George C. Frison

1924-2020

BIOGRAPHICAL *Memoirs*

A Biographical Memoir by
Robert L. Kelly
and David Hurst Thomas

NATIONAL ACADEMY OF SCIENCES

GEORGE CARR FRISON

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Photography by Ted Brummond, University of Wyoming photo services

By Robert L. Kelly and David Hurst Thomas

Sometime in early April 1945, during the battle of Okinawa, a kamikaze pilot flew toward the USS Navarro. Deck gunners shot it down before it struck the ship, but the explosion when it hit the water blew 20-year-old seaman George Frison off the deck and into a bulkhead, injuring his back. Were it not for that event, North American archaeologists might have been deprived of one of their most productive colleagues.[1]

Frison specialized in the archaeology of the central Rocky Mountains and northern High Plains, the cold, windswept lands of Wyoming, Montana, southern Alberta, and Saskatchewan. The rugged indigenous population that continues to live here today survived for some 13,000 years through hunting and gathering. This is the land of the Shoshone, Arapaho, Apsáalooke (Crow), and Lakota as well as the Cheyenne, Arikara, Bannock, Ute, and Blackfeet. Beginning in the 1950s, and without a formal education, Frison began excavating in this region, and he continued to do so until his death at the age of 95. He was not a theoretician; he simply wanted to know how people in the past lived, how they survived, and especially how they hunted large game. He approached archaeology the way he approached the ranch work that dominated the first third of his life: take a trowel, a shovel, or even a backhoe and get the job done. Archaeologists today no longer excavate the way Frison did. Excavation is destructive, and we only dig what we must to answer a question. But in the 1960s, High Plains archaeology needed more data, and Frison provided them. His approach was arguably the right one for his time.

Frison's autobiography[2] discusses some forty sites at which he worked, including caves, rockshelters, campsites, large game kills, and historic-era sites. And although the entire prehistory of the High Plains fascinated him, he was most interested in the Paleoindian period (pre-8,000 BCE). The sites he excavated comprise a who's who of North American Paleoindian archaeology: the Colby mammoth site, Hell Gap, Casper, Agate Basin,

George Frison, (r), excavating the Colby mammoth kill site, early 1970s.
(Photo by Charles Reher.)

Carter/Kerr-McGee, Horner, Finley, Mill Iron, Hawken, and Hanson. Never slowing down, Frison returned in his 90s to an ochre quarry he had first investigated in the 1980s, publishing on it at the age of 93.[3] He was co-author of a publication on the La Prele mammoth kill site, which appeared in print only weeks before his death;[4] other publications will appear posthumously.

Early in his career, Frison focused on the communal kill sites of large game: bighorn sheep, antelope, and especially bison. Investigating a dozen bison mass kill sites,[5] he pioneered the excavation and analysis of what are known as "bone beds." He trained scores of undergraduate and master's level students, and doctoral students at other institutions; they took advantage of his generosity and energy, conducting their research through his projects. Frison never forgot his roots, and he is also remembered for pioneering a productive working relationship between professionals and Wyoming's avocational archaeologists.

Early Life and Education

George Carr Frison was born on November 11, 1924, in Worland, Wyoming. Three months before his birth, his father died in a hunting accident, and when he was three, his mother remarried. As a result, he was raised by his paternal grandparents on their ranch outside Ten Sleep, Wyoming, which they had homesteaded in 1901. The day the toddler arrived at the ranch, his grandfather placed him on a horse, and he spent much of the next 34 years in the saddle.

Frison's childhood typified the rural West in the early twentieth century. He attended a one-room school with an outhouse and a small woodstove for heat (it gets cold in Wyoming, and not just in the winter). He was an avid reader and a keen observer of nature. He spied his first arrowhead on horseback at the age of five. He shot his first deer at nine, and his first elk at thirteen. Looking for arrowheads and hunting—this was much of George Frison's early life. Growing up on the west side of the Bighorn Mountains, part of traditional Apsáalooke territory, he was exposed to Native American culture

from an early age. Chasing down cattle as a boy, he encountered hunting parties, as well as "war lodges," travois (sledge) poles, discarded or lost equipment, and crevice and tree-platform burials. For a while he rode a horse his grandfather had acquired in trade with an Apsáalooke hunting party. The final signature in his ranch guest book was that of Joe Medicine Crow (1913-2016), an Apsáalooke war chief, historian, and author (and a man with his own fascinating life story).

Frison attended the University of Wyoming in the fall of 1942, intending to study agriculture. But duty called, and after a semester he joined the U.S. Navy, eventually serving on the transport vessel USS *Navarro*. When the war ended, Frison was offered the rank of chief petty officer, but he declined and returned to the ranch in 1946, where he expected to spend the rest of his life among cattle and sheep.

After his grandfather's death, Frison operated the ranch with his uncles and earned extra cash as a hunting guide. But archaeology was never far away, and he kept collecting artifacts he found on the trail (and saving them; he once gave author RLK a small box of artifacts, saying "I found these in '56, while looking for stray cows, on that site you're working on"). He excavated a number of cave sites, such as Spring Creek, Daugherty, and Leigh Cave (which he first encountered at the age of seven). Although lacking formal training, Frison followed procedures described in professional reports he read or heard while attending archaeological conferences. His first publication was in 1962,[6] and he published several others before receiving his doctorate.

Eventually, the "minor back injury" (as he described it in his autobiography) he had suffered during the war was exacerbated by the relentless physical labor of ranch life. Sometime in 1958, he jumped over a fence, as he had done hundreds of times before, but this time pain shot through his body and he passed out[7]. A successful operation permitted regular ranch work, but wrestling calves at branding time, shearing sheep, lifting bales of hay, and riding fence eventually brought the pain back. Concurrently, the time he spent excavating sites and attending professional conferences was irritating his uncles, co-owners of the ranch. At a conference Frison was advised by several notable archaeologists that if he intended to keep excavating sites, he should get an education and do it properly. The stars had aligned, convincing Frison that he both needed and wanted another line of work. And so, in the summer of 1962, at the age of 37, he left the ranch and returned to the University of Wyoming. With credits he had earned 20 years earlier at the university and while in the Navy, and by taking an overload of courses, Frison obtained his bachelor's degree in two years. With a Woodrow Wilson Fellowship,

he immediately enrolled in a graduate program at the University of Michigan, the top archaeology program in the United States at the time. Astonishingly, by 1967 he had earned his master's and doctoral degrees—that's three degrees in five years.

University of Wyoming

Frison returned to the University of Wyoming that same year to become head of the newly established Department of Anthropology and, later that year, Wyoming's first state archaeologist. He served as the president of the Plains Anthropological Society from 1973 to 1974. A middle-aged man on the move, he served as department head until 1987 (creating the undergraduate and master's programs) and as state archaeologist until 1984, when the position became full time. During these years he also oversaw development of Wyoming's State Historic Preservation Office (created through the federal 1966 National Historic Preservation Act), a state archaeological storage facility, and a comparative collection of animal skeletons. In other words, after Frison professionalized himself, he professionalized Wyoming archaeology.

He published his first book at the age of fifty and would publish another dozen. He received research grants from several sources, including the National Science Foundation, the National Geographic Society, and the National Endowment for the Humanities. He remained at the University of Wyoming for his entire career, continuing to work in his office after retirement almost seven days a week until a few months before his death.

Archaeology differs from other fields because of the coterie of often passionate, hard-working amateurs (*avocationals*) who collect artifacts and sometimes do their own excavations. In other words, and unlike, say, amateur astronomers, avocational archaeologists can unwittingly damage prehistoric sites that are of significance to professionals in the field. Although some professional archaeologists shun *avocationals*, Frison thought it was important to work with them. Having been one himself, he knew that if you drive amateurs away, they'll just go underground, figuratively and literally, sometimes doing real damage. Frison thought it best to incorporate them into professional efforts, and as a result, Wyoming professional archaeologists maintain a close and productive relationship with the avocational Wyoming Archaeological Society.

Frison was president of the Society for American Archaeology (SAA), the field's primary professional organization in the Americas, from 1983-85. This was a particularly turbulent time, during which the SAA separated from the administrative and financial umbrella of the American Anthropological Association (due to IRS rules). He is remem-

bered by those present as someone who would sit back at meetings, listen to board members argue an issue, then lay his hand on the table and quietly say, "here's what I think we should do."[8] And that was usually the end of it. His thirty years of herding recalcitrant cattle and sheep, with a crew of equally recalcitrant (and usually armed) ne'er-do-wells, had taught Frison a calm but firm leadership style.

Frison was elected to the National Academy of Sciences in 1997, and he remains the only faculty member of the University of Wyoming to have received that distinction. The Wyoming legislature declared a "George Frison Day" in 1998 to recognize his election. That same year, the University of Wyoming created the George C. Frison Institute of Anthropology and Archaeology, which today provides generous grants for graduate students and professionals.

Frison received a number of other honors in his lifetime, including the Asa Hill Award of the Nebraska Historical Society (1975), the Smithsonian Institution Regents' Fellowship Award (1979), the George Duke Humphrey Distinguished Faculty Award (1985), the Distinguished Service Award of the Plains Anthropological Society (1995), the Society for American Archaeology Lifetime Achievement Award (2005), the American Quaternary Association Distinguished Career Award (2010), and Wyoming's Lifetime Achievement Award for Historic Preservation (2015). He was elected as a fellow of the American Academy of Arts and Sciences in 1972.

We cannot talk about Frison's successes without mentioning his wife, June. Married in 1946, George and June had a legendarily happy marriage of sixty-five years. She was with him on many of his field projects, often cooking for the crew, always with a novel to read in the shade. She traveled with George on his international trips and was at his side at every meeting of the Wyoming Archaeological Society. It was a typical marriage for their generation, but June enjoyed her life, and George knew that he owed much of his success to her support. He was heartbroken when she died of Alzheimer's in 2011. George and June are survived by their daughter, Carol Placek.

Impact

Before the 1960s, archaeologists often discarded the bones excavated at large communal animal kill sites, sometimes keeping a few nicely preserved skulls for museum shelves. This was in part because archaeologists had no idea what information could be extracted from the bones and also because university administrators did not want to allocate space to the storage of thousands of bones in perpetuity (there were boxes of bones stored in

the dirt-floored subbasement of UW's Arts and Sciences building into the early 1980s). Administrators at the time typically believed that archaeology was little more than Indiana Jones-style treasure hunting. Archaeology is "piddling research," a university dean once told Frison. Anything that comes out of the ground falls under the discipline of geology, a geology department head told him (they later became friends).[9]

Frison knew different. Trained at Michigan, he was of a generation that thought archaeology had to be conducted scientifically, and that often meant seeking interdisciplinary input from geologists, palynologists, zoologists, botanists, and others. Frison was not naïve regarding theoretical paradigms, but he was not one to debate the merits of Popperian or Hempelian science, and he had little patience with anyone pontificating about things like sampling strategies. But he did know that interpretations of a site's archaeology must be backed up by careful studies. And he also knew that these studies required more than cursory examination of bones in the field.

Frison's lasting contributions to archaeology came from his efforts to excavate and interpret animal bones, and through his pioneering work in faunal analysis, taphonomy, geoarchaeology, and experimental archaeology. Faunal analysis (the study of animal bones in archaeological sites) was a relatively new field in the 1960s and 1970s, and Frison helped pioneer it through his studies of bone beds. The faunal analyst's first task is to identify bones to species, element (humerus, rib, femur, etc.), side (right or left), sex, and age. This requires a comparative collection. In the 1960s, Frison had plenty of cow bones, but these were not very useful in working with bison remains, to say nothing of antelope, bighorn sheep, and the myriad other species whose remains archaeologists recover.

And so Frison set about creating a comparative collection, beginning in the late 1960s with the carcass of a bison cow that had died the previous winter on a ranch in northeast Wyoming (it took a year for the smell to dissipate from the trunk of his car). Over the years, Frison added the remains of many species. Today the UW department houses a world-class comparative collection—with everything from lizards to bison, of various ages and sexes. There is even an elephant and a camel to help in the study of the Pleistocene bestiary.

Faunal analysis is a demanding and critical specialty among archaeologists, and some of the field's methods were pioneered by Frison. With his comparative collection, Frison helped develop ways to recognize an animal's sex and to age the animals from patterns of tooth eruption. This process was familiar to Frison, who had examined the teeth of (live) cattle for years to determine their age and estimate their life expectancy. Translated

to archaeology, Frison could estimate the age/sex composition of bison in a bone bed and determine the season in which a hunt occurred. Bison give birth in March/April, for example, and so a bone bed that included some animals that were six or eighteen months old was created in late fall. His approach was quickly adopted by an international audience.

Frison also helped develop the field of archaeological taphonomy. Borrowed from paleontology, taphonomy refers to the study of how fossils become fossils and, in archaeological sites, the role of non-human actions in a site's formation. For Frison, this required understanding how, for instance, carnivores affect bones. He admitted that some fractured bones that he initially interpreted as human-manufactured tools (for hide scraping) were actually bones whose ends had been gnawed, punctured, and flaked through carnivore chewing. In its infancy in the 1970s, taphonomy is now a substantial specialty within archaeology.

The one thing all archaeological sites have in common is dirt, so Frison, like others of his generation, incorporated geological studies into all his excavations. The field of geoarchaeology, the study of archaeological deposits from a geological perspective, is today a substantial subfield. But in the 1970s, archaeologists had little training in geology, and so they enlisted the help of "hard rock" geologists who found archaeology an entertaining diversion. Frison worked for years with John Albanese, a petroleum geologist, to help reconstruct a site's original context, for example, a long-buried arroyo, or a streamside sandspit (Frison also worked with James Miller as well as C. Vance Haynes). These studies were crucial to understanding how hunters managed to kill game, because those hunters would have made use of often subtle features of the environment, features now gone but that left traces behind in a geologic record that could be read by those with proper training.

George Frison,(c), experimental elephant butchering with stone tools, 1979.
(Photo by Paul Sanders.)

Frison was also a pioneer in experimental archaeology, the use of experiments, especially with prehistoric technology, to determine parameters and possibilities of that technology (for example, he showed that quartzite is an excellent material for manufacturing butchering tools). In the 1960s, archaeologists tended to think that the

shape of stone tools reflected only mental templates dictating what a "proper" arrowhead should look like, changing through time and from region to region. But through experiments, Frison showed that stone tools, such as projectile points, could change their morphology through resharpening or by reworking the tips and bases of broken weaponry. So archaeologists had to be careful: was this projectile point from another time period or region, or was it a heavily resharpened version of another tool form? Known as the "Frison Effect," this observation later had important impacts on archaeology's understanding of the significance of variability in Neanderthal stone tool technology in Europe.[10]

Another of Frison's experimental projects concerned the hunting technology of the Clovis culture, which, at more than 13,000 years old, is North America's oldest documented Indigenous culture. Clovis hunters lived in a world of mammoths and mastodons, and archaeologists debated, and still debate, the role Clovis hunters played in their extinction about 12,000 years ago.

Frison excavating. (Photo by Marcel Kornfeld.)

One question in this debate was: could Clovis hunters have killed an animal the size of a mammoth, with a hide as thick, if not thicker, than that of a modern elephant, with the spear-points commonly found in their sites? In the 1960s, these hunters were fancifully depicted as driving mammoths into bogs and chaotically throwing spears and boulders at the beast. As a hunter, Frison knew this tactic was stupid. An animal killed in a bog would be hard to butcher, wasting much of the meat. And he knew hunting is not about the application of brute force, but about using knowledge of an animal's behavior combined with patience and stealth to make a deadly strike at just the right moment.

To test whether Clovis technology could do the job, Frison manufactured (with the help of Bruce Bradley) stone Clovis points, wooden shafts and foreshafts, and an atlatl (a spearthrower that effectively increases the length of a hunter's arm and consequently the projectile's speed and force). These he took to Zimbabwe's Hwange National Park, where as part of culling operations, he threw Clovis point-tipped darts into carcasses of

elephants shot by park employees. The darts were capable of inflicting lethal wounds and Frison concluded that Clovis technology could easily kill mammoths and mastodons.[11]

Frison also brought to the field enormous knowledge about the behavior of large game animals; he read plenty, but much of it was self-taught. As a subsistence hunter during the Great Depression, and as a professional guide after the war, he had the opportunity to closely observe bison, antelope, deer, bighorn sheep, and elk. He sometimes experimented with them: as a young man he tried driving bison to see if it was true that they could not turn on a dime; he found it was false, especially when one bison spun around, knocking Frison and his horse over. He insisted that one could not correctly interpret archaeological kill sites without knowing a great deal about how large game behaved under different conditions. His students urged him to put what he knew in writing and the result was *Survival by Hunting*,[12] in which he related much of what he knew about hunting and how it aided the interpretation of prehistoric large game kill sites.

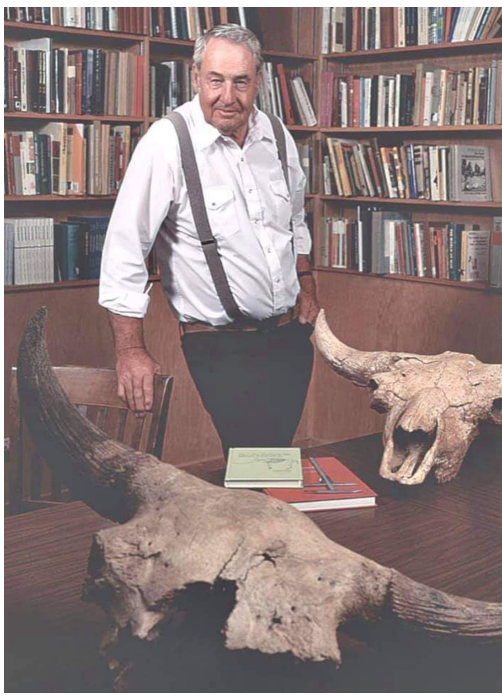
Frison riding near Greybull River, northwest Wyoming, 1990. (photo by Danny Walker.)

But perhaps Frison's greatest legacy is the sheer volume of empirical data he contributed to High Plains archaeology. Archaeologists in 1967 knew only the basic framework of High Plains chronology and lifeways. Frison spent five decades refining it and adding basic information on the lives of the region's Indigenous population, who survived by hunting and gathering. He excavated one of the handful of mammoth kill sites in North America (the Colby site, located near a spring where he used to water cattle when driving them to market). He defined the "foothills-mountain Paleoindian" tradition, evidence of a separate cultural group that lived in the mountains alongside plains groups some 10,000-12,000 years ago, helping to understand ethnogenesis (though Frison would never have used that term!). He showed that hunters used landscape features, corrals, drivelines, and ritual (for example, at the Ruby site) rather than brute force to hunt large game. By excavating so many sites, and by publishing every one of those excavations, Frison created a body of "raw data" and a repository full of artifacts that generations of archaeologists have continued and will continue to use. Evidence of this is his citation

index, which peaked in 2015—when Frison was 91—and was still going strong in 2020. His 1978 book, *Prehistoric Hunters of the High Plains*, is his most heavily cited work, and a third edition was published in 2010.[13]

Final Thoughts

Everyone who met George found him to be focused and hard-working but also friendly, approachable, and down-to-earth. He was not a complainer; his autobiography, for example, contains no mention of a near miss with death when, at the age of 75, a tall excavation profile collapsed on him. Given what he did after age 43, we can only wonder what more he might have done had he followed a traditional educational route, or, alternatively, what might have been had he not sustained a "minor back injury" in the war. In recent years, Wyoming students looked forward to the department of anthropology's weekly coffee hour because Frison always attended and would reliably tell some tale about ranching or archaeology or personalities. He will be sorely missed, and through the body of work he left, never forgotten.



George Frison in office, 1998. (courtesy of University of Wyoming photo services.)

NOTES

1. We appreciate the assistance of Todd Surovell, Danny Walker, Spencer Pelton, and for previous obituaries by Marcel Kornfeld and Mary Lou Larson (*PaleoAmerica* 7:93–98, 2021) and George Ziemens (*Casper Star-Tribune*, September 19, 2020). Information on the USS *Navarro*: https://txnavarr.genealogyvillage.com/name_sakes/uss_navarro/index.htm.

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8. D. Fowler, personal conversation, April 2021.

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11. Frison, G. C. 1989. Experimental use of Clovis weaponry and tools on African elephants. *Am. Antiq*. 54:766–784.

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13. Kornfeld, M., G. C. Frison, and M. L. Larson. 2010. *Prehistoric Hunter-Gatherers of the High Plains and Rockies*. 3rd ed. Walnut Creek, Calif.: Left Coast Press.

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