The Webster Unit

Solomon Division

Pick-Sloan Missouri Basin Program

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A handful of family homesteads. The Webster Cash general store. The quaint hotel built of chalk limestone blocks and the local school house. The farm community of Webster, Kansas once held these buildings, and more. But, after decades of hard times, instead of slowly de-materializing into a ghost town, remnants of the village sit 53 feet underwater at the bottom of Webster Reservoir. The reservoir is one of those lakes west of the Missouri River where Reclamation flooded a town in order to save a way of life. Unlike their neighbors on the North Fork of the Solomon River, along the banks of the Solomon's South Fork, the local priority was a dam for primarily for irrigation over flood control. A dam for any purpose would have been beneficial during the rainy summer of 1951, as a tremendous flood washed out much of Kansas and Missouri. The July deluge was a dramatic step in a story that began as a little girl's observation almost 70 years previous.

Project Location

The Webster Unit sits on 8,000 acres of Rooks and Osborne Counties between the towns of Woodston and Osborne on the north side of the South Fork of the Solomon River. The Webster Dam, eight miles west of the city of Stockton, is the principal feature of the unit. The Woodston Diversion Dam, four pumping plants, the 32.6-mile long Osborne Canal, laterals, and drains are also part of the unit's facilities.

The climate of Rooks and Osborne Counties is similar to most parts of Western Kansas and Nebraska -- low precipitation, rapid evaporation, and a wide range of temperatures. The summer days are customarily hot, as the only shade around are the trees clustered within a few feet of the river. The summer nights cool off quickly, owing to the movement of the wind and the low humidity. Precipitation is sporadic, with the greatest amount falling during the late spring and summer. January is the driest month, while June sees the highest amount of rainfall as an average of over 25 percent of the year's total precipitation falls during those thirty days.

Overall average moisture for the year is around 21 inches.[1]

Historic Setting

The impetus to dam the South Fork of the Solomon originated with the following inquiry to the *Rooks County Record* "Out of the Mail Box" column in 1933: "Dear Friends: – Why not dam the Solomon river and make this valley a beautiful and productive center?"[2]

The questioner was Mrs. Curtis Fry of Stockton, Kansas. Born Lavina Armstrong, it was always Mrs. Curtis Fry every time she spoke in public on the matter of damming the Solomon. Her desire to block the river was rooted in a strong memory from childhood. In 1878, the Armstrong's farmed just below the eventual site of the Webster Dam. As a child, Lavina and her sister would drive the family's cattle to the South Fork, taking shovels to dig holes in the sand, creating little pools for the cattle to drink from the following day. On one of these trips, it occurred to Lavina, why doesn't someone dam up the entire stream?[3]

By the time the Armstrong family and other pioneers came to Kansas, both the Indians and the buffalo had been subjugated by America's westward expansion. Life for migrating bands of Pawnee, Cheyenne, Arapaho and Sioux centered around hunting buffalo and game. Statehood for Kansas came in 1854, but Osborne County was not settled until 1869, and the soil of Rooks County would not be broken until two years later. Swarms of grasshoppers were the first major calamity to strike Osborne and Rooks Counties in 1874. The pests ravaged crops, stripped fruit tree saplings bare and ate "everything but the tobacco," in the words of one pioneer. Eventually overcoming the hunger of the insatiable locusts, the population of both Osborne and Rooks had grown to 20,630 by the start of the 1880s, as most newcomers had been farmers in Iowa, Nebraska, and Wisconsin.[4]

The little house on the Kansas prairie was made of sod. Prairie turf cut into strips two to

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1. U.S., Department of Interior, Bureau of Reclamation, *Reconnaissance Geologic Report - Webster, Stockton and Woodston Damsites - Rooks County, Kansas*, (Indianola, Nebraska: February 1950), 9.
2. *Rooks County Record*, 12 October 1933, p. 6.
3. U.S., Department of Interior, Bureau of Reclamation, *Annual Project History, Webster Unit*, Vol. 2, 1953, 12; "Plain Talk from Kansas," in *Reclamation Era*, (February 1951): 39. "Plain Talk from Kansas" was taken from an address given by Mrs. Fry in front of the annual meeting of the Kansas Reclamation Association on October 4, 1950.
4. Leo E. Oliva, *Ash Rock and the Stone Church: The History of a Kansas Rural Community*, (Woodston, Kansas: Sons and Daughters of Ash Rock, 1983), 5; *Leaves of Lineage*, Vol. 1, no. 3, (Osborne County, Kansas: Osborne County Genealogical and Historical Society, no date), 6.

three feet in length, grass side down and overlapped, formed the walls of an average 12-by-16 foot "soddy." Almost a half acre of land went into the average soddy, and the total weight of the earth might exceed sixty tons. A day-long get together of neighbors socializing and laboring, better known as a "bee," helped many a newcomer build his first homestead. Cost ranged between $5 and $10, depending on the touches of civilization the owner wanted to add. Homes were not the only structures born of the soil, as members of Osborne Counties first Reformed church built their house of worship out of sod in the summer of 1871. Once their homes were raised, these pioneers experimented with a variety of crops from castor beans to clover before settling down to either wheat or corn. Homesteaders broke virgin land with walking plows, bound grain and cut corn by hand, all the while paying anywhere from 10 to 40 per cent interest on their loans.[5]

People came still came in the 1880s, but prosperity never really stayed along the South Fork. Periods of favorable precipitation, and the resultant good crop yields, were only breaks from protracted cycles of drought. The unpredictability of the weather was enough to curtail new settlement and drive many of the pioneers away by the 1890s. A few who stuck it out experimented with small pumping plants to irrigate their fields. The pumps never resulted in permanent installations, as the general interest in irrigation was almost non-existent, due to the river often running low and muddy.

As the fortunes of South Fork settlers soared and stumbled, during that same period, Lavina Armstrong grew up, married, and became Mrs. Curtis Fry. Years after imaging a dam across the South Fork, Mrs. Fry sent her first letter to a local politician later published in the *Rooks County Record* newspaper. Another letter followed to Republican Governor Alfred Landon in February 1934, followed by a plea to George S. Knapp, chief engineer of the Kansas Water Resources Division. Intrigued, Knapp soon joined Mrs. Fry's cause, acting on behalf of the state government investigating the proposal and advising a local group that had grown in her

5. Oliva, *Ash Rock and the Stone Church*, 11; *Leaves of Lineage*, Vol. 1, no. 3, 6; Howard Ruede, *Sod House Days: Letters from a Kansas Homesteader, 1877-78*, (Lawrence, Kansas: University Press of Kansas, 1983), xiii.

wake.[6]

The vindictive weather of the thirties dramatized why multi-purpose dams were needed in Kansas. An almost decade-long drought was interrupted by a major flood in 1938. On Armistice Day of the same year, the twin crusades of irrigation and flood control bound locals together as a petition circulated supporting construction of a dam. Local appeals were forward to the United States Congress, the State of Kansas and the U.S. Army Corps of Engineers.[7]

The Bureau began their first investigations of the South Fork in 1939. Around the same time, the U.S. Army Corps of Engineers also showed interest in developing selected flood control projects across the Missouri River Basin. Penned by Regional Engineer William G. Sloan, a facility at Webster was a small component of Reclamation's sweeping plan to develop the entire Missouri River Valley. After much discussion between both groups, federal adoption of the Corps of Engineers-Reclamation hybrid known as the Pick-Sloan Missouri River Basin Plan, came in 1944. That same year, the Corps drilled a series of core holes some 3,000 feet downstream from the present location of the dam, but failed to advance beyond that survey. Five years later, Reclamation countered with its own geological investigations of three sites; west of the town of Woodston, another west of Stockton, and downstream from the town of Webster. Unfavorable spillway conditions and higher construction costs than the other two sites shot down Woodston. Stockton lost out due to the high price of land in the proposed reservoir area. The Webster site won, but a dam on the South Fork remained in limbo until the rainclouds began to gather over Kansas in the summer of 1951.[8]

Torrential rains and devastating floods carried by most of Kansas' rivers and tributaries in May, June and July 1951 awakened Washington to the importance of flood regulation. In July, a record peak discharge at Webster measured 55,200 cubic feet per second (cfs). In the month's second week, as floodwaters threatened to decimate Kansas City, Missouri, Arkansas Senator

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6. U.S., Department of Interior, Bureau of Reclamation, *Annual Project History, Webster Unit*, Vol. 2, 1953, 12.
7. *Annual Project History, Webster Unit*, Vol. 2, 1953, 12.
8. U.S., Department of Interior, Bureau of Reclamation, *Geotechnical Investigations for Webster Dam and Dike*, (Billings, Montana: 1990), 3.

John McClellan lamented, "If congress a few years ago had appropriated $300 million for flood control reservoirs in Kansas we would have been spared this flood loss of at least twice that amount." That same week two Reclamation hydrologists could personally testify to the severity of the weather. A duo of water experts from the Denver office found themselves marooned by a new batch of storms and flooding near the town of Emporia.[9]

Once an appropriation act passed Congress in July 1951 to build dams throughout the Missouri River Basin, one local peculiarity held up construction at Webster -- the town itself. Born of big hopes in the 1870s, Webster was on a downward slide by the 1930s. In more prosperous times around 1910, the town was home to 200 people, and could boast of a bank, hotel, and a daily mail stage to the towns of Stockton and Bogue. The shocks brought by the Depression and Dust Bowl were more than the community could take. The Bureau's land agents and lawyers were busy in the autumn of 1952, negotiating and dealing with landowners. Haste was at a premium, as Reclamation scheduled the town of Webster for underwater burial by the spring 1953. In order to fill a diversion pool, Reclamation planned to move houses, businesses, and the town cemetery, submerging any structures left behind. Those abandoning their buildings received salvage value compensation from the Bureau. Operating on a budget of $40,000, the Farm Unit Development/Settler Assistance program had, by the end of 1952, acquired 55 out of 164 ownerships earmarked for the future lake. Earth moving work on the dam's foundation began March 14, 1953, but the Bureau granted a sixty day extension the following day for locals to relinquish possession of their property in order to allow Webster's children to complete the school year in the community school house.[10]

Project Authorization

Congress first approved and authorized Webster under the Flood Control Acts of 1944 and 1946, as a unit of the Missouri River Basin Plan. Money to initiate construction of a dam and reservoir was included as part of the Appropriations Act for Fiscal Year 1953 (Public Law

9. *Denver Post*, 13 July 1951, p. 3; 17 July 1951, p. 6.
10. Frank W. Blackmar, (ed)., *Kansas: A Cyclopedia of State History, Embracing Events, Institutions, Industries, Counties, Cities, Towns, Prominent Persons, etc., Vol. 2*, (Chicago: Standard Publishing Co., 1912), 898; "First Contract Let for Webster Dam," in *Reclamation Era*, (March 1953): 64.

470, 2nd session, 82nd Congress). Webster was one of ten starts authorized by Congress under the appropriation. On October 21, 1952, nine companies submitted bids to begin work on the proposed dam's foundation. Before a gathering at the Stockton City Hall, Reclamation's Construction Engineer Rudolph J. Walter, Jr., announced H. N. Rodgers and Sons Company of Memphis, Tennessee submitted the low bid of $993,780. Two weeks later, Rodgers won the bid, but their inability to get out of the blocks set the tone for contractor dallying that is theme of the construction history of the Webster Unit.[11]

Construction History

Under the terms of their contract with the government, Rodgers and Sons won the right to excavate more than 1.75 million cubic yards of earth, place 1.25 million cubic yards of sand and gravel fill to form the dam, and divert the South Fork within 380 calendar days. Rodgers received the notice to proceed on December 12, 1952, making the completion date December 27, 1953. On January 12, the last permissible day after receipt of notice, the contractor sent three men and a foreman to clear the dam's axis, but they were on the job for only a week. Two months were lost, as clearing operations resumed in March, leaving Rodgers in a tight spot to finish the foundation on time.[12]

The $500,000 appropriation allocated for Rodgers, and $25,000 due the firm of Trowbridge-Oehring of Columbus, Nebraska for building the construction camp were both exhausted by the end of May 1953. Instead of shutting all operations, the contractor cut their two nine-hour shifts per day schedule down to five days a week between June 9 and July 20. When the fiscal year began in July with a fresh supply of money, most that year's funding was budgeted toward obtaining land for the dam and borrow pits. The weather also showed its capriciousness that year, as blowing dirt hampered operations. The contractor fought back by watering the haul roads and embankments heavily. A summer with little rain did help progress

11. U.S., Department of Interior, Bureau of Reclamation, *Unit Record of Construction, Webster Dam Foundation Construction*, (Stockton, Kansas: 1953), 9.
12. "First Contract Let for Webster Dam," 64.

on the dam's embankment, as with no measurable flow, workers easily diverted the South Fork.[13]

Rodgers and Sons resumed their two nine-hour shifts schedule in late July after the government notified them funds were available. The firm employed an average of 50 men to clear the foundation. A common laborer earned $1.25 an hour from the contractor, while a heavy mechanic was rewarded with $2.20 an hour. Embankment placement of Zones 2 and 3 were finished by the end of September with Zone 1 material set by early November. The scheduled completion date was in sight, but rain and a nine-inch snowstorm during the first week of November suspended progress for a month. After a brief resumption in December, the weather again prevented the company from completion.[14]

As Rodgers and Sons were bogged down with clearing the foundation, a round of bidding on the unit's centerpiece, the Webster Dam, commenced in November. Rodgers presented a joint bid with another firm, but their $6.2 million offer missed the mark. They were undercut by $100,000 by Edward E. Morgan Company, Inc., and Jones and Gillis, Inc., both of Jackson, Mississippi. Their joint bid of $6.1 million won them the Webster Dam contract on December 11, 1953. Morgan, Jones and Gillis won some points with the government after Reclamation informed Rodgers and Sons they would consider the foundation clearing contract complete if the Rodgers agreed to reimburse the government for costs necessary to finish the remaining work. Morgan, Jones and Gillis agreed to do the work at their unit bid price for similar work.[15]

The snowy winter of 1953-4, forced the government to delay sending a notice to proceed to both firms until the weather allowed continuous work. Despite the notification, Morgan, Jones and Gillis began stripping for grout holes on February 25, 1954, weeks ahead of the government's notice to proceed for March 15. The partnership of Morgan, Jones and Gillis beget a myriad of subcontractors for the number of different jobs necessary to complete the dam. Grouting was subcontracted out to Empire Diamond Drilling Co. of Kirwin, Kansas, and

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13. *Annual Project History, Webster Unit*, Vol. 2, 1953, 4, 11; U.S., Department of Interior, Bureau of Reclamation, *Annual Project History, Webster Unit*, Vol. 3, 1954, 20.
14. U.S., Department of Interior, Bureau of Reclamation, *Unit Record of Construction of Webster Dam Foundation Construction*, 35.
15. *Annual Project History, Webster Unit*, Vol. 2, 1953, 17-8.

concreting was the domain of L.A. Tvedt, of Memphis, Tennessee.[16]

During a lull in construction in February 1954, Walter left the Webster construction engineer post to accept the position of director of Reclamation's Region 7 office in Denver. C.E. Klingensmith took over as construction engineer until the unit was completed. With operations on the dam going full swing by November of that year, the contractor's force had grown to 269 men, the largest number employed during its construction. Government employees got leftovers from nearby Reclamation projects to form their construction camp. The spartan surroundings featured two permanent buildings, four temporary buildings, and 14 thirty-foot house trailers purchased from Montana's Hungry Horse Project. The four temporary buildings housed machinery, making the sixty mile trip from the Glen Elder Unit.[17]

During 1954, the contractor used two three-cubic-yard dragline shovels and eight to 12 13-cubic yard Euclid bottom-dump trucks to haul earth. One shift worked from February to April 15, when two nine-hour shifts were scheduled. The dry summer of 1954 required sprinkling Zone 1 and 2 materials, as not to blow away. Also that summer, the first concrete for the outlet works as one shift set forms while two others placed concrete. The 1950s were a climatic repeat of the Dust Bowl years without the scenes of a farmers exodus. The raging floods of 1951 gave way by 1955 to parched seasons, as the South Fork evaporated to a minimum annual runoff of 8,400 acre-feet. Subcontractors Texas Construction Company of Dallas, Texas and Hyde Construction Co. of Jackson, Mississippi performed the earthwork. The two firms went on to buyout Morgan and Jones and Gillis as the prime contractor in 1955, continuing under the name of the Texas Construction Company. In a review of their accomplishments that year, Reclamation noted only a slight lag behind schedule due to delays in concrete completion, riprap production and placement.[18]

A counterpoint to the dry, dusty summers, freezing weather and snow forced stoppages

16. *Ibid*., 17-8.
17. *Annual Project History, Webster Unit*, Vol. 3, 1954, 12, 20; U.S., Department of Interior, Bureau of Reclamation, *Annual Project History, Webster Unit*, Vol. 5, 1956, 4; U.S., Department of Interior, Bureau of Reclamation, *Unit Record of Construction on Webster Dam Government Construction Camp*, (Stockton, Kansas: 1953), 1, 8. Walter died in Denver in 1991 at the age of 91.
18. *Annual Project History, Webster Unit*, Vol. 3, 1954, 10-1; U.S., Department of Interior, Bureau of Reclamation, *Annual Project History, Webster Unit*, Vol. 4, 1955, 10-1.

during the winter of 1955-56. Zone 1 embankment placement resumed in March 1956 and was completed in May. May also saw the setting of the last chunk of riprap and placing of the last barrel of concrete. The intake structure was plugged on May 3, closing the dam for storage. In late June, the spillway gates were installed. Despite missing the completion date of May 23, the government granted Texas Construction an extension of 34 days to June 26, in response to spillway design changes. Four months went by before 14 Kansas farm towns surrounding the unit banded together and sponsored a dedication ceremony for Webster Dam on October 5 and 6, 1956. A parade and free barbecue led to the dedication speech from Assistant Secretary of Interior Fred G. Aandahl.[19]

The finished Webster Dam is a modified homogeneous earthfill embankment stretching along two miles, from above resembling a bending, linear strip breaking the flatness of the Kansas plains. The dam's upstream face is protected by 3.5 feet of riprap, while downstream two feet of chalk rockfill is now overgrown with grasses and weeds. An asphalt highway crosses the top of the dam. Disturbing the structure's topographic symmetry is the spillway on the left abutment. The overflow section is controlled by three 33.3-by 39.5-foot radial gates and the spillway carries a maximum capacity of 138,000 cfs. The gates are designed for automatic float operation or manual operation with electric power. The outlet works is on the north bank of the river immediately south of the spillway. The outlet releases water into the South Fork for use downstream and for diversion into the Osborne Canal at Woodston Diversion Dam.[20]

The Webster Dike fills a low saddle about a half mile north of the dam's left abutment. It is 2,640 feet long with a maximum height of 12 feet. Its upstream face is covered in riprap while native chalk rockfill protects the downstream side. The dike shows signs of neglect, as weeds and shrubs grow from its crest and downstream face and animal burrows are clearly visible across its surface.[21]

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19. U.S., Department of Interior, Bureau of Reclamation, *Annual Project History, Webster Unit*, Vol. 5, 1956, 3-4.
20. U.S., Department of Interior, Bureau of Reclamation, *Geotechnical Investigations for Webster Dam and Dike*, (Billings, Montana: 1990), 2.
21. U.S., Department of Interior, Bureau of Reclamation, *Geotechnical Investigations for Webster Dam and Dike*, 2; U.S., Department of Interior, Bureau of Reclamation, *SEED Report on Webster Dam*, (Denver: 1990), sec. C-2, 5.

The total capacity of the Webster Reservoir is 260,740 acre-feet, of which 183,370 acre-feet is meant for flood control, while 72,070 is slated for irrigation. At normal conservation level, the reservoir is 53 feet deep at the dam, six miles long and 1.5 miles wide, covering an area of about 3,445 surface acres. For most of its history, the reservoir has never been filled. Periods of drought, and changes in farming practices in the upstream watershed, often drained the reservoir.[22]

With Webster's completion, flood control was in place. But, before growers could devise any irrigation strategies for their lands, residents had to form an irrigation district, and the government had to complete the diversion dam and carriage facilities. After Webster Irrigation District No. 4 was formed in 1957, the Bureau advertised bids to construct the Woodston Diversion Dam, sixteen miles downstream from Webster Dam. Omaha's Ace Construction Co. and M&A Construction's joint bid of $541,956.50 won them the right to proceed at Woodston.[23]

A non-union force went to work on the Woodston Diversion Dam, as the prime contractors delegated the concrete structure, earthwork, riprap and electrical installation to four subcontractors. The combined crews numbered from 30 to 54 employees, following a schedule beginning June 15, 1957 and ending the first week of October the following year. By early 1958, progress toward completion was in sight, but another harsh Kansas winter and the "too many cooks" subcontractor system only muddled plans. The earthfill subcontractor, Noble & Fuller of Republic, Kansas, could not keep up momentum, in turn, holding back the riprap subcontractor. Noble & Fuller wanted out of their contract by April, 1958, and another firm assumed their work, but they too shut down operations three months later. In July, M&A Construction and Noble & Fuller reached an agreement allowing M&A to finish the earthwork. However, M&A owned very few pieces of equipment and had to rent most of their machinery on a hourly basis from various individuals and small earthmoving contractors across Kansas and

22. *Geotechnical Investigations for Webster Dam and Dike*., 2.
23. *Annual Project History, Webster Unit*, Vol. 6, 1957, 2.

Nebraska, adding to their construction costs.[24]

Now months past the original completion date, January 1959 saw the most difficult phase of embankment placement. In snowy, cold weather, tractors positioning the dam's Zone 1 material was likened by an engineer to "shoveling sand against the tide." Half the time that winter was spent removing frozen material from the fill and borrow areas, as work was limited from about 1 p.m. until dark. The government determined the work complete on February 18, 131 days after the contract completion date. The finished product is a concrete ogee-type spillway 151 feet long, 30 feet high, with earthfill dikes 2,150 feet long. The concrete spillway section has a maximum capacity of 14,000 cfs, diverting water into the 32.6-mile long, 160 cfs Osborne Canal. Total cost of Woodston came to $521,854.[25]

Crawler and rubber-tired tractor-scrapers, aided by a push-tractor, tore through the first 2,000 feet of silt and shale forming the Osborne Canal in early 1958. In addition to the tractors, a dragline excavated saturated sandy material, stockpiling it for compacted backfill. Bushman Construction Company, contracted to build part of Reclamation's Kirwin Unit canals along the Solomon's North Fork, won the bid to finish the remaining three sections of the Osborne Canal in 1958. The firm's knowledge of the area made them one of the few contractors or subcontractors to complete their work without any delays or incidents. In March and November 1959, Bushman won the contracts for the third and fourth sections of Osborne and various laterals. Canal turnouts and a 29.9-mile long lateral serves 7,307 acres. The last stretch of canal was done by June 1960.[26]

Bushman also constructed the Butler pump buildings for four pumping plants, lifting water from the canal to 1,193 acres of unaccessible small tracts. Water first flowed to these lands on July 19, 1960. Final touches like grading, cattleguard installation and clean-up were accomplished by April 22, 1961. After six years of uncertain headway, the government figured

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24. U.S., Department of Interior, Bureau of Reclamation, *Annual Project History, Webster Unit*, Vol. 7, 1958, 3, 10.
25. U.S., Department of Interior, Bureau of Reclamation, *Annual Project History, Webster Unit*, Vol. 6, 1957, 6; U.S., Department of Interior, Bureau of Reclamation, *Annual Project History, Webster Unit*, Vol. 8, 1959, 2-3.
26. U.S., Department of Interior, Bureau of Reclamation, *Annual Project History, Webster Unit*, Vol. 7, 1958, 4; *Annual Project History, Webster Unit*, Vol. 8, 1959, 4-5.

the total cost of the plant, property and equipment came to $17.6 million dollars.[27]

Post-Construction History

The Chief Engineer of the Division Water Resources, Kansas State Board of Agriculture, approved the formation of an irrigation district for users on the Webster Unit on December 13, 1956. Christened the Webster Irrigation District No. 4, the number indicated this was the fourth irrigation district organized in Kansas. Repayment contracts were signed by Webster Irrigation District No. 4 on April 24, 1957. The Webster Irrigation District's autonomy was brief, as its members agreed to join with the neighboring Kirwin Irrigation District in December 1959 to operate their headquarters collectively.[28]

Since its completion in 1956, the Webster Dam's spillway has provided a volume of engineering vernacular in describing its problems. Crumbling and chipping concrete, known as "spalling" plagued the spillway floor concrete joints. Crushed limestone used in the spillway's concrete, weathers poorly. The mixture absorbs water and expands, causing "D" cracking -- the "D" standing for deposit or deterioration. Unit personnel aggressively sawcut the poor concrete along the construction joints, replacing it with epoxy-bonded concrete to halt the freeze-thaw deterioration. The flat section of the spillway apron was the first area to receive the benefits of this method. A 1990 Reclamation safety examination commented the treatment restored the chute floor to a satisfactory condition. Other than the presence of overgrown vegetation, the embankment remains in good shape.[29]

Settlement of Project

From 1925 to 1936, corn in Osborne County accounted for 25 percent of all crops harvested. The effects of drought, a Depression and a World War culminated by 1949. That year, corn accounted for only six percent of all crops grown in the county. Wheat, and a forage

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27. *Annual Project History, Webster Unit*, Vol. 7, 1958, 4; U.S., Department of Interior, Bureau of Reclamation, *Annual Project History, Webster Unit*, Vol. 9, 1960, 5-6; U.S., Department of Interior, Bureau of Reclamation, *Annual Project History, Kirwin and Webster Units, Solomon Division*, Vol. 1, 1961, 7-8; U.S., Department of Interior, Bureau of Reclamation, *Repayment of Reclamation Projects*, (Washington, D.C.: United States Government Printing Office, 1972), 309.
28. *Annual Project History, Webster Unit*, Vol. 5, 1956, 1.
29. U.S., Department of Interior, Bureau of Reclamation, *Water Operation and Maintenance Bulletin No. 144*, (Denver: 1988), no page number. The use of the letter "D" among Reclamation engineers to describe the condition of concrete goes back to the 1930s.

crop, sorghum, are two plants that need little water, and they dominated production along the South Fork for the rest of the century. Concurrently, petroleum exploration kept the economy of Rooks County going, as a large number of farms and ranches were under oil and gas lease. An oil field sits to the north of Webster Dam, and wells have been drilled within a mile-and-a-half of the embankment.[30]

Not everybody felt the Webster Unit was a turning point upward for their community. In a 1985 centennial history of the town of Woodston, the author referred to the Webster Dam, the Woodston Diversion Dam, and the canal system as more "boondoggle" than boon, as "After a few years of operation, there were insufficient supplies of water for the project. It was a local exhibit of poor public planning and the waste of taxpayers money." Webster is another illustration of the ambivalence Kansans have felt toward federal irrigation projects going back to Reclamation's Garden City Project earlier in the century.[31]Local resentment toward Dam

For most of the 1980s and 1990s, the unit's irrigable land was under utilized. Out of 8,500 acres of irrigable land, only 4,474 were in irrigation rotation in 1991. Sorghum domineered most of the farmland that year as 2,323 acres were valued at $961,721. Reflecting the fate of other small farming towns across America, the unit's population has dwindled since World War II. In 1945, the town of Woodston was home to 366 citizens, the most in its history, but by 1990, 121 people called Woodston home. The largest community on the unit is Stockton with 1,507 people according to the 1990 census. The slide of small-town America toward oblivion is unlikely to stop, as at the close of the century, rural demographics meant older demographics, as the average age of a Stockton resident was 44.2 years in 1990.[32]

Uses of Project Water

The growth and decay of native grasses over thousands of years built and enriched the

30. U.S., Department of Interior, Bureau of Reclamation, *Webster Unit Land Classification Report*, (Sept. 1952), 9.
31. Leo E. Oliva, *Woodston: The Story of a Kansas County Town, 1885-1985*, (Woodston, Kansas Western Books, 1985), 167.
32. Oliva, *Woodston: NEED REST*, 80; U.S., Department of Commerce, Bureau of Census, *1990 Census of Population and Housing: West North Central Division, Kansas, Vol. 2*, Summary Tape File 1A, Washington, D.C.: 1991; U.S., Department of Interior, Bureau of Reclamation, *1991 Summary Statistics: Water, Land and Related Data*, (Denver: 1991), 293.

soil of Rooks and Osborne Counties. Those conditions could produce some of the best winter wheat yields in the Great Plains, but most early settlers preferred to plant more corn before realizing the advantages of growing wheat, sorghum, and alfalfa. Production of forage and cereals established a dependable feed supply supporting the local cattle and hog industries.[33]

Following a twenty-year pattern, water was again in short supply during the 1970s. In 1970, precipitation was roughly three-fourths of its annual average, and water deliveries to unit users were eliminated in 1972, when the South Fork ran as low as 700 acre-feet. Additionally, junior water rights holders above the reservoir were pumping out a great deal of groundwater. Adding to Webster's woes, the unit suffered greater than expected seepage problems at the dam and Woodston Diversion Dam, interfering with the district's ability to meet its water requirements.[34]

For a unit as small as Webster, many agencies have a say in its daily operation. The dam and reservoir are controlled and maintained by the Bureau. Operation of the reservoir is coordinated with others in the Kansas River Basin, and the Corps of Engineers furnishes data and operational procedures for regulation of water for flood control. Webster Irrigation District No. 4, maintains the irrigation structures, and both the Kansas Forestry, Fish, and Game Commission and the Kansas State Park and Resources Authority manage the recreation, fish and wildlife interests at the reservoirs and adjacent lands.[35]

A structure built to contain floods without the water to do it with was the Webster dilemma. However, the deluge carried by the great midwestern floods of 1993 was effectively stopped by the Webster Dam, according to Scott Ross of the Kansas Water Resources office in Stockton. More torrential than the 1951 storm, the 1993 flood, and added rainfall two years later, meant floodwaters pushed Webster's spillway gates open for the first time in the dam's history. Campers were upset over waterlogged recreational facilities, but the irrigation district

33. Oliva, *Ash Rock and the Stone Church*, 5; U.S., Department of Interior, Bureau of Reclamation, *SEED Report on Webster Dam*, sec. C-2, 10.
34. *Annual Project History, Kirwin and Webster Units*, Vol. 10, 1970, 9; U.S., Department of Interior, Bureau of Reclamation, *Annual Project History, Kirwin, Webster and Glen Elder Units*, Vol. 1, 1972, 4.
35. U.S., Department of Interior, Water and Power Resources Service, *Project Data*, (Denver: United States Government Printing Office, 1981), 1009.

was "thrilled," in Ross' opinion. If Webster ever fails, Reclamation estimates a 71-mile stretch of the South Fork from the dam to the town of Corinth would face significant economic loss. On dry land and only yards away from the original townsite, the new town of Webster survived the 1993 flood. The community is not such much a town as it is a gathering of approximately 25 to 30 people. Residents live in cabins, mobile homes, and a few structures salvaged from the old farming town prior to the big immersion.[36]

Conclusion

In spite of its flat surroundings, the Webster story has its share of peaks and valleys, but all it took was water to get the Webster Dam some respect from the community it serves. A few saw the unit as unnecessary, but that was before it met its first test of storage in the mid-1990s. Pieced together by a maze of subcontractors, physically, certain aspects of the dam have not aged well, and economically the unit did not provide any monumental fiscal benefits to the towns of Rooks and Osborne Counties. But, as a barrier to hold the angry, unforeseen storms of the midwest, Webster passed one of its main objectives.

About the Author

Robert Autobee holds a Masters' degree in History from the University of Northern Colorado. The Colorado Historical Society published his thesis, *If You Stick With Barnum: A History of a Denver Neighborhood*, as part of their *Essays and Monographs in Colorado History* series in 1993. He has edited and reported for several different Colorado newspapers, and *Western Resources Wrap-Up*, based in Washington, D.C.

36. Telephone interview with Scott Ross, Kansas Water Resources Division, Stockton, Kansas, August 2, 1995; *SEED Report on Webster Dam*, 2.

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