

## “Old Indian Ways” of Predicting the Weather: Senator Robert S. Kerr and the Winter Predictions of 1950–51 and 1951–52

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### ABSTRACT

In September 1950, U.S. Senator Robert S. Kerr (D-Oklahoma) wrote to Indian leaders across the United States in order to “make some determination with regard to whether or not we are going to have an early winter and whether or not we may expect a hard winter.” Even though he had access to U.S. Weather Bureau predictions and other scientific data, Kerr and his administrative assistant, Ben Dwight, a member of the Choctaw Nation and its onetime Principal Chief, wrote that they “would like to know what some of the Indians in the various sections of the nation think about our coming winter probabilities.” Kerr and Dwight indicated they had a “high regard for the old Indian ways of determining such things—because they are practical and have always been able to make some very accurate predictions.” From 33 letters sent to tribes in 1950 (including 9 to tribes in Oklahoma) 3 responses were known to have been received; a follow-up letter-writing campaign in October 1951 was more fruitful, producing 8 known responses. This paper examines the tribal responses and explores the life and possible motivations of Senator Kerr, an influential man on the U.S. political stage during 1949–63, in seeking this information. This research is part of a broader field investigation that seeks to understand how Native Americans in Oklahoma conceptualize weather and climate, including traditional ways, and how their knowledge is helping to inform new efforts to farm sustainably and create food sovereignty.

### 1. Introduction

In September 1950, U.S. Senator Robert S. Kerr (D-Oklahoma) wrote to Indian leaders across the United States in order to “make some determination with regard to whether or not we are going to have an early winter and whether or not we may expect a hard winter.” Even though he had access to U.S. Weather Bureau predictions and other scientific data, Kerr and his administrative assistant, Ben Dwight, a member of the Choctaw Nation and its onetime Principal Chief, wrote that they “would like to know what some of the Indians in the various sections of the nation think about our coming winter probabilities.” Kerr and Dwight indicated they had a “high regard for the old Indian ways of determining such things—because they are practical and have always been able to make some very accurate predictions.” From 33 letters sent in 1950 (including 9 to

tribes in Oklahoma) 3 responses known to have been received; a follow-up letter-writing campaign in October 1951 was more fruitful, producing 8 known responses. One of the 1950 letters written by Dwight on Kerr’s behalf was to the Roly Canard, Principal Chief of the Muscogee (Creek) Nation in Oklahoma. Canard’s response, sent six days later, related “two old time sayings” from his people, namely “when lots of spider webs are in the air and on lots of trees such as we now see, means we will have a hard, cold winter. Also when the corn shuck is thick and heavy, as it is here in Oklahoma, it is a sign of a hard and cold winter.” Canard also said there are probably other indicators and would try to “get more information from my friends.” His response was used by Kerr as the basis for his 1951 letter-writing campaign, which also included a query about the existence of “weather prophets.”

This paper examines the responses and explores the possible motivations of Senator Kerr—an influential oil man born in a log cabin in the Oklahoma Indian Territory in 1896—in seeking such information at a time when the U.S. Weather Bureau had recently established

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itself as the nation's source of weather information and predictions. This research is part of a broader field investigation that seeks to understand how Native Americans in Oklahoma conceptualize weather and climate, including traditional ways, and how this conceptualization is informing new efforts to farm sustainably and create food sovereignty. Traditional or local knowledge of weather and climate may be informed by direct observations of nature, tribal world views and ceremonies, important events from the past, and what has been passed down from previous generations as stories and practice. As another "way of knowing" it may serve as valuable insight for observing, understanding, and dealing with environmental variation, including climate change. As a note to readers, the terms "indigenous" and "traditional" are used interchangeably, reflecting the common usage of those cited. Linkages are made at the end of this manuscript to recent efforts that incorporate traditional knowledge in a meaningful way in cross-cultural environmental research and comanagement projects.

## 2. Research methods

This historical investigation derives research from primary archival documents and personal communication. Online documentation and knowledgeable curators greatly assisted the archives research. A Web-accessible inventory for the Robert S. Kerr Collection at the University of Oklahoma's Carl Albert Center Congressional Archives provides a gateway to the information revealed in this paper (see online at <http://www.ou.edu/special/albertctr/archives/kerr.htm>). While the inventory does not allow one to see the collection's papers, it does briefly describe what is in each box and folder within the collection. The "Box and Folder Inventory" of the "Departmental Series" of the Kerr Collection includes a variety of information about the Senator and holds the 1950s letters and responses, specifically in Box 8, Folder 40 under the title "Interior: Indian Affairs, Weather Predictions (1950). Indians' weather predictions for the upcoming winter." More searching within the Center's archives revealed the responses to Kerr's follow-up 1951 letter-writing campaign, but these are held in its Malvina Stephenson Collection (see online at <http://www.ou.edu/special/albertctr/archives/stephen.htm>). Stephenson was a *Tulsa World* political reporter who became Kerr's press secretary in 1951. The "Box and Folder Inventory" of her collection, specifically Box 2, Folder 40 titled "Indian Weather Forecasting, 1951. Topics include Indians of North America Folklore" contains the responses from 1951, but sadly does not contain Kerr's 1951 letters to Indian leaders, and these have not been discovered. The 1951 responses are more numerous and contain richer

content than those from 1950. Personal communication with an expert on Kerr's Senate career, Anne Hodges Morgan, who authored the definitive research on his Senate career (Morgan 1977), and Kerr's surviving son, William G. (Bill) Kerr, provided invaluable background information, anecdotes, and analysis on the Senator that helped answer why he may have been interested in the Indian weather forecasts. Interestingly, neither knew of the letters to the Indian leaders or the responses, and as such became interested in helping piece together my query.

## 3. The Indian winter forecasts

### a. Tribal responses

Of the 33 letters sent by Kerr and Dwight in September 1950 (9 to tribes within Oklahoma and 24 outside), 3 responses were known to have been received. One came from Roly Canard of the Creek Nation, as described earlier. Based on the responses from 1951 (described below), it appears Kerr used Canard's 1950 response as the basis for his missing 1951 letters. Another 1950 response came from the All Pueblo Council in Casa Blanca, New Mexico. It indicated that "most all of them ["the Indians in this area"] felt this would be a hard winter just how hard they did not expressed, but, all of them felt that it will be a cold winter, more snow than usual." Two Pueblo informants consulted for the response indicated "there had been some sort of unusual disturbance in the skies this year, assuming 'cloud seedings.'" Another said, "Whenever there was any amount of drought then hard winter followed." The third 1950 response, from the Crow Agency in Lodge Grass, Montana, was informed by 70-yr-old Sidney Blackhair. He had learned to forecast from his father, a "famed Crow Chieftain." Mr. Blackhair predicted a mild winter for southeastern Montana and northern Wyoming, based on observations such as the occurrence of an early mid-September snowfall, frequent rains during the fall, ants not having gone into the ground yet, snakes still being out, and an absence of frogs. This response was delayed because of the hesitancy of Mr. Blackhair "to make his prediction concerning the nature of the coming winter as early as September. He advised the response writer, Joe Medicine Crow, "... he would be in a better position to make his prediction in the latter part of October." Crow continued his response by indicating that "the opposite of these indications would of course mean a severe winter" and that "these signs of nature, I might add, have been observed by the Indians of this region from time immemorial and are well founded and could be relied upon." He concluded by saying, "Indians of other regions have also developed

means of forecasting both the weather and the climate for their particular locality.”

It is not known how many letters Kerr sent in October 1951 or their contents, but eight responses were known to have been received, six of which are described below (two were not informative). The Minnesota Chippewa Tribe in Cass Lake indicated that “we are looking forward, with dismay, to a long and hard winter.” Signs for “forecasting the outlook for the coming winter” included “if the muskrat or beaver build an unusually high and large house, the winter will be severe.” Others signs of a hard winter included “if the fur of wild animals is unusually heavy; if the bark of the tree is thicker, and if the squaw-corn [field corn] is heavily covered with shell.” The response writer indicated (on 23 October) “we have had a little snow already, in some places as much as 6 inches, but we are looking forward to our Indian Summer which should soon make its appearance.”

The Pima-Maricopa Indian Community Council in Scottsdale, Arizona, related that the *Arizona Republic* had recently published a report indicating a “brilliantly colored Gila Monster” had been found wandering in a residential area by two 4-yr olds. As written in this response, “a Maricopa Indian girl from the Salt River Reservation” who served as an informant indicated that this sighting “portends a long and very cold winter.” Also in Arizona, the Navajo Tribal Council in Window Rock reported on a number of observational signs. In late summer, small animals gather and store leaves, grain, and plants if they sense an early frost, and horses and other fur-bearing animals usually change from light to heavy fur. Small insects such as ants “have a way of preparing the ground for coming rains or hard winters.” The writer noted the “disappearance of bees, rabbits, birds and eagles which would mean they are having a famine. They have probably gone to better country—only last summer I saw an eagle which to me would be a sign for better weather conditions.” He noted, writing on 16 November, “well sheltered ground green plants coming up like in the early spring” due to some rain “late after the frost.” In summary, he indicated “an easy winter, little snow, mostly rain,” but wanted to visit with Senator Kerr in Washington after the beginning of the New Year “to discuss more with [him] this subject.”

The Potawatomi Indians of Indiana and Michigan returned a detailed response. The response reported “some of the old timers came up with some extremely odd statements in forecasting weather for the months ahead.” One of them predicted a “short and hard winter, with heavy snowfall” for southwestern Michigan. This informant’s reasoning included observations of average temperatures throughout the spring, summer, and early fall, and that occasional rainy spells had offset

“the torrid heat spells that we some time have.” Another of the old timers, “one of our ardent outdoor Indians” that was a trapper reported, “muskrat houses are small and not over thirty inches in height and there are more of them this ‘early’ fall.” This meant that “the ’rats will be moving about more and won’t have to be worrying about too many tight ice freezes.” He called for a “short and hard winter, the big freeze to come in February and last until the middle of March.” This informant added that fox squirrels were not storing nuts and corn in the late fall, meaning “the snow won’t last too long and that the squirrels will be more active in search for food. Maybe!” A third old timer lamented “all water over the dam nowadays, since the atomic tests, I believe the chemicals have interfered with the air and clouds, the clouds I use to see are no longer in the skies, it must be the atomic experiments have bothered them, because I just can’t give you a good prediction.” But he did think there would be a “hard cold snap from middle January to the 1st of April” because the leaves on most of the hardwood trees remained on the limbs late into the fall. The Potawatomi consensus was a “hard and short winter, maybe.” The response writer noted on 7 November in closing that “outside it is snowing something terrible, there is now about 8 to 12 inches of snow. I believe I’ll talk with the old trapper.”

Two long hand-written responses from 1951 also contained much information; these were received from the Oneida Indians of Wisconsin and the Gros Ventre Indians of the Fort Belknap Reservation in Hays, Montana. The Oneida indicated four ways “of telling what the future weather is in store for us” and that they had brought these ways of forecasting with them from New York to Green Bay in 1823. The person who wrote the response had been working with the University of Wisconsin to preserve “Oneida Indian folklore.” The first way “is when the wild geese are flying back south at high altitude means a hard winter. This fall the geese are headed back south at low altitude, so we expect a mild winter as well as fall.” The second way regarded rabbits or cottontails—if they are “fat in fall we can expect mild winter, if not then it means cold winter.” The third way was “when we get the first snow fall, the rabbits feed on Brushwood, if rabbits eat brushwood next to snow, then we will not get much snow during the winter, but if the rabbits eat Brushwood at the height of a rabbit in a standing position, then it means a lot of snow.” And the fourth was “when Oneidas butcher a pig, usually in the fall, they examine the spleen of a pig [and] if found [to] be thick, then look out for hard winter, and lots of snow.” The response writer agreed with Roly Canard’s Creek Nation assessment on the thickness of corn shuck being a good indicator. He also said he had spoken to an

Oneida woman the week before writing the response, and she indicated a mild winter “because the New Moon was more to the South than North.” He went on that “some Oneida can forecast dry or wet season by the position of the New Moon in the spring of the year” and when there is “lengthy thunder in the North during fall months or in a northerly direction from Oneida, Wis.” it is a sign of a mild winter. Overall a mild winter was predicted.

At the Fort Belknap Reservation, the Gros Ventre had observed that wild geese “in their flight to the south this year flew very ‘low’ and they tell us that this coming winter will be a severe and hard one.” Other signs of a “hard winter” included a “beautiful fall with lots of berries”; “in the old days the buffalo didn’t migrate very far south because it had plenty of feed and forage that would be under the deepest snows and of the fact that they were very adept at pawing through toughest crusted snow”; and “when the prairie dogs which abound up in this country ‘raise’ the entrance to their ‘burrows’ it also means a long and hard winter.” The Gros Ventre had other signs portending changes in winter weather. These included the appearance of the Northern Lights “when they dance and quiver and pierce the skies with beams of light” and “when the sun comes up with ‘sun dogs’ on one side or both sides of it and when the ‘dogs’ seem to be on fire means severe cold and intensely so if the ‘dogs’ stay with the sun till it goes down.” A sign of a cold snap is “when coyotes howl most mournfully.” A circle around the moon “tells us that a storm is brewing.” Other signs of a coming winter storm include “when horses play with each other and stampede around” and “when our cattle come home from the range.” But “when stock horses and cattle [head] for the high ridges even during a storm in winter it means that by the next morning the storm will be over.” The writer of this response indicated, “these methods of forecasting weather by the Indians up here are most surprisingly accurate” and described a “famous Indian weather prophet” Faces Backward for whom “it is claimed that his forecasting never misses.” He closed with some editorial commentary when thanking the Senator for “your interest in Indian life and lore.” He said “there is much—very much—that the Whiteman fails to appreciate because he doesn’t study . . . the ‘Indian’s way’ that would contribute greatly to the progress and advancement of the Whiteman’s civilization.” The writer intended to consult with his 83-yr-old uncle to find out more about forecasting.

### *b. Comparison to measured climatology*

It is tempting to determine how the tribal predictions compared to measured climatology, which was the main query I received from meteorologists after giving a

presentation on this topic in 2009. Some researchers have used climate information to do this or have related such predictions to known physical processes. For example, Orlove et al. (2000, 2002) determined that the star observations of Andean potato farmers, based on the visibility of the Pleiades star cluster the farmers viewed in June to ascertain when and where to plant, compare well to the stage of El Niño and its cirrus-cloud-producing capabilities. Table 1 contains one possible comparison for the winter predictions using seasonal snowfall amounts and average temperatures obtained from National Weather Service Forecast Offices located nearest to the tribal entities that responded to Senator Kerr. Pulling two examples, the Gros Ventre prediction of a “severe and hard winter” in 1951–52 compared well to meteorological observations, while the prediction of a “mild winter” by the Crow Agency in 1950–51 did not.

### *c. Traditional knowledge as independent insight*

Comparing the Indian winter predictions to scientifically measured seasonal snowfall amounts and average temperatures may be problematic since western science and traditional knowledge systems emanate from different orientations to and historical paths through the world, possibly causing the knowledge used in such comparisons to be inadvertently decontextualized or deemed lacking. Berkes (1999) argues, for example, that indigenous observations need not be legitimized by means established within other knowledge-producing world views. Pierotti and Wildcat (2000) believe traditional knowledge may yield unexpected and nonintuitive insights into natural phenomena, contributing more to understanding and potentially to policy making than merely as “ahistorical, timeless, abstract data” (Cruikshank 2001). The people who provided Senator Kerr with their predictions likely had their own conceptualizations of what a hard or easy winter was. It is suspected, based on some of the response letters, that they may have related stories about the timing and intensity of particular snow and thaw events and how these may have played out relative to, for example, growing during the following spring. Perhaps a very cold early winter that killed insect pests would have been considered a good winter. Maybe a winter with a lot of snow at opportune times would have been considered advantageous for capturing moisture.

To help contextualize the Gros Ventre forecast, for example, beyond the observational indicators described in the response letter, it turns out that even during the earliest years of reservation life (late 1800s through early 1900s) pipe bundle rituals were held that included the control of weather. Spring rites conducted by Sitting High (a keeper of the pipe) included a sweat lodge ceremony and offerings to the pipe; as the keeper of the

TABLE 1. Summary of Indian winter weather predictions with climatological data for comparison provided by NWS Forecast Offices nearest the location of tribal offices.

Tribe	Location	Winter forecast	Climatology
		1950–51	
Creek Nation	Okmulgee, OK	Hard, cold winter	At Tulsa, 51st snowiest (Sep–May) out of 109 yr; 46th coldest (Dec–Feb avg temperature) out of 104 yr
All Pueblo Council	Casa Blanca, NM	Hard winter, more snow than usual	At Albuquerque, 49th snowiest (Dec–Feb) out of 115 yr; 15th warmest (same) out of 115 yr
Crow Agency	Lodge Grass, MT	Mild winter	At Billings, 11th snowiest (Jul–Jun) out of 74 yr; 3rd coldest (same) out of 74 yr
		1951–52	
Minnesota Chippewa Tribe	Cass Lake, MN	Long and hard winter	At Duluth, 40th snowiest (Jul–Jun) out of 62 yr, at International Falls, 40th snowiest (same) out of 85 yr; at Duluth 29th coldest (Oct–Apr) out of 111 yr, at International Falls 31st coldest (same) out of 112 yr
Pima-Maricopa Indian Community Council	Scottsdale, AZ	Long and very cold winter	At Phoenix, precipitation (Nov–Apr) below average with trace snowfall in Feb and Mar; temperatures (same) slightly below average
Navajo Tribal Council	Window Rock, AZ	Easy winter, little snow, mostly rain	At Flagstaff, 31st snowiest (21 Dec–20 Mar) out of 111 yr; 17th coldest (same) out of 111 yr
Potawatomi Indians of Indiana and Michigan	Cassopolis, MI	Short and hard winter, maybe	At South Bend, 20th snowiest (Sep–May) out of 68 yr (87% of this snow occurred during Nov–Jan); Nov 1951 is the coldest Nov in the last 115 yr and second snowiest but Dec–Jan was only 65th coldest
Oneida Indians of Wisconsin	Green Bay, WI	Mild winter	At Green Bay, 40th snowiest (Dec–Feb) out of 123 yr; 57th coldest (same) out of 123 yr
Gros Ventre Indians of Fort Belknap Reservation, Montana	Hays, MT	Severe and hard winter	At Glasgow, 3rd snowiest (Jul–Jun) out of 106 yr; 16th coldest (Dec–Feb) out of 106 yr

pipe he had various powers in weather control and in protecting people from illness and danger (Fowler 1987, p. 55). In 1904 he and other older men sang all night to stop rains from ruining a Fourth of July gathering; the weather later cleared up (Fowler 1987, p. 75). As late as the early 1980s, the pipe ceremony was used to pray to “Thunderbird” for good weather for celebrations (Fowler 1987, p. 172). The importance of the pipe in Gros Ventre cultural construction is further described by Gone (2000), including how it provided its keepers with supernatural abilities to fulfill their role as intermediaries with the One Above, including the Thunder Being. In the Gros Ventre response to Senator Kerr, we saw that a famous weather prophet (Faces Backward) was said to never miss on his forecasts. The Gros Ventre creation story conceives the cosmos as always “self recreative;” “to renew one’s civilization was to make a distinctively

human contribution to the continuous process of revitalization constituting the cosmos” (Kroeber 2004, p. 49).

This example provides but one small glimpse into a native world view and resulting epistemological framework regarding a natural happening (weather) and the direct spiritual engagement the people felt with nature as an active participant in it. Suzuki and Knudtson (1992) argue that traditional knowledge emanating from such a world view is holistic, historical, contextual, and rooted in observational reality, in which the whole is seen as greater than the sum of the constituent parts. Pierotti and Wildcat (2000) also see this knowledge as closely tied to observation of nature and to natural phenomena in specific places, so as a consequence native world views can be considered to be spatially oriented; this sense of place and the belief that entities in nature can exist on

their own terms leads to a view that all things are connected and related. Basso (1996) refers to this as wisdom, based on experience that “sits” in places and cannot be separated from the places and events that give it meaning. Ingold and Kurttila (2000) usefully conceptualize traditional knowledge as knowing that is contextualized and generated in the practices of locality—knowing that is not just traditional in being passed down, but also dynamic through adaptation to ever-changing processes and local through the activities of inhabiting a place. The International Summit on Indigenous Environmental Philosophy’s 2010 Redstone Statement “Leave us a future!” summarizes these ideas as follows: “Indigenous environmental philosophy respects a mutually supportive network of interconnected physical and spiritual entities that is sustainably maintained, and which connects the ancestral past with the distant future. The vision of our Indigenous peoples is to reach spiritual and material well-being through conscious action. Mother Earth is a living, dynamic being with inherent value, and her principles must be actively embodied in order to remain in harmony and balance” (see online at <http://indigenousenvirosummit10.unt.edu/>). Herman (2008) proposes that to peer into this world view, an “Indigenous geography” is important for “looking to (or, looking *through*) societies in which other value systems and integrated world views are still operational” (p. 75), allowing a study of the natural world that values the meaning of activities and occurrences in the world. Cajete (2001) cautions, though, that it is necessary to move beyond the valorization and patronization of indigenous knowledge because these “inadvertently can lead to the marginalization of the most profound indigenous epistemologies regarding interaction of human beings and nature” (p. 637). Agrawal (1995) provides a useful post-script to this discussion, believing strongly that we need to move beyond the indigenous versus scientific knowledge dichotomy and instead accept the truism that “knowledge,” anchored in various institutional orientations and trajectories and mediated in unknown ways, can only be useful.

#### 4. Robert S. Kerr and Ben Dwight

Senator Kerr was a successful oil man who parlayed his business success (evolving into Kerr–McGee Oil Industries) into a long political career. He was governor of Oklahoma during 1943–47 and was elected to the U.S. Senate in November 1948 (Morgan 1977, p. vii; this source serves as a general reference throughout this section, with only quotations specifically cited). He served in the Senate until his untimely death of a heart attack at age 66 on New Years Day 1963. Kerr’s former

Senate colleague, President John Kennedy, attended the funeral in Oklahoma City, and in death Kerr was mourned as the “Uncrowned King” of the Senate (Morgan 1977, p. vii). One Oklahoma newspaper wrote of Kerr in death, “If Will Rogers was Oklahoma’s most loved citizen, then Kerr was its most powerful” (Morgan 1977, p. 242; from the Cushing, Oklahoma, *Daily Citizen*, 4 January 1963).

Kerr was a member or chair of committees on Public Works, Finance, Appropriations, and Aeronautics and Space Sciences (he was involved in the establishment of the U.S. manned space program), and chaired a subcommittee on Rivers and Harbors. According to Morgan, this subcommittee chairmanship was the “key to his success” as it allowed him early on to amass an enormous amount of power within a relatively behind-the-scenes position in the Senate—almost everyone has a river or harbor in his/her district. Kerr apparently said “why be the mule when you can hold the reins” (A. H. Morgan 2009, personal communication). Public works eventually became Kerr’s main area of focus, including prominently the securing of appropriations for the McClellan–Kerr Arkansas River Navigation System, linking the Port of Catoosa near Tulsa, Oklahoma, to the Gulf of Mexico—it is considered among the most expensive civil projects undertaken in U.S. history, along with the Panama Canal and the space program. In the end he was a major figure in U.S. politics throughout the 1950s and early 1960s, then often dominated by Southern Democrats; among the Senate leaders he worked closely with were Lyndon Johnson (Texas) and Richard Russell (Georgia), along with Kennedy (Massachusetts). The Southern Democrats through seniority controlled a number of important committee chairmanships; this helped junior members like Kerr establish their agendas.

Kerr’s life before the Senate tells a lot about these eventual interests as well. He enrolled at the University of Oklahoma in 1915 to study law, but when money he had borrowed for college was exhausted he did odd jobs until being commissioned a second lieutenant in army field artillery during World War I, serving in France but not experiencing combat. Upon his return from the war he studied law again and passed the bar examination in 1922. After starting a law firm he entered the oil business, the Anderson–Kerr Drilling Company. In 1935 his company began a fruitful relationship with Phillips Petroleum Company by making a small fortune drilling for Phillips. Kerr’s relationship with Dean McGee began in 1937 and by 1946 the company became Kerr–McGee Oil Industries. During his years in the Senate he would come to be involved in the regulation (or lack thereof) of gas and oil production. As he built his oil ventures he also established ties within the Oklahoma Democratic Party.

His first political appointment came in 1931 as a special justice to the Oklahoma Supreme Court, and he was selected by then-Governor Ernest Marland in 1934 to serve on a pardon and parole board. In 1940 he was elected to the Democratic National Committee from Oklahoma. Kerr ran for governor in 1942 as a Roosevelt Democrat and won a close election. Kerr's first months in office in 1943 were marked by a disastrous May flood in eastern Oklahoma, which helped foster his ideas not only of flood control but also of conservation (impoundment) of water for irrigation, municipal and industrial use, hydroelectric power, recreation, and navigation, all under the banner of economic development. This flood led him to tour river development sites around the country, including the Tennessee Valley Authority. At the end of his term, he campaigned for the U.S. Senate, easily winning the November general election in 1948 after surviving a Democratic primary runoff.

Much less has been written about Ben Dwight, who was Kerr's administrative assistant from 1942 until shortly before his own untimely death in July 1953, a period spanning Kerr's years as governor and his first four years in the Senate (more information is available online at <http://www.choctawnation.com/History/index.cfm?fuseaction=HArticle&HArticleID=26>). Dwight, whose father was a full-blood Choctaw, was born in southeastern Oklahoma in 1890. His father was the supervisor of public instruction for the Choctaws, so Dwight became well educated. He received a bachelor's degree in 1913 from Columbia and did postgraduate work at Michigan and Oklahoma, respectively, before finishing his education at Stanford, culminating in the Doctor of Jurisprudence; this led to life as an attorney. As a young attorney he was a "forceful and pleasant speaker" as a Democratic stump orator in Durant, Oklahoma (Thoburn 1916, p. 1363). During World War I Dwight served in the U.S. Army's Intelligence Department. He also was involved in oil and gas exploration when he became Principal Chief of the Choctaw Nation in 1930, serving in that capacity through 1936; he was said to be the best educated of any Choctaw leader. His experience as Chief served him well as Kerr's Senate assistant, as he had represented the Choctaw Nation in Washington on issues such as property rights and social welfare, writing a book about the latter in 1931. After his term as chief and before his formal association with Kerr, Dwight was the Choctaw Nation's attorney.

It is interesting to note that the Choctaw people Dwight represented, dating back to their time in the southeastern United States prior to removal into Oklahoma, had a history of rainmakers, a tradition that may have formed some basis for his interest in the Indian weather forecasts. Cushman wrote in 1899, "In the matter of rain, the

Choctaw Rainmaker truly swayed the scepter of authority in that line of art, undisputed, and was regarded with reverential awe by his people. In all cases of protracted drouth, which was quite frequent at an early day in their ancient domains, the *hut-tak um-ba ik-bi*, (man rain maker) was regarded as the personage in whom alone was vested the power to create rain; therefore to him they went with their offerings and supplications." Cushman also added, "But all such delusions vanished before the teachings of the missionaries" (Cushman 1899, 201–203). Adair previously wrote in 1775 about rainmakers in the southeastern United States during his time with the Choctaws, Chickasaws, and Cherokees (Adair 1775). The rainmakers he described blamed drought and flood on various breaches of social and ceremonial laws, reflecting tribal beliefs about personal conduct and natural occurrences. As can be seen in this discussion, Ben Dwight was exposed to a complex set of knowledge systems and values as a Choctaw citizen and a scholar, both modern and traditional, that shaped his life and contextualized his world view, allowing apparently for inclusiveness regarding the importance of considering different ways of knowing about nature, and in particular, the weather.

## 5. Discussion and summary

Were there particular motivations for Kerr's and Dwight's interest in these winter forecasts? It is clear that one of Kerr's primary policy interests was harnessing the water resources of Oklahoma for the economic good of the state. And, he was keenly inquisitive about the natural world as reflected in his rural upbringing and his own writings; as such, he may have sought information on the Indian weather forecasts simply because he was fascinated by what the forecasts offered and how they were informed (W. G. Kerr 2009, personal communication).

According to Morgan (1977), Kerr's abilities as a behind-the-scenes mover and shaker made him a powerful Senator. Since almost every congressional district had a waterway or a farm pond, his committee and subcommittee memberships ensured that the pathway for available federal dollars came through him, allowing him to curry favor for his own projects. During the 1950s when public works became his power base, he was able to play a large role in the authorization of Corps of Engineers and Bureau of Reclamation projects that oversaw the construction of water and power-generating facilities. His first bill in Congress created the Arkansas, White and Red River Study Commission, which was the planning effort for land and water development in the Oklahoma–Arkansas region. This eventually led to

the Navigation System project, which among other things aimed to stem flooding disasters along the Arkansas River that had plagued Oklahoma in the 1940s. Kerr teamed with Senator John McClellan (D-Arkansas), the other namesake of the Navigation System, to secure needed funding. The first major funding appropriated for its westward sections came in 1956–57 and more flowed later when Kennedy was president during 1961–63. It is likely, however, that the Indian winter weather forecasts of 1950–51 and 1951–52 had no effect on this project, since the early 1950s were still a time of planning and gathering of support for the eventual navigation system.

Kerr also had strong interests in agriculture in the early 1950s and throughout his Senate career that may have led him to seek the winter weather predictions (Morgan 1977). In Oklahoma and other southwestern states poor weather and shortages of farm credit had led to declining beef prices and rising production costs—creating a crisis in the beef industry. Kerr introduced legislation on 1 January 1953, to require 100% price supports for beef producers. After much debate this amount was reduced and was limited to provide insurance only against disaster because of fears it would lead to uneconomic production practices, though it is not clear this was resolved. Despite this setback Kerr worked throughout his Senate career to establish price supports for grain sorghum and subsidies to drought-plagued cattle producers, but again it is not clear how the Indian weather forecasts may have supported this effort.

Kerr did have a natural affinity for the outdoors through his upbringing; his father had told him in the early 1900s, “Where a man would make a home, he must have three things: land, wood, and water; good land where his crops will grow; wood for his cabin, fences, and fireplace; and water for his family and stock.” The phrase “Land, Wood, and Water” became Kerr’s 1948 campaign slogan and the title of his 1960 book (Kerr 1960; quote above from p. 32) detailing his views on the environment and how to harness it for the benefit of society. It includes an introduction from close friend and fellow Senator at the time, Lyndon Johnson.

The book has a fascinating second chapter on weather and water called “The Liquid of Life.” In it Kerr describes many things—meteorologically speaking—that one would not expect to read in such detail from a politician and oilman. He discusses evaporation (and it being a problem in the western United States); the various layers of the atmosphere and their role in creating weather and rainfall; the geographic variation of rainfall and the roles of orographic features and the oceans in creating this variation; frontal systems and their role in producing storms; high-level weather steering currents;

and the effects of cosmic energy—the 1950s had been an active time of above-ground nuclear testing in Nevada and people then were becoming nervous about the effects of this testing on the atmosphere (recall the similar concern of one of the Potawatomi informants recounted earlier). Kerr does talk about the moon and that it may influence the weather, but “how much, and why, is still a mystery” (Kerr 1960, p. 38). This reference may give some clue as to his interest in traditional ways of knowing about the weather, an interest fueled by a rural upbringing that valued local knowledge of the landscape for immediate interests and needs, set perhaps within some larger frontier imagination of the environment that held knowledge of it in high esteem.

Kerr discusses weather modification, specifically cloud seeding with dry ice to produce rain that could then be captured and stored. He had been involved with Senate colleagues in 1950s legislation that led to the Advisory Committee on Weather Control, which published a final report in 1958. About weather control, he says in his book, “It is frightening to speculate on what could occur, if an enemy should master the mysteries of weather. This knowledge could become a more powerful weapon than any bomb. We must spare no effort to learn these secrets first” (Kerr 1960, p. 41). Control of the weather, and water, was on Kerr’s mind, and that of others during the Cold War years of the 1950s; indeed, in Kerr’s introduction, Johnson had written, “I am of the opinion that water management is a decisive tool in our mighty struggle for national security and world peace. The best control and use of this precious resource is the key to progress, here and elsewhere” (Kerr 1960, p. 10).

Based on my query, W. G. Kerr reported that he and A. H. Morgan had over the years “revisited history on a mélange of RSK topics and, at least in my memory, yours is the most challenging” (W. G. Kerr 2009, personal communication). In thinking about this issue he indicated that Ben Dwight was “quite intelligent, very thoughtful and a real gentleman” and that “Ben was a better representative of the Senator’s office than several of the staff members. My father missed Mr. Dwight after Ben departed the staff and left Washington.” A second communication from Mr. Kerr concludes that he ultimately does not know why the Senator sought the Indian winter forecasts, but he offers some fascinating insights nonetheless:

A continuing search of my memory has not uncovered any particular nugget to contribute to your research. I believe my father’s inquiries in the early 50’s were “a fishing trip.” He came of age in a period when the Farmer’s Almanac and empirical knowledge were the best sources available for families as his was, dependent upon the uncertain results of agriculture. He and his



father spent much time together in the field. As recalled later by Dad, those conversations covered a wide range of topics. It seems quite sensible to me that Native American weather wisdom would have been included. Today, weather remains a prime topic at the feed store or sale barn, so perhaps we can only imagine how compelling the subject was in territorial times.

At a more practical level, the farm boy turned teacher, failed and then successful businessman; later ambitious politician always had the next election in mind. 1952 was a presidential cycle in prospect and while Dad was not going to be on the ballot, there is no question he was inevitably interested in anything that might affect the returns. So, in substance, my best guess is that his inquiries through Ben Dwight were semisentimental, revisiting times shared with a beloved father and instinctively pragmatic, gathering any and all information available about conditions lying on the political horizon. Lastly, I'll add that my father was an omnivore, always gathering ideas, facts, and reasoned analyses. He wasn't always sure how the information was going to be employed, but was certain that at some point in time it would prove useful. (W. G. Kerr 2009, personal communication)

Perhaps this is it—Senator Kerr was so interested in information for information's sake, and possessed a voracious curiosity about his first love, the environment, that he was keen to seek knowledge about its various facets, including weather, from all sources, including Native Americans. His close confidant Ben Dwight may have had similar beliefs and convictions based on his Choctaw heritage. Kerr's particular interest in weather and its mysteries, and how to control it for the production of water resources, was significant.

We are likely never to know exactly why Senator Kerr sought the winter forecasts at the time he did. But, as an "omnivore" of information from widely varied sources that undoubtedly used the information to his advantage in his various environmental management projects, Kerr may be a role model to follow now as society seeks ways to cope with complicated environmental issues. A growing literature on indigenous knowledge and environmental comanagement describes projects that are putting this ethos into practice (e.g., Menzies 2006) and may represent a promising way of reconciling the use (in practice) of divergent knowledge systems, as long as this use is done in a way that allows Indigenous peoples to recreate and revitalize themselves in ways they feel are appropriate in contemporary society (Cajete 2001). Though the use of indigenous knowledge in comanagement frameworks has not always been straightforward, with challenges including the fundamental differences in western scientific and traditional ecological knowledge systems, the relatively powerful position of western science and scientists relative to traditional ecological

knowledge and its users, and the challenges of documenting and presenting traditional ecological knowledge (Peters 2003), successful examples from around the world are emerging, particularly those involving local indigenous observations (e.g., Krupnik 2009). A recent forum in the *Journal of the Royal Society of New Zealand* (2009, Vol. 39, No. 4) on "cross-cultural environmental research and management" describes the philosophy behind this effort and provides examples (introduction by Stephenson and Moller 2009). There, research methods for the coproduction of knowledge are advocated that involve active engagement of stakeholders as partners, cooperative direction setting and establishment of action outcomes, cross-transfer of skills, and creation of trust (Maclean and Cullen 2009). The building of "communities of learning" made up of indigenous groups, academics/researchers, and policy makers/managers can help facilitate such endeavors (Robson et al. 2009). For knowledge coproduction to be successful, partners must be open to new ideas and proceed with humility (Berkes 2009). And it is even suggested that scientists should at least acknowledge the existence of something beyond physical reality (Uhlmann and Almstadt 2009, echoing Herman 2008), and perhaps find opportunities to engage with indigenous communities in a spiritual way. In the end, despite all the inherent challenges, we will go back to the main premise—exploring all "ways of knowing"—not just recent advances in weather and climate science but also local observations, oral histories, and meaningful experiences contextualized within world views that promote particular ways of being in the world, may prove useful in helping conceptualize and understand changing environmental conditions and formulating human responses to them.

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