obtained when low altitude aerial photography was added to the investigation. While use of heavy equipment at first appeared to be an expedient trade off, it was soon revealed as both more efficient and more thorough than traditional methods. The method has since been used on large construction projects throughout the country.

Wood's use of a field project and seminar class[15] to provide both teaching and research opportunities also has been copied. The concept of having a number of students, each pursuing a separate study focus, at the same site that most of them had helped excavate, provided a wide range of perspectives and incentives for further research.

Contributions to at least two additional methodologies have been developed in the last decade. Holen had a micro vertebrate paleontologist on site to identify, trace, and excavate rodent burrows separately before excavating the archeological level. This method removes many of the site contamination concerns inherent with excavating a possible pre-Clovis level. At the Lime Creek and Red Smoke sites, Larry Conyers, working with Bamforth, has adapted a remote sensing method from geological studies to map deeply buried prehistoric living surfaces. This is done by lowering the receiver of a ground penetrating radar system into a series of two-inch core holes on the site.

### *Summary*

In areas where there is little funding for archeological research, federal reservoirs can have a major influence on the archeological knowledge and development of new methods. Medicine Creek provides an excellent example because of the heavy concentration of archeological sites and the diversity of time periods represented. This combination has allowed the work at the reservoir to provide key information for defining cultural units and an opportunity for pioneering new methods. Most of these gains would not have been possible if not for funding from federal cultural resource protection laws.

In the fall of 1997, a celebration was held at the Reservoir to mark 50 years since the start of federal excavation in the area. More than 90 people attended this celebration, including researchers from the 1940s projects. It is hard to estimate how many researchers and students have worked at Medicine Creek Reservoir over the years, but it must surely be in the hundreds. The knowledge gained there has greatly influenced the direction of Plains archeology.

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**Notes**

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