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Article Summary: Periodic floods and droughts have always affected those living in the Missouri Valley. Comprehensive water resources planning involving many agencies began in the early twentieth century.

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Names: Hiram Chittenden, Francis Newlands, Edgar Jadwin, Lewis Pick, William Sloan, John Gage, Samuel Sturgis

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Agencies Involved in Flood Control: Corps of Engineers, Missouri River Commission (1894-1902), Federal Power Commission, Bureau of Reclamation, Missouri Basin Inter-Agency Committee (MBIAC), Missouri River States Committee (MRSC), Department of Agriculture, Missouri River Survey Commission

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Photographs / Images: map of 1981 Corps of Engineers Missouri River Civil Works Projects; main street of Trenton, Hitchcock County, after Republican River flood, May 31, 1935; Hitchcock County shortly before work was started on the Trenton Dam

Flood Control and the Corps of Engineers in the Missouri Valley, 1902-1973

BY EDWARD C. CASS

The water cycle is best described in Ecclesiastes (Ch. 1-7): "All the rivers run into the sea yet the sea is not full; unto the place from whence the rivers come thither they return again." Although the Missouri Valley does not receive a biblical 40 days and 40 nights of precipitation at one time, there have been periods when the danger of floods reached or exceeded 40 days and nights, keeping the inhabitants in fear for weeks on end. Caught between the Bible's Noah and the poet Shelley's Ozymandias, in which he describes the dry waste covering a dead civilization—between flood and drought—the Missouri Valley lies on the edge of a zone in which extremes of weather spell life and death, prosperity and failure.

The floods in the valley came before man dwelt there. The post-glacial river filled the valley; its banks are the bluffs of today. The low slope of the valley and cycles of high precipitation and rapid melting result in the river and its tributaries seeking the ancient boundaries to this day.

Early settlers in central North America felt the effects of periodic floods. The European settlers constructed levees to counteract the rises which took place when the Missouri, Arkansas, Ohio, and other Mississippi tributaries fed runoff into the main river. By 1727 implementation of the flood-control plans of the French engineer Blond de la Tour led to the creation of a one-mile long levee at New Orleans. By 1800 the flood protection theories of Thomas Telford, an English engineer, had developed to the point that he could suggest the storage of flood waters in reservoirs for navigation enhancement. The seemingly modern idea of multiple use is not so new as is commonly thought.¹ However, the concept of reservoirs as a means of flood control took a long time to find favor with engineers in the Mississippi-Missouri basins. In 1822 Simon

Bernard, a French engineer, concluded that dikes and levees were the best means of controlling the Mississippi. The Swamp Lands Acts of 1849 and 1850 were congressional attempts to encourage state flood protection measures and reclamation by means of land grants. River valley land was turned over to states with the stipulation the land would be drained and sold, the money to be used for flood protection. About the same time Charles Ellet Jr. proposed to the Corps of Engineers that reservoirs on Mississippi tributaries would provide better protection against massive floods than additional levees. In an 1857 report a corps civilian, W. Milnor Roberts, rejected Ellet's plan, and the proposal was left in abeyance for nearly half a century.²

Plans came and went and so did the floods in the Mississippi and Missouri valleys. As the flood plains of the Missouri became more heavily settled, each flood did more damage than the last. The 1844 flood covered nearly vacant bottoms, while that of 1881 swept through large settled areas that had grown up there. Between these dates a change of mind had taken place concerning internal improvements. Increasingly Congress, the public, and Presidents favored supporting navigation, railroads, and other projects with federal funds. In 1878 an act of Congress appropriated the first large amount for Missouri River improvement and led to a comprehensive navigation project. The district engineer at Kansas City promoted levees as the solution to recurrent floods. If levees were built high enough, he said, the river would scour its bed and take care of any increase in flow. The short-lived Missouri River Commission (1894-1902) supervised levee construction and channel improvement to keep the stream open for navigation and accumulated statistics on flow which provided an idea of the magnitude of the problem.

The use of river waters for irrigation gave planners of the 1890s a new reason for conserving the liquid resource flowing past river communities. It was suggested that storing water for irrigation would protect one acre in the lower reaches of the system for every acre irrigated. River traffic was on the decline, so Corps of Engineers officers like Hiram Chittenden concluded that in reality levees were being built for flood control, not for navigation enhancement. Chittenden believed that aridity was a greater problem than flooding in the

Missouri Valley. He wrote that the "true scientist" should be concerned not with mere control but with making the flow uniform.³

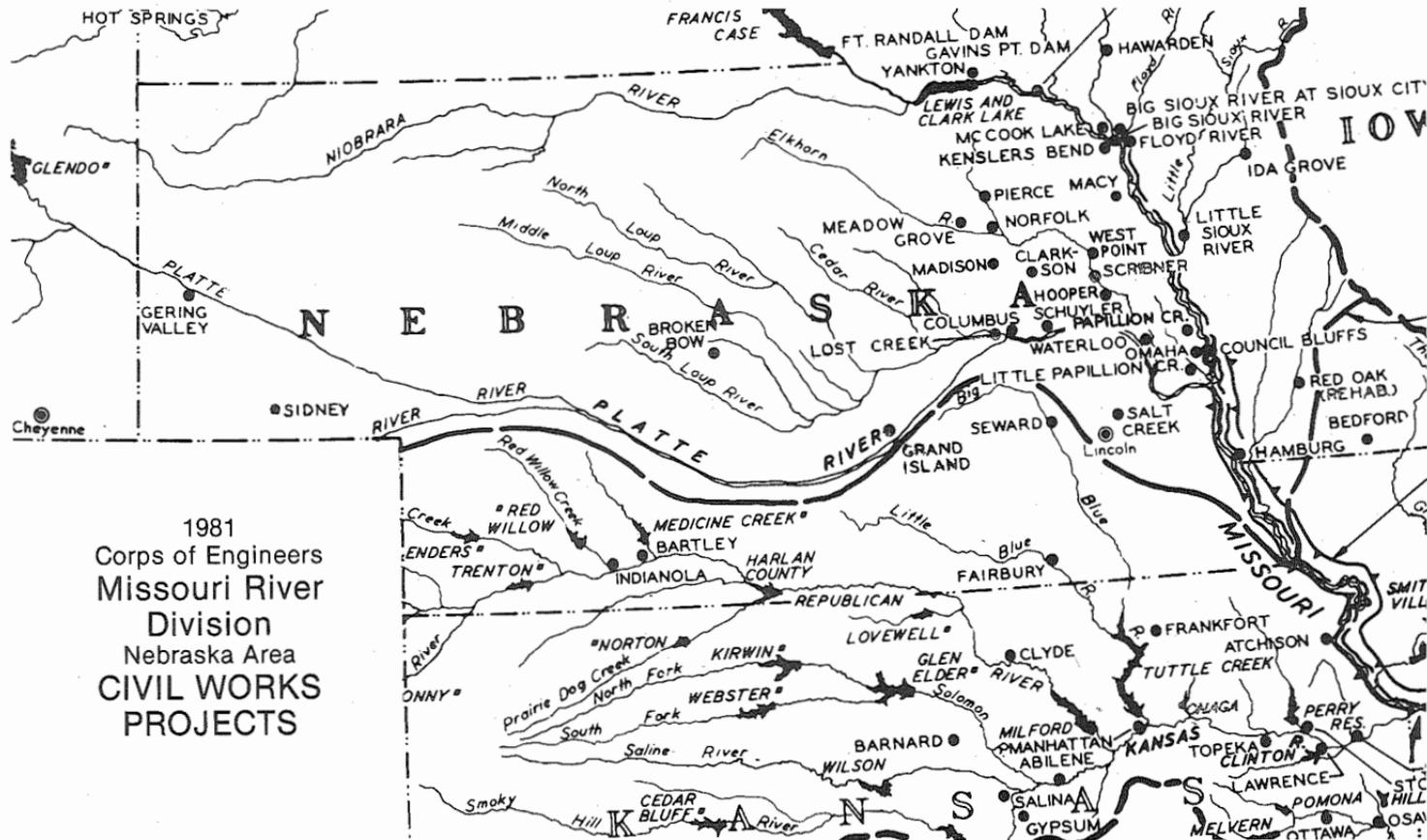
Private levee districts grew to protect ever-larger areas. The idea of constructing reservoirs in arid regions received support from turn-of-the-century Congresses and local commercial clubs. Despite the declining river traffic there was increasing concern for river control because (1) cities were sprawling over the flood plain; (2) farmers were clamoring for irrigation water; and (3) land owners were asking for preventive measures where the stream threatened to erode their soil. Although navigation had been almost entirely supported by federal funds, in part because federal troops and supplies could utilize the improved river for rapid movement, the pro-irrigation and pro-levee groups were expected to help pay for the benefits received. During the first quarter of the 20th century voluntary local contributions for levee work were replaced by mandatory payments which reimbursed the government for work performed. The 1902 Reclamation Act also required water users to pay for the services received. Perhaps in both cases the precedent was set for payment by the fact that private organizations had acted to build levees and distribute impounded water before the federal government became involved.⁴

The flood of 1903 in the Kansas City area was observed by Chittenden, a member of the rescue team. His observations led him to make specific suggestions concerning flood control. He theorized that railroad bridges and large buildings on the bottomlands constricted the flow of water and led to increased damage. He suggested removing natural obstructions such as snags and sandbars and supervising bridge construction so that superstructures would be high enough to permit passage of debris. Chittenden urged that the federal government commit itself frankly to flood control and to the building of levees for that purpose. He rejected reservoirs for flood control alone as too expensive. Despite his urgings and the seriousness of the disasters visited on areas with growing populations and industry, the Corps of Engineers veered away from flood control matters and even from assisting with damage estimates, arguing that its congressional mandate restricted it to promoting navigation.⁵

May rises resulting from melting snow and rain in the plains often inundated parts of Kansas City but did not necessarily generate the most hazardous floods. Early planners studied how to handle the often more dangerous June rise, which originated in the Rockies when sun and rain released the heavy snows of winter. The earlier rise primarily threatened the lower portion of the valley, the later rise the upper. In 1904 James A. Seddon, assistant engineer, suggested that storage reservoirs above Sioux City could control the June rise and provide water for irrigation. Under such a plan the value of the water for agriculture would help balance the costs of the project. The potential drawbacks to such reservoirs were set down by a corps officer, Major W. W. Harts: that reservoirs were unsafe, too expensive and too slow to build, would fill with sediment, and would prove too complex to operate. Other means of flood protection—the ever-popular levees which constituents urged their congressmen to obtain, the creation of cutoffs at river bends to speed rising water downstream, and measures such as deep plowing to retain the rain where it fell—all had their proponents and received corps attention.⁶

The growing movement towards comprehensive water resources planning was helped by President Theodore Roosevelt's promotion of basin-wide planning and the idea of Senator Francis Newlands to combine navigation, flood control, forest conservation, hydropower, and irrigation measures. Relief from a variety of problems should result from properly planned reservoirs constructed in coordination with other projects. Soil control measures would, for example, lessen sediment inflow. The corps position that reservoirs were inadvisable weakened in the face of increased needs for water, yet the corps spent the first quarter of the century officially opposing those activities not directly connected with navigation.⁷

The 1917 Flood Control Act, passed after additional floods swept the valley, ended federal refusal to acknowledge that flood control was other than just a local problem. In a sense this act amended the constitution and gave Congress wide power over regional affairs. During the early 1920s the corps and the Federal Power Commission together were empowered to evaluate the cost of making river basin studies in all but one U.S. river system. The one omitted, the Colorado basin, was



1981
 Corps of Engineers
 Missouri River
 Division
 Nebraska Area
 CIVIL WORKS
 PROJECTS

assigned to the Bureau of Reclamation for planning purposes.

The great Mississippi flood of 1927 demonstrated the inadequacy of piecemeal planning and prodded the corps into creating the Jadwin Plan, named for General Edgar Jadwin. The plan acknowledged the possibility that reservoirs had a place in flood control and suggested that attempts to further heighten Mississippi levees might damage the foundations under them. The plan suggested that a combination of levees, floodways to divert water from critical areas, channel stabilization and improvements in tributaries, improvements which might include dams and reservoirs, would be needed to prevent a recurrence of the levee-topping flood. General Jadwin estimated that even worse floods were possible, and his report indicated that no one means was sufficient for future security.

The 1928 Flood Control Act implemented the Jadwin Plan and directed the corps to develop a unified plan. The next step nation-wide was implementation of the Corps of Engineers-Federal Power Commission suggestions on river planning studies; a series of 10 corps-directed surveys were completed before 1937.⁸ The Kansas City office of the corps sent surveyors throughout the valley, including into upriver tributaries like the Yellowstone, where they had not been for years. These surveyors were to investigate the possibilities of each area in developing navigation, providing power and irrigation facilities, and estimating the flood control benefits of suggested projects. Coincidentally with these surveys the Depression of the 1930s advanced into the region and caused widespread economic dislocation. Roosevelt's New Deal "alphabet agencies" like the PWA, WPA and CCC were empowered to improve the lot of the valley's residents. Simultaneously, improvements in tracked-land and rubber-tired vehicles and innovations born out of military developments in tanks and trucks, caught up with earth-construction theories and made it possible to quickly construct enormous earthworks.⁹

The corps' "308 Report"—as the reports stemming from the 1920s cost-estimates were called—for the Missouri Valley took the efforts of surveyors and others, added the knowledge gained from a half-century of river control work and combined them in recommendations whose effects are still felt. Its

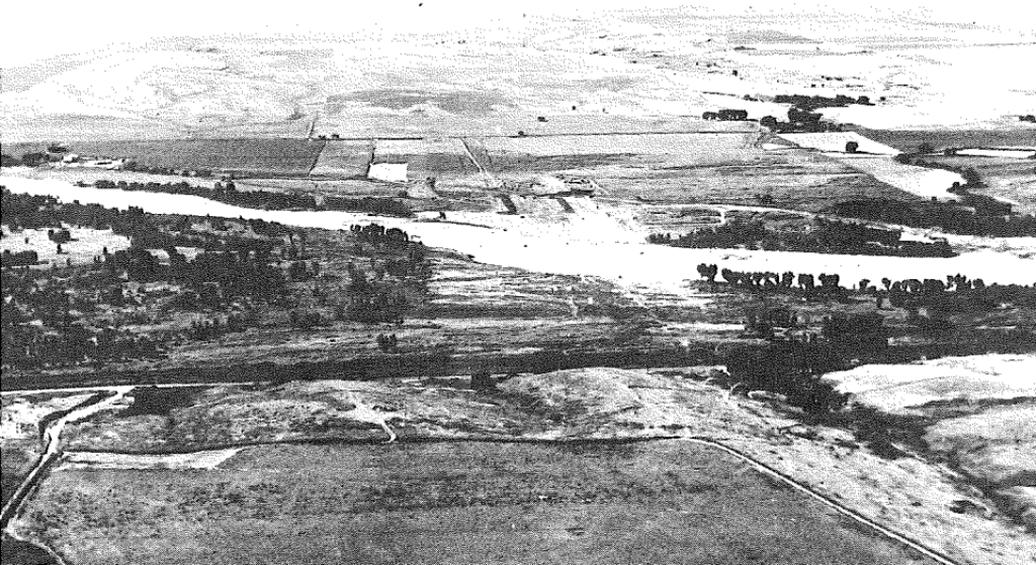
1,200 pages omitted little when it came to river management. The construction of tributary reservoirs, like the one now filling behind Truman Dam in Missouri, were among the long-range suggestions. In Missouri the Gasconade River would have had two reservoirs, the Osage three, and other tributary rivers only single reservoirs if the report was put into effect fully.

A large dam was proposed for the upper Missouri at Fort Peck, Montana. This would result in benefits to navigation on the lower river and in addition regulate the flow, which would lessen the chance of floods. Despite such comprehensive planning, no whole-hearted support for a complete system for the Missouri came out of the study. Suggestions for multiple-purpose dams below Fort Peck were turned down. Even the concept of flood control as a federal activity was questioned, as was the effect of reservoirs far up tributaries on Mississippi floods. The Board of Engineers for Rivers and Harbors, a corps review agency, stated that the decision to build Fort Peck dam as a public-works project was one which Congress must make. In effect the corps carried out the mandated studies magnificently but balked at committing itself to a plan whose outcome and economic benefits could only be dimly perceived. In response to the challenge and probability of having to go ahead with some sort of valley-wide program, the corps divided the Kansas City District into three parts with offices at Fort Peck, Omaha, and Kansas City, and with division headquarters in overall control at Kansas City. Previous to this date high-echelon decisions had been made outside the Missouri Valley.¹⁰

Repeated cycles of floods interspersed by droughts, or drought in some areas of the valley and floods in others simultaneously, demonstrated that the problems could not be ignored, however, and the "308 Report" was gradually implemented—not in its entirety—but in great part. Incidents like the 1935 catastrophic Republican River flood in southwestern Nebraska, in which scores died, kept the danger of inaction fresh in the minds of the planners, ever in the thoughts of the residents, and a vital concern of their representatives. Even so, the 1936 Flood Control Act implemented no dam projects beyond the Fort Peck project already underway, and it would be 1938 before any additional



Main street of Trenton, Hitchcock County, after Republican River flood of May 31, 1935. . . (Below) Republican River valley, Hitchcock County, shortly before work was started on the Trenton Dam. The view is to the south at the point where the structure was built.



major reservoir projects were authorized. Additional levees were planned for the Kansas and Missouri Rivers at Kansas City and channel improvement work funded for the Council Bluffs area. Dredging, the removal of such obstacles as old piles, docks and tree snags, and the construction of dikes went forward under various monetary arrangements during the 1930s. Between Kansas City and Sioux City for example, 157 dikes were built with public works funds, 191 with Federal Emergency Relief Act funds, and six with regular corps funds. The Milk River in Montana, the Cheyenne in South Dakota, Indian Creek at Council Bluffs, and many other rivers and streams received control works. Nationwide, the corps received authority to conduct 220 new flood surveys or work projects and was directed to coordinate future plans with those of the Department of Agriculture. That department was becoming increasingly involved with upstream flood control measures.¹¹

It became apparent during the 1930s that no one agency could handle all the problems that would arise. Floods posed threats to life and property, agricultural land and highways, railroads, cities, and the public health. Only one additional reservoir project, that at Kanopolis on the Smoky Hill River, in central Kansas, was authorized, however, before the war intervened and put a temporary halt to continued planning. The 1938 Flood Control Act, which authorized Kanopolis and continuing studies which established a list of priorities for flood-control reservoirs, inevitably led the corps in the direction of comprehensive flood planning and reservoir management and away from navigation. One corps engineer conceded that navigation was no longer the prime consideration but that it might still benefit by the storage of water in excess of the minimum allowable flows and by releases at opportune times.¹²

Flood threats of the early 1940s pushed the question of flood control beyond the matters of damage to property, and danger to life, to what effect massive flooding would have on war industries upon which national survival depended. It was pointed out even before Pearl Harbor that lives and services would be disrupted by floods and that military facilities lay exposed in the flood plains. (The Harlan County Dam on the Republican River in southwest Nebraska, for example, along

with Milford Reservoir now protect an airfield and a training facility—Marshall Field and nearby Fort Riley, Kansas.) Organizations like the later Missouri Basin Inter-Agency Committee (MBIAC) grew up to coordinate state, and state-federal efforts in the basin, not necessarily as a result of war needs but as a means whereby legitimate local interests could be heard. Representatives made their voices heard as well. In 1942 Senator Francis Case of South Dakota urged the Corps of Engineers to join the Bureau of Reclamation in discussing possible dam sites in South Dakota. Heavy rains, including a fall of 3.48 inches in 24 hours at Omaha, continued to demonstrate that weather would not cooperate with the war effort and that stream overflow would have to be mitigated in the future. In both 1942 and 1943 rivers ran over their banks in the Mississippi-Missouri Basins almost as though the Axis had arranged for their misbehavior.

Neither the country nor the corps could abide the situation and in 1943 and 1944 two multiple-purpose plans, one a Corps of Engineers plan and one a Bureau of Reclamation plan, were proposed for controlling the river. The corps Pick Plan was written from the point of view of lower river and navigation interests, the bureau's Sloan Plan from the viewpoint of the upper valley residents and irrigation proponents. Both division engineer Lewis Pick and Bureau of Reclamation engineer William Sloan provided for flood control in their plans. From the start the two plans had some common ground.

Not everyone favored the multi-purpose nature of the plans. Mayor John Gage of Kansas City expressed lower-river opinion, complaining that irrigation and other water uses had decreased the flow at Kansas City by 50 percent in 30 years, that the city's water intakes were being left high and dry. He stated that as first-comers their use of Missouri River water and the lower river's developing industries, industries of national importance, mandated that the lower river receive priority in water allocations. Though he did not want to impinge upon upstream use, Mayor Gage stated that the Pick Plan seemed more congenial to lower river goals. In rebuttal, Representative James O'Connor of Montana presented his belief that water in the Yellowstone and other rivers should be impounded for upstream use and that rain which fell on his section belonged there. He supported the maintenance of

navigation but not to his section's detriment. The population increase in the lower valley did not, he said, automatically entitle it to more water. He concluded that sheep and cattle of Montana ultimately added to the prosperity of Kansas City and should not be ignored.¹³ He and his up-river contemporaries felt more at ease with Sloan's irrigation-centered plan. The congressional acts which implemented a compromise between the two federal agencies came about as a consequence of an amicable corps-bureau settlement which left both plans essentially intact. The settlement led to the impoundment of the Missouri River water and that of its many tributaries. The scheme will hold the economy of the region in its grip for a century, or perhaps for centuries. Dams and reservoirs, new levees from Sioux City to St. Louis, and upstream irrigation projects were among the proposals, and all but the last have now been built in large part. A cut-off channel at Liberty Bend below Kansas City aimed at lowering flood levels in the metropolitan area. Recurrent flooding in 1944, in which \$31 million in damages occurred, reminded the country that *plans* do not stop water. The Missouri River States Committee (MRSC) attempted to bring the region together in a one river—one problem approach and supported the Corps of Engineers and Bureau of Reclamation effort to coordinate plans. The 1944 Flood Control Act was one outgrowth of the compromise and represented a wide-ranging concept of multiple-purpose planning. For the first time recreation was included among the benefits.¹⁴

The forces of the bureau and the corps fought off attempts to turn the Missouri Valley over to a TVA-like agency which would have cost both agencies their power in the region. The MVA proposal was laid to rest with President Franklin D. Roosevelt for all practical purposes—"buried face down, so it could only dig itself deeper," one opponent said. Another move on behalf of the irrigation interests succeeded in obtaining priority for irrigation west of the 98th meridian. The O'Mahoney-Milliken amendment baldly stated that navigation would give way to water needed for domestic, municipal, stock water, irrigation, mining and industrial purposes. In vain General Thomas Robins told Senator Eugene Milliken that navigation should not be subordinate to irrigation nor should the reverse be so.¹⁵

World War II ended, but the floods did not. Fort Peck may have taken a bit of the crest off the Missouri River floods of the 1940s, but it remained evident that more projects had to be initiated soon. The giant dams at Garrison, Oahe, Big Bend, Fort Randall, and Gavins Point on the main stream and numbers of other dams on various tributaries were the result. Construction techniques improved as a consequence of mistakes made at the Fort Peck earth dam. Huge graders on large rubber tires had replaced or supplemented the slower bulldozer or tracked vehicle "cat." Construction efforts were sped by the use of two-way radios and teletypes and by supply coordination methods learned during wartime. General Pick, back from building the Ledo Road in Burma, directed his subordinates to cooperate fully with the bureau on flood control operations and insisted upon the complete evaluation of losses from floods. He wanted to be able to lobby effectively for appropriations to fund his plan and to replace theory with fact. In a letter to a U.S. senator, General Pick stressed that benefits from the construction would almost always equal or exceed costs. The corps' General Samuel Sturgis and Sloan agreed, however, that no measures yet conceived would guarantee the absence of floods. They said the valley would receive a material degree of flood protection, but the lower basin in Missouri could still flood while the river might be at low water at Omaha.¹⁶

By the end of the decade, 40 percent of the Pick-Sloan Plan was under way and partial flood relief was possible. During the first half of the 20th century, 800 persons died in Missouri River basin floods. Such tragedies would now be less frequent, and farms and cities would no longer suffer from the annual "fresh water tides." From today's perspective—three decades later—the plan succeeded: a plan providing levees which clothe the river banks from Sioux City to the mouth of the Missouri and providing reservoirs impounding millions of acre feet of water. Missouri River basin water now better serves people's needs—water to drink, water to irrigate, and river-side parks in which people might enjoy themselves.

Despite all this, floods, particularly small flash floods, are still a problem. The Department of Agriculture and the Corps of Engineers hope eventually to provide enough small dams so that even unpredictable flows will be rendered less damaging.

Modern communications can warn of heavy rain and flash floods, but persons not receiving such warning may still perish. Only physical barriers will stop the rain once it starts running off. Rapid snow melts like those of 1881, 1943, and 1952 can now be caught behind dams. Although many flood control structures now boast multiple functions, some like Cherry Creek in Denver “merely” protect cities and towns, and lie nearly empty of water much of the year. In drought years like 1953, releases from big upstream dams can relieve low-flow conditions as far down as New Orleans.¹⁷

In the 1950s concern for conservation of natural resources increased. Concern was not so much with misuse of water but with whether there would be enough water. Under President Harry Truman a Missouri River Survey Commission concluded that there would be little likelihood of conflict over water in the next 30 years. Their conclusion then seemed valid enough. A reading of the *Omaha World-Herald* in recent years demonstrates that the 30 years have run out. By the mid-1950s the corps was proposing another step to decrease damages—flood plain zoning, a step the first settlers might have thought of if the rich flat lands had not been so inviting.

General Sturgis suggested limiting flood plain usage for the future to ensure quick run-off. Chittenden would have cheered at this. Yet corps successes at protecting industrial areas have led to *more* development and only the recent National Flood Insurance Program (1966) has put teeth in discouraging unhindered use of flood plains.¹⁸

Up to 1973 corps projects in the valley saved an estimated \$2.6 billion in flood damages. The accuracy of such figures is often disputed, but a figure half this much, not to mention deaths that may have occurred, would still make the project appear worthwhile. Smaller tributaries are still inclined to run over. Papillion Creek near Omaha does so periodically. The Moreau River in the Cheyenne River Reservation did so in 1968. St. Louis, Missouri suffered a flood in 1973 that submerged an area the Pick-Sloan Plan should perhaps have protected. In 1978 the valley experienced the highest water flow ever—greater than that of 1927, but little damage resulted.

Plans based on historical record which attempt to predict rainfall over 50 and 100-year cycles reek of optimistic hubris.

To say that we will have "enough" water to cool the breeder reactors and hydrogen fusion plants of the future or to feed synthetic fuel plants or slurry pipelines is presumptuous. Human plans "gang aft a-gley," but that is not to suggest that the corps should not make them. It should study the adjustments of the past to be ready for changes that may need to be adopted in the future.

NOTES

1. Luna P. Leopole and Thomas Maddock, Jr., *The Flood Control Controversy: Big Dams, Little Dams and Land Management* (New York: Ronald Press, 1954), 97-98.
2. DeGrange Index, Record Group 77, Box 1, National Archives and Records Service, Washington, D. C.
3. Gordon B. Dodd, *Hiram Martin Chittenden, His Public Career* (Lexington: University Press of Kentucky, 1973), 9, 31-32.
4. Dodd, *Hiram Chittenden*, 35-36; In 1915 a formula of 25 percent federal and 75 percent local and state funds was established for levee/bank protection work. Part 1, 1133, Corps of Engineers Annual Reports, 1924.
5. Dodd, 50-51; Corps of Engineers Letter, August 20, 1903, RG 77, 1125, Box 47306, Item 29.
6. Champ Clark et al., letters, RG 77, 1036, Box 43889, Items 1340-1350.
7. Gilbert F. White, "A Perspective of River Basin Development," *Law and Contemporary Problems*, Vol. 22 (Spring, 1957), 168; Dodd, 53; Elwyn F. Chandler, "Missouri River Diversion in North Dakota," paper, 1927, Missouri River Division, Corps of Engineers files, Kansas City.
8. Arthur E. Morgan, *Dams and Other Disasters, A Century of the Army Corps of Engineers in Civil Works* (Boston: Porter Sargent, 1971), 228-229, 286, 296, 298-302. Morgan believes the appointment by President Hoover of General Lutte Brown, a non-corps engineer, helped renew corps thinking; G. F. White, 169, 170.
9. Annual Report, Corps of Engineers, 1930, Part I, 1255; Leopole and Maddock, 101.
10. The 308 Report was gradually implemented—but not in its entirety—308 Report for the Missouri Valley, House Document 238 (Washington, DC: GPO, 1935), 2-3, 7-8, 11-12, 17-21; Thomas H. Langevin, "The Missouri Basin: A Study in Multiple-Purpose Water Development," Dissertation, (Lincoln: University of Nebraska, June, 1951).
11. Paul E. Scheele, "Resource Development Politics in the Missouri Basin: Federal Power, Navigation, and Reservoir Operation Policies 1944-1968" PhD dissertation, University of Nebraska (Lincoln, 1969), 27; Flood Control in Missouri Valley, Missouri River Division Report to Corps of Engineers, June 26, 1936, RG, 338, Box P52731, File 300.52 (NARS—Suitland); Langevin, 14; Leopole and Maddock, 86, 114; Annual Report, Corps of Engineers, 1936, part 1, 997.
12. "Priority List of Flood Control Reservoirs, Missouri Basin" (MRD files), July 14, August 8, 1938, in RG 338, Box P52731, File 821.3 (NARS-Suitland, 1st endorsement to MRD letter, August 5, 1938).
13. Marian E. Ridgeway, *The Missouri Basin's Pick-Sloan Plan, A Case Study in Congressional Policy Determination* (Urbana: The University of Illinois Press, 1955), 185-186.

14. Ridgeway, 75, 76, 78, 174. In some ways the Pick Plan was more comprehensive than Sloan's. It included specific irrigation projects in the upper valley and on tributaries, whereas Sloan's plan was only concerned with navigation in general. This can be explained in part because the lower river included agriculturalists needing both water and protection from floods, whereas the upper basin had few cities needing defense against flood water and no navigation.

15. Quotation, Senator Overton in Scheele, p. 68. Ridgeway, 142. See also HR 4485, Flood Control Bill and HR 3961 R and H Omnibus Act. Truman killed the MVA by routing it to hostile Senate Commerce Committee in 1945.

16. Missouri River Division to district engineer, Fort Peck, referring to OCE letter, November 18, 1947, RG 338, Box P52731, File 800.5; Langevin, 222; Missouri River Division to district engineer, Garrison, June 27, 1947, RG 338, Box P52731, File 800.5; Missouri River Division, General Pick to Senator Wherry, February 10, 1948, RG 338, Box P52731, File 800.5.

17. Ridgeway, 286, "Floods and Flood Control," (Omaha: Corps of Engineers, January, 1952), 2-4; Langevin, 215. The 1952 Kansas City flood left six inches of silt over wide areas in the river's last massive flood.

18. The 1960 Flood Control Act empowered the Corps of Engineers to respond to local requests for information on flood hazards. Ridgeway, 301, 152, 153.

19. Speech by Colonel Clyde Selleck, Missouri River Division at MOARK, Navigation Conference, Omaha, March 11, 1980.