

AN HISTORICAL DESCRIPTION
CONCERNING THE DEVELOPMENT
AND CONSTRUCTION OF THE MCCLELLAN-
KERR ARKANSAS RIVER NAVIGATION SYSTEM

- The Renaissance of a River - 1

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Mark Wootten Grobmyer
Honors Thesis
Professor Charles Wilson Turner
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Foreword

My interest in the Arkansas River Navigation project began as a child when the Corps of Engineers began construction of river improvements near my home in Little Rock, Arkansas in 1957. I remember observing the construction taking place around me even though I did not really understand the purpose of the construction.

When I came to Washington and Lee University I thought that perhaps I was so far from the project that I could do nothing to educate myself about it. It was when I decided to undertake an honors thesis that Professor Charles W. Turner suggested that the project might be the subject of an historical analysis. I became very interested in the idea and in the summer before my senior year began my work. It seemed fitting to make my study for, during the summer of 1971, the project was completed and dedicated on June 5th by President Richard M. Nixon.

At this time, I would like to acknowledge the invaluable assistance of the Little Rock Chamber of Commerce, the Arkansas Industrial Development Commission, The Arkansas Waterways Commission, the University of Arkansas Industrial Research and Extension Center, The Department of the Army

Little Rock District Corps of Engineers, the Washington and Lee Library, and the personal help and advice of Senator John L. McClellan and his office staff. Also, of course, the paper could not have been written without the instruction and guidance of Dr. Charles W. Turner.

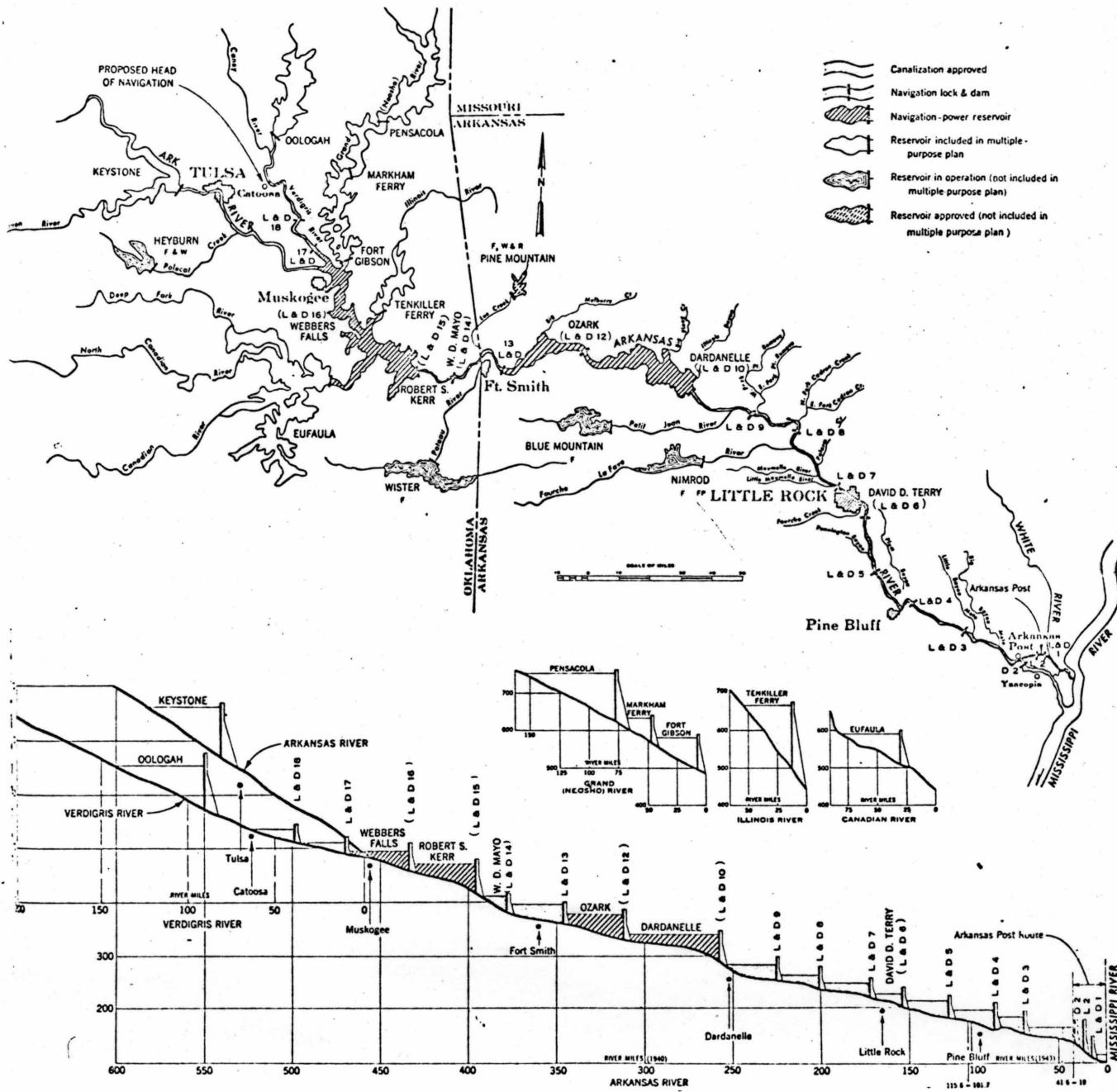
Preface

The purpose of this paper is to give, in as much detail as possible, a complete historical description of the development and construction of the McClellan-Kerr Arkansas River Navigation System. Due to the fact that the project was completed less than a year ago I could find no study written that covered all aspects of the project, thus my research comes totally from primary sources such as published pamphlets, newspapers and magazine articles, and many government documents. Perhaps the most difficult aspect of the paper has been to draw together these varied sources of information into a complete cohesive study.

The project we are concerned with is the largest civil works project ever undertaken by the United States government. It cost more than the Panama Canal, the TVA, or the St. Lawrence Seaway. The project began on July 24, 1946, when Congress authorized the development of the Arkansas River and its tributaries for navigation, flood control, hydro-electric power, and recreation.

The system consists of seventeen locks and dams that form a stairway 440 miles long with a minimum channel depth of 9 feet and a total lift of 420 feet. It reaches from

Diagram of the Project and Its Locks and Dams



the Mississippi River to the city of Catoosa in Oklahoma. It consists of a 10 mile long canal from the mouth of the White River to the Arkansas River. From this point the system goes up the Arkansas to Muskogee, Oklahoma, then to the Verdigris River for the last fifty miles to the port of Catoosa.³

The study of the project will begin with a description of the Arkansas and its tributaries, followed by a history of man and the river. Next the political fight for the project will be discussed and also the actual construction. Finally, the results will be analyzed and a look to the future will be presented.

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An Historical Description Concerning
the Development and Construction of
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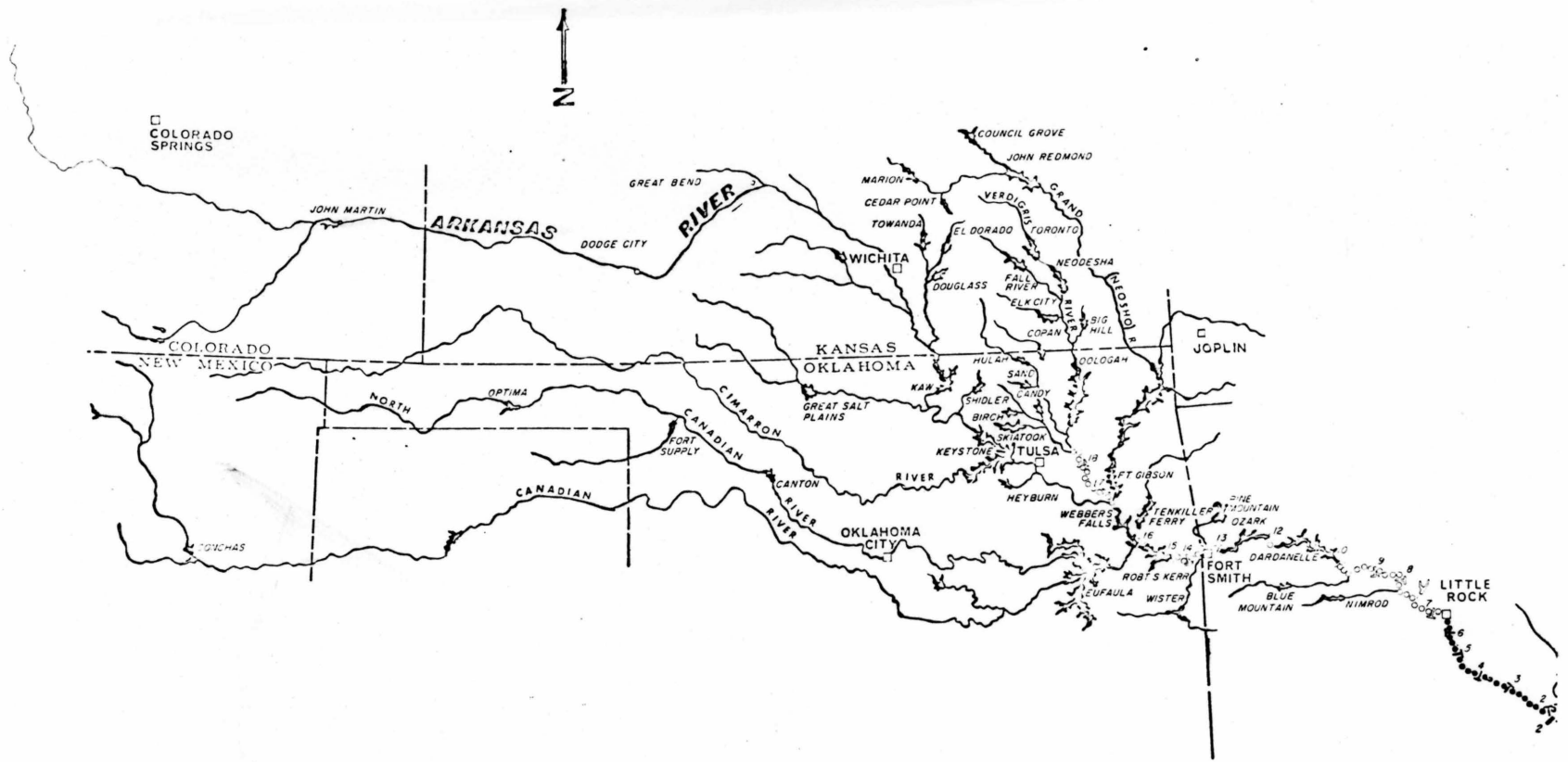
"By undertaking a vast project that some called impossible and others called worthless and making it a success, you have demonstrated once again the vitality of the American tradition of daring great things and achieving what we dare."⁴

- President Richard M. Nixon
June 5, 1971

CHAPTER I

Physiography

The 1450 mile long Arkansas River is America's third longest river and the World's 35th largest.⁵ The flow begins in the Rocky Mountains near Leadville, Colorado (mile 1433) and flows in a general easterly direction through the states of Colorado, Kansas, Oklahoma, and Arkansas to its meeting with the Mississippi. The river falls from an elevation of about 11,500 feet above mean sea level at its source to about 106 feet above mean sea level at its mouth. Its fall per mile varies from 110 feet near its source to 0.4 feet near its mouth.⁶



**THE
ARKANSAS
BASIN**

The river is considered navigable from the mouth of the Grand (Neasho) River in Oklahoma, to the Mississippi River. The Arkansas descends the first 125 miles of its course in a deep, narrow channel and then flows through a narrow valley bordered by foothills to the town of Pueblo, Colorado. Downstream from here the valley broadens and the river flows in a series of long easy bends in a shallow sandy channel to the Kansas-Oklahoma state line. (mile 689.2). All through Arkansas and Oklahoma the course of the river is rather crooked and was subject to frequent minor changes. During periods of low flow the channel meandered over a wide sandy bed between banks that were easily eroded. This led to many bank cavings at high flow in many areas and in turn led to much sediment added to that which comes from tributaries entering the river in Oklahoma.⁷

In the 64.4 miles of river between Tulsa and the mouth of the Grand River, the width between banks varies from 750 to 3,000 feet, the banks are from 10 to 20 feet high and the average fall of the stream is about 2.1 feet per mile. The range between the low and high river stages is about 20 feet. From the mouth of the Grand River to Little Rock is a distance of 293.8 miles. The height of the banks varies from 20 to 35 feet and the width between banks varies from 600 feet at high bluff points to 3,000 feet in lesser sections. The average fall in this section is about 9 feet per mile. The ranges between the low and high stages average

about 42 feet in this section. Between Little Rock and the mouth of the river the bank heights range from 20 to 40 feet. In the portion from Little Rock to Pine Bluff, the river is very wide between banks, whereas the distance between banks is as little as 900 feet in some areas between Pine Bluff and the mouth. The variation between the high and low stages is about 34 feet.⁸

Besides the river itself there are, of course, many tributaries. The tributaries entering the river in Colorado and western Kansas do not contribute materially to the flow of the river. Others in Oklahoma and Arkansas are important. The first of these is the Salt Fork River which joins the Arkansas at a point about 51 miles downstream from the Kansas-Oklahoma state line. Its length is about 192 miles and it drains an area of about 6,700 square miles. The second is the Cimarron River which is about 460 miles long and drains an area of about 19,690 square miles. It joins the Arkansas about 17 miles upstream from Tulsa. The Verdegris River, which is now part of the Navigation System, is 478 miles long and drains some 8,150 square miles. Next is the Grand (Neosho) River which is 260 miles long and drains some 12,660 square miles. It joins the Arkansas 64.5 miles downstream from Tulsa. The Illinois River drains some 1,620 square miles in northwest Arkansas and eastern Oklahoma. It is about 150 miles long and meets the Arkansas 1.7 miles downstream from Webber Falls, Oklahoma. The Canadian River drains

some 47,500 square miles in Colorado, New Mexico, Texas, and Oklahoma. It is about 906 miles in length and runs into the Arkansas about 5.7 miles downstream from Webber Falls, Oklahoma. Next is the Poteau River which is a 128 mile long stream in Oklahoma and Western Arkansas. It drains an area of 1,895 square miles and joins the Arkansas about .2 miles west of the Arkansas-Oklahoma state line. The Petit Jean River drains some 1,080 square miles of Western Arkansas and is about 135 miles long. It meets the Arkansas 30 miles downstream from Dardanelle, Arkansas. Next is the Fourche La Pave River which is about 160 miles long and drains some 1,110 square miles in West-Central Arkansas. The river enters the Arkansas about 26.7 miles upstream from Little Rock. The last major tributary is the Bayou Meto which drains about 1,030 square miles in the area of East-Central Arkansas. It is 164 miles long and enters the river 62.1 miles upstream from the mouth.⁹

The Arkansas River Basin covers and drains approximately 148,000 square miles, and includes parts of the states of Colorado, New Mexico, Kansas, Oklahoma, Texas, and Missouri. It is bordered on the north by the Missouri River Basin, on the northeast by the White River Basin, and on the south by the Red River Basin. The basin's topography is interesting as it is mountainous in the west and is rugged until it reaches the vicinity of Pueblo, Colorado where it abruptly changes into the area of the Great Plains. These

Plains extend eastward to the vicinity of Hutchinson, Kansas and then merge into an area of broken hills in eastern Kansas and Oklahoma. In the reach from Short Mountain to Fort Smith the river meanders through a sandy streambed. It then wanders through the hills of Western Arkansas until it reaches the delta of Eastern Arkansas.¹⁰

The climate of the region ranges from sub-humid in the western part, where there is an average annual precipitation of 30 inches, to humid in the eastern part with annual precipitation of 55 inches. The average annual temperatures vary from 55° in the extreme northern part in Kansas to 62° in Oklahoma and Arkansas. Southerly winds prevail throughout the area. The growing season for crops varies from about 200 days in the northwest part to 300 days in the east.¹¹

The average annual flow of water is about 29,780 cubic feet a second. The maximum flood on record was in 1943 with about 855,000 CFS. The minimum flow was in 1934 with only 200 CFS. Flooding has been known to occur along the entire reach of the Arkansas River in Oklahoma and Arkansas. Floods usually originate in the reach between the mouth of the Verdegris River and Fort Smith. Floods occur most frequently in the spring months.¹²

This is, in brief, a physical outline of this great ~~A~~ River. In the remainder of this work I shall concern myself with a history of man's fight with and eventual conquest

of the Arkansas.

CHAPTER II

Early Explorers

"On up the Mississippi, to the river called after the Indian Tribe, Arkansas. It has been told to me that here is a land of great riches, where precious stones lie along the banks of the stream."

- Captain La Caze¹
for the Legend of Petit Jean -

No one really knows how many millions of years ago the River was formed. What we do know is that Indians inhabited the area long before any white man even saw the Arkansas.

The name "Arkansas" was the word used by the Algonquin Indians to describe the Quapaws who inhabited the area. The word itself has been translated to mean "down-stream people."² It is quite possible, perhaps probable, that the Indians navigated the River for many purposes. The problem with the Indians, being "uncivilized," is that they left no recorded history. For this we had to wait for the coming of the white man.

At this point it should be noted that the Arkansas River was seen by white men even before the Missis-

issippi. In 1541, Francisco Vasquez de Coronado crossed the Arkansas near present day Dodge City, Kansas. Thus, he not only became the first white man to see the great River, but also was the first to navigate it. He then continued his futile search for the "city of Gold."³

About a month later Hernando De Soto discovered the Mississippi, again in a search for gold. De Soto, also in 1541, crossed the Mississippi into present-day Arkansas. He wandered throughout Arkansas and seems to be the first white man to view the site of what is now Little Rock.⁴ For the next one hundred and fifty years there is no record of further exploration by white men. As time passed, the hold on the territory given to Spain by the conquistadors gradually faded out. Near the end of the seventeenth century France decided to make a bid for the region that encompassed the Arkansas basin.⁵

The French voyageurs were much interested in furs and had an interest in expanding the trade. They spread southwesterly along the Saint Lawrence River into the region of the Great Lakes. This became their jumping off point for further exploration, making great use of the Mississippi River.⁶

In 1673, Jacques Marquette and Louis Joliet began to explore the Mississippi and reached the mouth of the Arkansas. By 1686, they had been able to map the general course of the Mississippi and prepare the way for future

settlement.^{6A} In the meantime, 1682, La Salle claimed possession of Arkansas in the name of the King of France, Louis XIV. He then sought to establish a settlement along the Mississippi to protect his claim.⁷

In 1686 Henri de Tonty began to descend the Mississippi in search of La Salle who was said to have established a colony at the mouth of the river. When he failed to find La Salle he turned back up the river. Knowing it was La Salle's wish to establish a settlement he decided to do his best to establish one. On his return he noticed an area of high ground that looked as though it might serve the purpose he had in mind. He ordered his men to construct a post to be called "Arkansas Post."⁸ Thus, in 1688, there was a settlement formed in Arkansas which was to become the springboard for further exploration of the Arkansas.⁹

John Law, an Englishman associated with France, had an idea to form a company in this region. In 1719, 800 settlers came into the area, but only to stay the first winter. Law himself had a large grant in Arkansas but in 1720 his finances failed and the company collapsed.¹⁰ Arkansas Post, however, was to continue as the base of all French operations in this region.

In 1719 another Frenchman, Bernard de la Harpe, explored the Red River as far as Texas when he was finally driven back by natives. He then returned by way of the Canadian and Arkansas Rivers. Because he was still interested

in the region he sponsored another expedition in 1721. Early in 1722, he arrived at the mouth of the Arkansas River in a canoe to, "explore and perhaps seek out a reported emerald rock somewhere upstream."¹¹ He was also to examine the quality of the soil, form alliances with the Indians, learn the flow of the river, and prevent Spanish claims. He was never able to accomplish all of these because of the lack of provisions and discontent among his men. We know that he did make it as far as one hundred seventy miles upstream because he did find a rock of great size, though not emerald, near the site of present-day Little Rock.¹²

After the expedition, M. Dumont, an engineer, wrote:

"In 1721 some visionaries having assured the company that there was an emerald rock on the Arkansas River, Captain de la Harpe was sent to look for it... We ascended the river for more than 250 leagues, without being able to discover this pretend treasure, probably because it existed only in imagination, we even advanced nearly fifty leagues further by land into the country till complaints arose in the troops. La Harpe, who apprehended a fate similar to La Salle's resolved to return to the capitol."¹³

The next effort to explore the river was made by two brothers, Peter and Paul Mallet. In 1734, with six other men, they crossed western Kansas and followed the Arkansas for some distance. They returned in 1740 on a journey that took them to the Canadian River where they con-

structed boats and floated down the Arkansas to the Mississippi.¹⁴ Until the 1800s the river was just explored by the fur traders and missionaries that used Keelboats to explore the area.¹⁵

One of these men, a Frenchman named Joseph Bogy, operated out of Arkansas Post and in 1806 established a trading post some 450 miles upstream, in an area known as Three Forks, which is near present-day Muskogee, Oklahoma.¹⁶

Indeed, the French presence and dominance over the area during the period of exploration is quite evident today when one looks at the names of the many rivers and streams of the area, as well as mountains, names such as Petit Jean, Saint Francis, Dardanelle, Maumelle, Cache, Boyan d'Arc, Saline, Fouche la Fave, and Petit Roche (now Little Rock), are constant reminders of the French.¹⁷

Perhaps the most important decision made during the administration of President Thomas Jefferson was the purchase of the Louisiana Territory. Out of it was carved 13 states and the entire Arkansas River Basin. The most logical move after the purchase was to find out what had been bought. It was for this reason that Lewis and Clark were sent out in 1804 and 1806. They explored the northern sector of the purchase. Another government mission was carried out by Lieutenant Zebulon M. Pike in 1806. His mission was to explore the middle and southern parts of the purchase. The man behind this mission was General James Wilkinson, the

military commander in the western theater. Later it was considered by some to be part of a Wilkinson-Aaron Burr scheme to dominate the southwest. This point is still debated in some circles.¹⁸ Regardless of what the real purpose was, Pike did set out on his mission in the summer of 1806. As noted, he was under Wilkinson's command. His general purpose was to find the source of the Arkansas, establish friendly relations with the Indians and make scientific observations in the area. It was also hoped that he could establish peace among the Osage and Pawnee Indian tribes.¹⁹

Pike was accompanied by twenty-four men including his second in command, Lt. James B. Wilkinson, the son of his commander. They started up the Missouri, crossed the Osage territory to the Kansas River, then up to Pueblo, Colorado. The party then turned toward the Arkansas River.²⁰ When they arrived at the Arkansas Lt. Wilkinson was taken ill. Because he needed to return to base, Pike agreed to give him five men to follow the Arkansas to its mouth.

The Wilkinson group departed from Pike near what is now Larned, Kansas, in two canoes. They expected to reach the Mississippi in two to three weeks but it took them some 73 days. Due to Wilkinson's illness his reports on the exploration of the Arkansas were not of much value.²¹ But Pike's mission was of value as it was the first expedition into the area of the Arkansas River Valley supported

by the United States Government.

The next important government venture into the area was in about 1815 when Ft. Gibson was established on the east bank of the Grand River, near the site of Joseph Bogy's trading post. This fort was designated by the government as the headquarters for the Creek Indian resettlement program. It was to play an important part in the settlement of the west until about 1857.²²

In October 1818 a Harvard botanist, Thomas Nuttall, left Philadelphia for the Arkansas to undertake the first serious scientific expedition into the region. He was interested in the area because he felt it offered a still untouched wilderness for his observations. In January of 1819 he and Major William Bradford began their ascent of the river from Arkansas Post. They explored as far as the mouth of the Cimmarron River above Fort Smith. The expedition studied the geology, botany, and other scientific aspects of the region as well as the Indians. But by August the party was suffering from intense heat, foul water, and beligerent Indians and decided to return to Fort Smith. From there he returned home by way of New Orleans.²³

One of the last of these early expeditions was made by Major Stephen Long who, in 1820, left from St. Louis up the Missouri to the Platte River and then returned by way of the Arkansas River to the Mississippi. The value of the mission, and perhaps others, was stated by President Monroe in

a letter to Secretary of War J. C. Calhoun.

"The people look upon it as a measure better calculated to preserve peace of the frontier, to secure to us fur trade, and to break up the intercourse between the British traders and the Indians."²⁴

All during this period of early exploration settlers continued to flow into the Arkansas Valley. Perhaps encouraged by the generally favorable reports that these explorers published. As towns began to develop the quest for eventual statehood grew. In 1818 the settlers petitioned for statehood and, in July of 1819, President James Monroe signed the bill forming the Arkansas Territory. It was after this point in history that the importance of the River became apparent.

But we should never forget the important part played by the early explorers. Were it not for the courage and bravery of these men the valley might not have been opened until decades later. The Arkansas was to become a path to the Western Frontier. Up the river settlers were to come to open up the American Great West. Thus, for the next century and a half, man was to use the Arkansas to the greatest extent that his technology and resources would allow. The next chapters will deal with the co-existence of man and the river.

CHAPTER III

Early Steamboating

"The only problem in navigating the Arkansas is that the top of the river is too close to the bottom."

- An Old Steamboater¹

In 1819 President James Monroe instructed his territorial appointees to assemble at Arkansas Post, which was the oldest and best known landmark in the Valley. All knew, however, that it was to only serve as a temporary capitol. Although the legislators were nearly unanimous that the capitol should be moved, apparently there was no agreement as to where it should be moved. The importance of the River seemed to be evident as the vote was unanimous that the new capitol should be located near the River, and that it should be located near the center of the state. In 1821 they decided on a proper site that La Salle had noted as "La Piete Roche" or "the little rock." This site is a point where the first outcropping of rocks are visible upstream from the Mississippi, and is almost exactly in the center of the state. So, from the time that the legislature first met at the new capitol, in October 1821, Little Rock was destined to become a rivertown and

the Arkansas was to be the means to reach the rivertown and frontier beyond.²

Supplies had to be sent to the new capitol and to this end the first steamboat, the "Comet," was sent up the Arkansas on March 23, 1820. The "Comet" left New Orleans and sailed up the Mississippi to the mouth of the Arkansas, then sixty miles up the Arkansas to Arkansas Post. One interesting aspect of this journey was that the "Comet" ran aground, due to the fact that the captain had taken the "long way," staying in the main stream, rather than taking the more practical route of entering the White River and cutting over to the Arkansas a few miles below Arkansas Post. In the actual construction of the project, the Corps of Engineers decided to take the latter, a more practical route.³

Later that year, another steamboat, the "Maid of Orleans," was to challenge the Arkansas. This vessel was the first boat to navigate the Arkansas that was built to sail both on rivers and the high seas. Its trip up the river was much more successful than that of the "Comet."⁴

Finally on March 16, 1822 the citizens of Little Rock were to get their first view of a steamboat. The 118 ton "Eagle" pulled into their dock after a long and trying journey up the River, but its real destination was the Dwight Indian School which is up the River, in what is now Pope County. The reason the "Eagle" could not make it, that far,

was the omnipresent problem of low water and snags.⁵

Not long after the "Eagle's" run was made the "Robert Thompson" tried the same feat. Due to better conditions the "Robert Thompson" made it up River as far as Fort Smith. It proved that, in times of high water, light draught boats could plow the River to Fort Gibson, in the center of what was then Indian territory.⁶

The goods carried on these boats and others those, were/ such as, flour, bacon, lard, many other foodstuffs, and many manufactured items. On the down River runs they would transport furs, hides, and cotton. Among the early captains who would attempt to transport these goods was Captain Phillip Pennywit. At times, he was the only one, who would attempt the dangerous run to Little Rock. He lost, at least, four ships including the "Facility," "Waverly," "Arkansaw," and "Neosho." Many were the problems he had to deal with. They included the chronic low-water conditions, a channel that seemed to alter after every trip, and constant grounding on sandbars. Often, the grounding on a sandbar would require a stay of several months, until rising water would remove the boats. Perhaps, the most dangerous problem was that of snags. At one time some 1,356 snags were counted between the mouth of the White River and Little Rock. In addition, there were many more that lay beneath the water to rip the bottoms out of the steamboats. The incentive that kept these few men, like Pennywit, still making the run, was

profit. There seemed to be a lucrative return on the investment, often double the money, if the cargo reached Little Rock. But, during these early years there was much cargo and many lives lost. The people of the territory looked to the Federal government for assistance.⁷

The aforementioned problems were not only to be found on the Arkansas. Indeed, throughout the nation the rivers and canals were being used to transport much needed goods for a growing economy. The war of 1812 had shown the critical need for roads, waterways and harbors to move troops and supplies. President James Madison saw the needs and decided to take action on them. In his Seventh Annual Message of December 5, 1815 he hoped to focus the attention of the nation on the problem, when he said:

"Among the means of advancing the public interest the occasion is a proper one for recalling the attention of Congress to the great importance of establishing throughout our country the roads and canals which can best be executed under the National authority. No objects within the circle of political economy so richly repay the expense bestowed on them."⁸

After a fight, in Congress, a resolution was passed by the House, in 1818, that was to have many far-reaching effects in the future. The fight for the resolution was led by the three big Congressmen of that day, Daniel Webster of Massachusetts, John C. Calhoun of South Carolina and Henry

Clay of Kentucky. It was to revolutionize the government's attitude towards its responsibilities in the areas of roads, rivers, and harbors. This resolution was passed by Congress:

"Resolved that Congress has the power, under the Constitution, to appropriate money for construction of post roads, military and other roads, and of canals, and for the improvement of water courses."⁹

In 1824, this resolution came under attack but was upheld by the United States Supreme Court. Chief Justice John Marshall stated that Congress, rather than the states, should regulate the navigable waterways as highways of inter-state commerce. The reasoning behind this came partly from the unsuccessful efforts of individual states to effect flood control measures. They were often helpless since much of the flood water came from up-stream states.¹⁰

Now that the federal government was authorized to improve the rivers and harbors they had to decide which branch would effect the work. In 1824, Congress authorized the President to utilize the Army Corps of Engineers. The task was nothing new for the Corps. They had been involved in transportation since the earliest days of the nation. General George Washington realized the need for trained engineers. To this end he sought aid from France and Louis XVI to send him five highly trained professionals from France and other European nations. Around these men Washington built and developed the Army's engineering capability. During

the war of 1812 the Corps of Engineers met the critical need of maintaining roads, waterways, and harbors to move the necessary men and supplies. Thus, when Congress in 1824 authorized the President to make surveys of roads and waterways thought to be of national importance either in a commercial or military sense, the Army Corps of Engineers was the logical choice to accomplish the task.¹¹

On May 24, 1824 Congress appropriated some \$75,000 to remove sandbars from the Ohio, and snags from the Mississippi. This was the first actual appropriation for work to be done, under this new responsibility, of the federal government, to develop the nation's navigable channels. The Mississippi River and its tributaries, including the Arkansas, were recognized even then as being the country's central transportation system.¹²

In 1828, it was said by Chittenden Tyon, an informed riverman, that twenty-five thousand dollars would improve the Arkansas for navigation. The Congress gave the Arkansas its first money, some \$15,000, in 1830, but President Andrew Jackson did not approve of the action and vetoed the appropriation.¹³ Finally, in 1832, \$15,000 was included in the Rivers and Harbors Act of 1832 for the improvement of navigation on the Arkansas. The Corps was to remove snags and maintain a channel deep and wide enough for the "free passage of heavy boats." The River was to be cleared a distance of some 465 miles from the mouth of the River to the

Grand (Neosho) River. The Corps was to work until funds ran out, then wait for the next appropriation. This Act did not provide for any permanent improvements but only for snagging, dredging, etc.¹⁴

The funds were few and far between for work on the River. These were the days of the Maysville Veto when President Jackson vetoed many internal improvements. He felt that appropriations for such purposes would bring corruption and wasteful spending. But he did not veto all such work, and despite the insufficient funds, the work went on.¹⁵

Henry M. Shreve, founder of Shreveport, Louisiana, began to work on the river in August of 1833. He managed to pull out some 40 snags before low water forced him to stop working. Early in 1834, Lt. T. S. Brown of the Army Corps of Engineers counted some 1,356 obstructions between Little Rock and the mouth of the White River.¹⁶ Also, in 1834 Shreve went back to work. By the end of February, 1834 he had cleared some 250 miles of the river up to Little Rock. His results were impressive. He had removed, "3,370 snags and logs cut from the dry sandbars, and under the banks within the bed of the river, producing together with those taken from the channel, a total of 4,907 removed from the high water bed of the river."¹⁷ In order to accomplish this feat he had used the snag boats, "Helepoles" and "Archimedes", three machine boats, and the steamboat, "Java." Despite the

work of Shreve, boatmen still grumbled that, "the bottom is too near the top."¹⁸ Shreve said that to do the job as it should be done would necessitate larger boats, the clearing off of timber along the river, and some \$40,000. At the latter amount the Congress balked.¹⁹

During this period of ante-bellum river travel, much folklore grew. There were many stories of courageous captains, unbelievable navigational feats. Also, many of the towns along the river began to grow as more and more settlers came in to fill up the frontier. There were some funny episodes, such as the naming of Toadsuck Ferry. Boatmen in the 1840s used to stop along the river in a spot near present day Conway to soak up liquor and lie in the sun until they "swelled like toads."²⁰ But laziness such as this was certainly not typical of the amount of work done in connection with the River.

During this period, many became interested in the Arkansas as a means for transportation. Thus there was a need for more boats to plow the waters of the River. These boats had to be a special type to work on the Arkansas. They had to have a shallow draft and, thus, could not be too large. One of the first of these boats was built in Arkansas near Van Buren. It was the "Neosho" built by Captain John Truesdell and drew only 13 inches of water. But as the shipbuilding grew so did the skills. In 1855 the "Know-Nothing" was constructed in a Little Rock shipyard and drew only three

inches empty and six fully loaded. In 1857 an impressive steamboat of 250 tons, the "Rock City," was launched in Little Rock. It contained some 16 staterooms and had a draft of only 10 inches. With this type of engineering in construction, and with the continued work of the Corps of Engineers, the river traffic increased in volume.²¹

The coming of the Civil War showed even more the importance of the River. Evidence of Federal gunboats has been found as far up the River as the site of the present dam at Lake Dardanelle, some 40 miles upstream from Little Rock. When digging for the dam, a 9 foot anchor was found with the letters, "USSN 1844."²² Also, after the war the River proved to be the lifeblood of Little Rock. During the first months after surrender the citizens of Little Rock had to rely on the River. The Memphis and Little Rock railroad was unfinished and in disrepair, and the lateness of the season prevented the Veterans from planting the spring crops. Thus the city faced possible famine. But the River, with an unusually high consistent flow, provided a means for steamboats to arrive laden with "immense stocks of groceries and produce." It was obvious to the people how important the River was.²³

After the war, river and harbor bills continued to provide enough money for the Corps of Engineers to perform channel maintenance work on the River. But, by 1870, the situation had become so bad that the Engineers'

own boats were being sunk. They then requested a steel-hulled snag boat. The situation continued so that by 1872 there was a reported 117 steamboats lost on the Arkansas. In 1873, the District Engineers in St. Louis devised a plan to cut timber down along the banks and give the banks some type of protection but this plan's cost was far too high. The Corps' work did increase and, by 1878, they had actively begun some contractual work on the River. This was a dike built near Fort Smith to protect its harbor area. The success of this effort encouraged even more work. This increase of work on the Arkansas finally prompted the Corps to establish a special district office in Little Rock in 1881.²⁴

Thus, finally, the importance of the Arkansas was recognized by Washington. The times of early navigation had been difficult. It took hard working pioneers and brave Rivermen to open up the Arkansas Basin. With the coming of the Corps of Engineers the government seemed to take an interest in the welfare of these people and this interest was to continue. It might be said that the opening of the District Office in Little Rock in 1881 marked the beginning of the modern era of development for the Arkansas.

CHAPTER IV

"Look with favor upon the efforts being made to secure improvements of the river and cooperate with the citizens in securing the improvements."

- The Arkansas Gazette

Engineers and Railroads

The new Little Rock District Office of the Corps of Engineers was created out of the old St. Louis and Memphis offices. By the act of creating these new districts the government inherently showed the new significance of the entire Arkansas River Basin. Little Rock, at this time, was little more than a frontier town with main street only a dirt path that wound between one-story, wooden buildings. Pine Bluff was the only other "major" town on the river and it too was to offer a special problem for the Engineers. The town was located on a 45 foot high bluff situated at the outside edge of a sharp bend of the River. The problem was that even during normal flow the River attacked the soft dirt at the base of the bluff, and at high flow the bank was carried away by the River, to such a degree, that the town was in danger of falling into the River. These and other problems faced Captain Thomas H. Handbury when he became the first Dis-

trict Engineer of the Little Rock District in 1881.¹

Immediately after assuming his duties, Captain Handbury ordered a complete survey be made of the River so that a plan for permanent improvement could be formulated. He also began to take action on the Pine Bluff problem. Handbury devised a plan that would not only alleviate the erosian problem, but also another problem that threatened the bluff city. That being the possibility that the River might cut through Yell Bend and thus flow some 3.5 miles away from the city. The plan was that Yell Bend be strengthened and the curvature of the River, facing Pine Bluff, made more gentle. He began to put the plans into action, in 1882, and thus began the second contraction work on the River. His most pressing and consistent problem was the lack of funds. This problem forced the Corps to be content with making only temporary improvements.²

The lack of funds for the Arkansas was caused, in part, by the increase in river traffic on the White River. It increased so much that, for a time, the White River surpassed the Arkansas in importance. Thus the River and Harbor Act of 1899 authorized a large amount of funds for improvements on the White River but very little for the Arkansas. So, once again, the Arkansas had to wait for adequate funding.³

Another problem for the supporters to contend with was the growing importance of the railroads. The de-

pendability of the railroad, plus such competitive tactics as rebates for station to station hauls, offered the shipper of goods a considerable advantage over the River traffic. But, although suffering, the River traffic was not yet dead. In fact, in one embarrassing instance the Memphis to Little Rock line had its tracks covered by high water, in 1882, and was forced to charter steamboats to maintain its shipping contracts. Despite such occurrences as this, and the lower freight rates of the steamboats, the railroads were destined to take over the hauling of freight to Little Rock and points West. In 1884, the Little Rock to Fort Smith railroad was completed and work was started on a railroad bridge to cross the Arkansas at Little Rock. In reality this marked the end to effective use of the River by large transportation craft until 1969. However, some river traffic was to continue until the early part of the Twentieth Century.⁴

The railroads cut further into the River trade when various railroad spurs were enlarged and more bridges were built. However, these were not the only problem of the rivermen. There were others such as the routine sinkings due to snags. Each of these sinkings cost the steamboat companies anywhere from \$15,000 to \$75,000. So the Corps of Engineers still had a big job. With the small sums of money allocated them the Corps, in these days, could do little more than continue the snagging operations. The removal of snags was a very interesting process. The special

snag boats had an "A" frame and a winch on the forward end. A line was attached to the snag and, then, it was winched free often to just float further down the River. The work was so successful that in 1887 the President of the Memphis, Vicksburg, and Arkansas City Packet Company congratulated the Corps of Engineers on doing such a fine job. He lost no boats that year, whereas he had usually lost at least one boat on the River every preceeding year and he gave the credit wholly to the Corps of Engineers' snag-boats.⁵

But year after year the River traffic declined. It took a man of great vision to foresee that the greatness of the River lay not in the past but in the future. Such a man was the next District Engineer, Captain Henry Sheldon Taber. For nine years as District Engineer he fought both the River and Congress. He fought the River for control and fought Congress for funds. Perhaps his greatest feat was that he "saved" Pine Bluff by finally building permanent improvements to protect the Bluff. He did all he could to stretch his appropriations but never seemed to get enough funds. After a three year study, he thought he could make the River safe for navigation for about \$14,000 a mile but the government only gave him \$470 per mile. This led to his basic plan consisting of improving navigation between fixed points rather than attempting to construct many non-related projects.⁶

Captain Taber's vision was obviously very

evident. He felt, "The future of Little Rock seems bright in connection with the Arkansas River. The State of Arkansas will ere long rise many times in the rank of states and public improvements will return manifold their cost in material benefit to the entire state."⁷ Thus it seems to be evident that Taber was the first modern thinker that saw the possibilities of an improved River. To support the efforts of Taber the citizens of Little Rock formed what could be considered the first lobby group that was to seek River improvements. In 1892, they formed a Board of Trade and called a 'River Convention' to discuss the ideas of Captain Taber. But all of their efforts were in vain because of the tight pocketbook of the Congress and the Panic of 1893.

Captain Carl F. Palfrey succeeded Captain Taber in 1894. His efforts were also directed toward more funding but his cries, too, went unheeded. His main work and that of his successor, Lieutenant W. L. Sibert, were directed toward maintaining a five foot channel upstream from Little Rock. The previous plans called for only a two foot channel depth. Their efforts attempted to increase the depth by diverting the River flow between dikes. Their problems were many but they were hampered, especially, by the low water of 1897 and the flood of 1898, which washed away all the work.⁸

As more and more people came into the Arkansas

Basin, the floods that frequently ravaged the Basin began to cause much damage in both lives and property. At this time in history the government did not feel that it was the responsibility of the Corps of Engineers to protect the people against floods. They seemed to feel that, because the floods, were an act of God it should be God's responsibility. But Lieutenant Sibert did not share this feeling. He worked as hard as he could to alleviate the devastation of the 1898 flood. It was such a tremendous disaster that Van Buren, North Little Rock, and Pine Bluff were all under water. Sibert dispatched the "Beauregard" to Pine Bluff to render assistance to many stranded people there. When the ship arrived it found that the "permanent" improvements constructed earlier, to protect Pine Bluff, had been washed away. This and other effects, of the flood, forced Sibert to make urgent requests to the government for more funds but Congress was busy with the Spanish-American War and felt that domestic problems must wait. However, Congress did agree to create a Board of Engineers to examine and survey the Arkansas so that they could submit a plan to Congress for permanent improvement on the River.⁹

This kind of action was typical of the entire story of the Arkansas' development. Never would the government make any attempt to harness the River, until a major disaster had struck first. The Board of Engineers' report was only the first of many that were to be rejected by the

Congress for lack of funds. Only because of disaster after disaster was any attention, at all, given to the River.

The years between 1898 and 1901 saw the coming and going of four District Engineers, Captain H. C. Newcomer, Lieutenant Robert McGregor, Captain Charles L. Potter, and Captain Graham D. Fitch. All of these men were again limited as to what they could do by a lack of adequate funds. They did attempt to repair some of the damage of the great flood and they built a few railroad bridges. Perhaps, the most important job they undertook was that of installing water gauges at strategic locations on the various rivers in the Arkansas Basin. This gave the Engineers a means to make accurate records that were needed in planning future flood control and navigational works. Also, during this period the district received a new steel-hulled snag boat named the "Arkansas." But, again the lack of funds limited the boat's operations and four steamboats were sunk by snags in 1901.¹⁰

Nature, also, was to give the Engineers some more problems. There was a disastrous drought beginning in April 1901 and lasting until February of 1902. The Arkansas Gazette stated that near Little Rock the River was in some places not more than 3 feet deep and it was possible for one to wade across the River. The winter of 1904-1905 further added to the rivermen's problems because, for the first time, in many years, the Arkansas was frozen over. The combination of railroads, floods, snags, and droughts was about to drive

Little Rock Freight Traffic, September 1, 1899-
August 31, 1900*

<i>Commodity</i>	<i>Receipts in Outshipments in</i>	
	<i>Car Load Lots</i>	<i>Car Load Lots</i>
Building Material -----	2,166	1,137
Coal -----	4,078	-----
Corn -----	3,525	2,213
Cooperage -----	1,324	522
Cotton -----	4,641	2,812
Hay -----	1,290	438
Lumber -----	4,777	760
Merchandise -----	8,326	8,474
Meal -----	232	1,590
Miscellaneous -----	8,557	6,324
Seed -----	2,397	13
Total -----	43,253	23,977

* *Twelfth Annual Report of Little Rock Board of Trade, 1900-1901.*

TABLE XI

COMPARISON OF LITTLE ROCK'S RAIL AND RIVER
TRADE IN SELECTED ITEMS, 1886-1887*

<i>Item</i>	<i>Total Value of Trade</i>	<i>By Rail</i>	<i>By River</i>
Groceries -----	\$5,850,000	\$5,200,000	\$650,000
Dry Goods -----	2,480,000	2,285,000	195,000
Hides & Tallow -----	495,000	315,000	180,000
Lumber -----	410,000	320,000	90,000
Machinery -----	2,950,000	2,740,000	210,000
Drugs -----	410,000	345,000	65,000
Hardware -----	1,150,000	980,000	170,000
Clothing -----	210,000	184,000	26,000
Grain & Flour -----	6,350,000	6,015,000	335,000
Bones & Rags -----	33,000	23,000	10,000
Total -----	\$20,338,000	\$18,407,000	\$ 1,931,000

* Information taken from *Report on the Internal Commerce of the United States for the Fiscal Year 1889*. Rail column figures are close estimates but would be slightly lower since some freight was handled by overland companies and not tabulated.

the steamboats out of the Arkansas. By 1910 one of the more lucrative runs, between Little Rock and Memphis, was stopped. The decrease in river traffic made the Corps of Engineers less willing to press for more funds. It was becoming obvious that river traffic on the Arkansas was in a great decline.¹¹

This decline was not to continue without some effort to slow it. Many citizens blamed Major Fitch, the District Engineer, because they felt he was not making enough effort to obtain funds for the River's development. He was eventually replaced by Captain W. D. Conner who would fare no better than Fitch and the situation continued to deteriorate. The citizens began to call Regional Waterways Conventions that attempted to arouse the government's interest in the River. The Arkansas River Improvement Association was formed in an attempt to place political pressure on Washington. Finally, a National Rivers and Harbors Congress was held in Washington in 1906 to press for some 20 to 30 million dollars for river improvements. All of these efforts produced little in the way of results.¹²

Ultimately, the problems were left up to the private citizens to solve. Many interesting innovations were created by these various individuals trying to protect their land. For instance, the Little Rock Packet Company devised a wicker basket dam that was easily constructed and would work to force the River into a smaller channel and thus make

the channel deeper. Such innovation as this attempted to patch up the River, but it took another disaster to focus national interest on the problems of the inland waterways.¹³

It was the great flood of 1912 that drew national attention to the River. This was a great flood, as it included the Mississippi, Missouri, and Ohio River systems. The effects were felt greatly in Eastern Arkansas where many lives and much property were lost. From all over the Mississippi River Basin requests for aid were pouring into Washington and they finally responded. It was the first time that the government had responded to such a crisis. President Howard Taft used his Emergency Fund to aid the region and also he made a personal tour of the affected areas.¹⁴

For the first time, a President would include flood control work in his political program. The emphasis seemed not only to be shifting from private individuals to the government, but also, from navigation to flood control and the need for hydro-electric power. The various River Improvements Associations sought to capitalize on the disaster of 1912 in order to obtain funds for the Arkansas. The Secretary of the Little Rock Chamber of Commerce C. C. Kirkpatrick, urged the government to build and maintain levees along all navigable rivers. In June of 1912 there was a Flood and Drainage Conference, held at Chicago, that was

urging both political parties to include a section in their platforms for flood control. In 1912 Congressman H. J. Jacoway urged the States of Oklahoma and Arkansas to work together to obtain the \$25 million, per year, necessary to develop the Arkansas. He noted also that, due to a decline in river traffic, freight rates had climbed from 23 cents a pound, in 1875, to 69 cents per pound, in 1912. He urged an end to the "popgun appropriation" of the Congress. The Congress failed to heed his suggestion. In 1913 only \$6 million was approved for the entire lower Mississippi region with \$48,000 for the Arkansas.¹⁵

The people of Arkansas, led by Senator James P. Clark, felt that if they could show that the River was still in use, that they could better argue the necessity of more funds for river improvements. The prospect seemed to be improving with the consideration of the Newland's Bill that was to make a large sum of money available for improvements. But, before action could be taken, the War in Europe broke out and immediately \$18 million was cut from the above Rivers and Harbors Bill. This was to have some good effects on the River, primarily by showing its importance in the form of navigation. With the shortage of railroad cars during the war the River enjoyed its largest trade in twenty years. The Little Rock Chamber of Commerce pledged to move some 18,000 tons of cargo on the River if the Corps would make some improvements. To add to this pressure

another flood struck in 1916 and left some five Arkansas counties under water. There seemed to be a feeling of optimism that something would be done now.¹⁶

Despite the opposition of such Senators as Robert M. La Follette and William E. Borah, Congress in 1917 passed a bill that is considered the first piece of major flood control legislation. It authorized an appropriation of some \$45 million dollars to be put at the disposal of the Corps of Engineers. Most of the funds were spent building a levee for the Mississippi River but a portion was used to undertake another survey of the Arkansas River which would be a preliminary move toward a total river improvement program. This survey was to be under the direction of the Assistant United States Engineer, Henry Fox.¹⁷

The period after the war saw another decline in the government's interest in river development. The country seemed to take comfort in Warren Harding's policy of "Back to Normalcy" and unfortunately this "normalcy" carried over into the area of internal improvements. The government seemed to withdraw from the arena of river improvements. The decline in interest and funds gave the Little Rock District little to occupy itself with and thus it was abolished. Its officers were moved to Memphis on April 27, 1921. Work on the River was to remain dormant, for the most part, until the greatest disaster of all struck the Basin some six years later.

Chapter V

- Floods and Other Disasters -

"When the Arkansas, Red River, Salt Fork, Verdigris, Caney, Cat Creek, Possum Creek, and Skunk Branch all are up after a rain, Oklahoma's got more seacoast than Australia."
- Will Rogers¹

Although the Little Rock District Office of the Corps of Engineers had been abolished, interest in the River had not declined. However, much of the emphasis had shifted from navigation to flood control and hydroelectric facilities due to the passage, in 1920, of the new Federal Water Power Act. This Act created the Federal Power Commission, which was given exclusive authority to issue licenses for construction of hydroelectric facilities. Thus the Arkansas was looked at, in the 1920's, not as a River for navigation but rather as a possible source for hydroelectric power. But men of vision saw further possibilities for the River and continued to have hopes that one day navigation would be included in an improvement project.²

Despite the fact that 1924 records showed that commerce, on the River, was at an all time low, some men did continue their efforts. These were mainly in the area of bank stabilization that was necessitated because great amounts of land were being sloughed off by the River. Below Little Rock, in some places, the River was washing off some 8 acres of land per mile. The Corps, and private individuals, used

various means to stop these banks from caving in, the most popular, and seemingly effective, was the anchoring of willow mats to the unstable banks. But, in spite of the work, the Memphis District Engineer said that the only ones deriving any benefit from the Corps' efforts, were those employed in the work. At this time, in the early 1920's, the efforts of the River advocates seemed to be at an all time low. This was to continue until all associated with the River, from the fisherman along the bank to the President of the United States, were to receive the wrath of an angry, neglected, and still untamed River.³

On April 14, 1927, the citizens of the State of Arkansas awoke to find that half of their state was under water. The situation had not, of course, occurred overnight. Since January of that year heavy rains had fallen over 31 states and two Canadian Provinces. This rainfall was estimated to be some 250 cubic miles of water, or enough to cover this entire area with over a foot of water. These flood waters pushed their way down the Ohio, Missouri, Mississippi, and Arkansas River Basins to the Gulf and in doing so put all the major rivers in these areas out of their banks. The flood water destroyed almost all bridges, levees, and other property along the Arkansas. Also, in the Arkansas valley some 50,000 animals drowned and a total amount of \$43,000,000 in damage to property occurred. All railroads were washed out and only riverboats could rescue survivors and supply the towns affected

by the flood. In many instances the steamboats left the River bed and went out over what had been fields, forests, or even towns.⁴

It almost seemed as if the 1927 flood was the River's punishment for leaving it unattended after the 1912 flood. Indeed, Senator Hattie Caraway of Arkansas felt that it was political skullduggery that made improvements impossible. She said that the Secretary of Commerce Herbert Hoover, had not followed the recommendations given by the Corps of Engineers to the Coolidge Administration. Prompted by such accusations as this, President Calvin Coolidge sent Secretary Hoover to personally head the relief operations. Hoover set up, with the assistance of Major General Edgar Jadwin, who was Chief of the Corps of Engineers, a special Flood Relief Headquarters at Memphis, Tennessee.⁵

Astounded by the amount of destruction that he saw, General Jadwin became convinced that some system of flood control was acutely needed. To this end he proposed the "Jadwin Plan," which became the Flood Control Act of 1928. Under this plan the Mississippi River Commission was formed, with the Corps of Engineers implementing the flood control projects formulated by the Commission. This plan was the largest such plan ever approved by the federal government and was instrumental in showing the Congress, the amounts of money that would be necessary in taming large rivers.⁶

The most interested in efforts to harness the River

were the people who had been affected by the flood. They began rapidly building up their forces to obtain greater improvements for the Arkansas. These people were determined to keep the problem in the public eye, and not let it just fade again, like the effects of the 1912 flood had. Heading their new effort was the Pine Bluff Chamber of Commerce. They began to organize farmers, landowners, and municipal groups into the Arkansas River Basin Association. Their plan included not only flood control but also hydroelectric power and navigation. A similar association, The Arkansas River Flood Control Association, was formed in Little Rock. Both demanded action by the Federal Government. But, about the only action that was taken was the beginning of the first comprehensive survey of the Arkansas and Red River Basins, which was authorized by Congress in 1927.⁷

The problem was magnified by the financial collapse of the stock market in October of 1929 for this reoriented the nation's concern from flood control to economic relief. In the early days of the depression, it was thought, that the less the government spent, the better for the economy. Thus all the river projects suffered. However, by March of 1932, President Herbert Hoover decided that perhaps some people could be employed if the government went ahead with its flood control projects. In the next two years some 113 million was appropriated for river and harbor work. But even efforts, such as these, were insufficient to deal with either the

economy or River programs.⁸

Despite the relatively modest short run effects that the Flood of 1927 had, the Flood was instrumental in prompting people to lay the ground work for what was to become the McClellan-Kerr Arkansas River Navigation Project. The people of the Basin were to stop requesting that something be done to tame the River and to start demanding that some program be effected to make such disasters, as the Flood of 1927, a problem of the past. In order to accomplish this mission many associations for river improvements began to organize throughout the Arkansas Basin in the 1930's. There were men of vision who would tie their groups together and direct them, in efforts to put political pressure, wherever they could.

Among these men of vision were such fighters as Colonel Clarence B. Douglas, Newton Robert Graham, John R. Fox, David D. Terry, Senator Joseph T. Robinson, Senator Robert S. Kerr, Colonel Francis J. Wilson, Jack Murray, Representative Mike Monroney, Representative Edward Edmondson, Representative Page Belcher, Senator John L. McClellan, and many others that will be mentioned later in this paper. It took men of such stature, as those men possessed, to look at the treacherous, unpredictable, Arkansas and see that it might, one day, become one of the nation's most valuable assets.

Early in 1931, Colonel Clarence Douglas, past President of the Arkansas River Association foresaw barges

navigating the Arkansas from the Mississippi to Tulsa. He was joined, in his optimism, by the Secretary of the Mississippi Valley Association, John R. Fox, who felt that the River could be made navigable, by 1936, at a cost of no more than \$40 million. (It is interesting to note that he only missed the actual cost by \$1,560,000,000.) Perhaps, the most positive action of the early 1930's was taken by Representative David D. Terry and John R. Miller who, in 1934, began to promote the idea of an Arkansas Valley Authority modeled after the Tennessee Valley Authority. Senator Joseph T. Robinson also joined the band-wagon for River improvement, but, it seemed that this early group lacked unity as to what was needed on the River. Some favored navigation, others only flood control. In their early days, all seemed to want something but nobody really had a comprehensive plan of action.⁹

All those who wanted assistance on the River problem were disappointed by a report, filed in 1934 by the Mississippi Valley Commission of the Public Works Administration. The report stated that the consideration of all work planned for the Arkansas should be stopped, because the River traffic had dropped so, that there was little need for River improvements. The report further stated that they could see no need for developing hydroelectric power either.¹⁰ It seemed that, almost in response to this report, the River once more came out of its banks in 1936 and again in 1937. Again bridges, roads, and railroads were washed out. The floods, were of such

great dimensions, that they almost reached the level of the Flood of 1927.¹¹

The 1936-37 floods proved, to all concerned, that "it could happen again." With this, in mind, all of the proponents of some form of river control program, began to redouble their efforts, to obtain the necessary legislation. At the same time, more and more associations were being formed. In Little Rock the Arkansas Valley Association was created to promote water power, flood control, irrigation, and navigation in the Arkansas Basin. The President of the Association, Little Rock Mayor William Overman, demanded that the Corps of Engineers reestablish the Little Rock District Offices. The Association also urged that action be taken on House Document 308 of the 74th Congress, which was a comprehensive study of the Arkansas Basin that had been authorized by Congress in 1927, and since carried out. At this time, mid-1935, the climate seemed better for such projects as these, due to the New Deal theory that the Federal Government should employ the unemployed in worthwhile objectives at government expense.¹²

With the Federal Government now in more of a mood to listen, the talk continued for the reestablishment of the Little Rock District Offices. Finally, in 1937, the Little Rock Offices were reopened with a district larger than the original one. The new office was staffed by some 152 engineers and assistants with Lt. Colonel Stanley L. Scott as the head

District Engineer. Their offices were established in the Gay Building at Third and Broadway in Little Rock, and from there the work began.¹³

In the meantime, the efforts of Mayor Overman, and the Arkansas Valley Association, seemd to be having some effects in Congress. House Document 308 had reached the floor of the House as H. R. 345 and sections passed to provide some \$62 million for work out of the Little Rock District Office, mainly for flood control projects. These funds were included in the Flood Control Act of 1938 which seemed to provide a turning point in the Federal Government's way of thinking concerning its responsibilities in the area of Flood Control. Besides, providing the funds mentiond, it also authorized a general plan of development for the Arkansas Basin. Along with this act, President Franklin D. Roosevelt gave his endorsement for further improvements by encouraging an Arkansas Valley Authority to develop the River Basin.¹⁴

All of this encouragement was the result of the hard work that many men such as Mayor Overman had provided. Not only did these men have to stir up enthusiasm at the level of the Federal Government, but they also had to overcome public indifference in the area affected.

Another man who devoted much of his life to river improvements was Newton Robert Graham, of Oklahoma. He worked to increase interest in Oklahoma in the 1930's and in some cases even earlier. He worked with influential men such as

Glade R. Kirkpatrick, a businessman, John E. Mayo, a member of the Oklahoma House of Representatives, and department store owners John Dunkin, and Gary Vandever.¹⁵

Also included among the early proponents of river improvements on the Arkansas, was John C. Murray. He became a resident of Little Rock, in 1925, and joined their Chamber of Commerce, as traffic manager, a short time later. Soon he became the State's outstanding expert on commercial traffic, and in that capacity, recognized that Arkansas, and other states west of the Mississippi River, were at a disadvantage in commercial freight rates as a result of adverse freight differentials afforded the Western states by the railroads. He was of the opinion, that, the only permanent way to make Arkansas economically competitive with the rest of the country was to develop the Arkansas River into a navigatable inland waterway. Senator John L. McClellan spoke highly of Jack Murray's efforts. "His vision, his faith, his enthusiasm, and his advocacy of this program induced others to come to the same realization and give their support to this project."¹⁶

By the late 1930's things were looking up for the hopeful River Developers. Congress seemed more willing to take on its new responsibility of flood control and river development, the country seemed to be coming out of the depression, and the President had advocated the formation of an Arkansas Valley Authority. All factors seemed to indicate that something was about to be done to improve the Arkansas,

but again, there were problems. Germany and Japan were growing threats to the security of the United States, and, by late 1941, we were at war. Once again the river projects were shelved for more important problems. The River was not to be forgotten for in 1943, the River, once more rose up out of its banks, almost as if it were in revenge for having been neglected. Once again the flood took a large toll in land, livestock, and human lives. The final tally showed 26 lives lost and over \$31 million in property damages. The backers of river improvements, were to use this disaster to show this country at war, that there was, also, an enemy within that should be defeated and turned into an ally. It was to this end that the supporters continued to press for improvements.

Once more the government directed attention toward the Arkansas Basin with the House providing some \$20,000,000 for flood relief to the disaster victims. Also, at this time, the Arkansas River Survey Board, which had been formed in 1939, completed its report which recommended approval, of a multi-purpose development plan, for the Arkansas River. The Corps of Engineers was instructed to inspect this plan and to make any amendments that they felt necessary. This final report was to be submitted in 1945.¹⁷

During this time, Newton Graham was busy trying to make the new Governor of Oklahoma, Robert S. Kerr, a proponent of the River Development Project. After the 1943 flood, Kerr

became convinced of the wisdom of such a project. Also, convinced was Governor Ben Laney of Arkansas. So with both governors convinced that action needed to be taken they formed a bi-state committee, the Arkansas-Oklahoma Interstate Water Resource Committee, to formulate plans for controlling the Arkansas and eventually making it into a navigable canal.¹⁸

A new concept, in flood control, was forthcoming from the new district engineer of the Corps of Engineer office, in Tulsa. Colonel Francis J. Wilson had the idea of using massive dams and lakes, rather than the farm pond concept of upstream flood prevention, that had previously been used. Colonel Wilson, after his thorough study of the River, offered the first really favorable report ever issued on the possibility of navigation on the Arkansas River. He figured on a cost benefit ratio of something like 1:1.08, (that is for every dollar spent, \$1.08 would be returned in benefits) to make the River navigable.¹⁹

Senator John L. McClellan, of Arkansas, took office in 1943 and immediately became interested in the River program. He was another of these men of vision who saw a day when America would need every drop of water, every kilowatt of electricity, and every acre of land saved. To this end he began his work to improve the River. On November 9, 1943, he introduced Senate Bill 1514 for improvements on the Arkansas River. The Bill would provide for construction and operation of water control, and utilization projects, in the Basin of *The*

Arkansas. President Roosevelt was so impressed with the program that he responded to Senator McClellan in January of 1944.

"My Dear Senator McClellan:

The enactment of the bill would be an important forward step in effectuation of the policy of multi-purpose development of our great river basins and the prudent conservation of our vast public resources. The benefits that would derive from a well-coordinated program for the prevention and control of floods, the improvement of navigation, the disposition of low-cost electric power and the irrigation of fertile lands would be of incalculable value."²⁰

Senator McClellan was to become one of the fathers of the Arkansas River Navigation Project since he authored some of the original legislation for the project and fought until its completion for funds to continue the work.

Through the efforts of these men the River project was gotten "off the ground" and into Congress. The bill that was to be argued in Congress was a plan for complete Basin development that was based, mainly, on House Document No. 308 of the 74th Congress, 1st Session. This was a result of the Flood Control Act of May 31, 1924, Sections 1 and 4 of the River and Harbor Act of January 1927, and Section 10 of the Flood Control Act of May 1928. This report was a document that contained information concerning the existing and prospective developments on the Arkansas for navigation, power development, flood control, and irrigation. Included in the report is a thorough examination, presented in three volumes, of the en-

tire Arkansas Basin, including tributaries, and a plan for making the River suitable for navigation and flood control. At the time, the report was first presented, May 2, 1934, it was not felt that the River should be made navigable. According to the report:

"The Board of Engineers for Rivers and Harbors is of the opinion that improvement of the Arkansas River and tributaries for navigation, either alone or in connection with power development, flood control or irrigation, or any combination thereof, other than as authorized by existing law, should not be undertaken at the present time."²¹

The report did suggest that flood control alone was practical as the cost would be about \$19 million and the benefits some \$79.5 million.

No action was taken on Document 308 until after the aforementioned flood of 1943. On July 2, 1943, the Committee on Flood Control, House of Representatives, requested that the Board of Engineers for Rivers and Harbors, review the reports on the Arkansas River and tributaries contained in House Document 308. The Engineers were to determine whether any modification should be made, with respect to local flood protection, along the main stem of the Arkansas River. Also, they were to review the general plan of improvement for the purpose of navigation, water power, and irrigation. The basic conclusions of the Board of Engineers was that some of the tributary streams needed to be dammed and that, "since the projects for local flood protection

are economically justified, the district engineer recommends that the work be undertaken by the United States."²²

This report was put off, for a while, because of the fact that, the war continued, and that the project, was not necessary for the war effort. Secretary of War Henry L. Stimson wrote the Speaker of the House of Representatives on February 17, 1944 a letter, in which he expressed the President's feelings, on the project, at that time.

"The Bureau of the Budget has been consulted and advises that while there would be no objection to the submission of this proposed report to Congress, in the absence of evidence showing that the proposed works are necessary to the prosecution of the war, the submission during the present emergency of any estimate of appropriation for the construction of the project would not be in accord with the program of the President."²³

Hence it was still up to the River lobby, to get the bill before Congress for a vote. To back the effort a group of businessmen, civic leaders, public officials, and private citizens organized, in 1945, to form the Arkansas Basin Development Association. In a sense it was an outgrowth of the old Arkansas Valley Authority and various other groups. Their aim was to develop the water resources of the entire Basin. The strongest endorsement for the group came from Senator John L. McClellan and now Senator Robert S. Kerr.²⁴

Working within the Corps of Engineers Colonel

Francis J. Wilson pushed the report into Congress, and had signed the same report, saying that navigation on the River could be made feasible. First the report went to the division headquarters, and then to the Board of Engineers for Rivers and Harbors where, as we mentioned, the navigation section was stricken from the report. But the Division Engineer, Eugene Reybold, overrode the Board and sent the plan to Congress where hearings were scheduled.²⁵

At this point we must pause and look back over the long, hard fight that was necessary before the plan for improvement of the Arkansas could even be debated in the Congress. Although proponents of the River had been pushing the project, in one form or another, for 114 years, it seems that, only after a series of devastating disasters, was any real action taken. The floods that ravaged the Arkansas Basin for so many years had now prompted man to make every effort possible to defeat his devastating enemy.

CHAPTER VI

- Politics and the River -

"History is replete with chronicles of civilizations that have risen and fallen as they succeeded or failed in their efforts to develop and maintain their water resources."¹

-Colonel Robert R. Robertson of the
Corps of Engineers

Previous to the presentation of the multi-purpose Arkansas River Development Plan, before Congressional Committees, there was much discussion outside Congress. These forums for discussion were presented as public hearings by the Corps of Engineers. At these hearings various local groups throughout the Arkansas Basin expressed their views on the proposed project. Because most of these hearings led to resolutions favorable to river development, they were of great use to forces that tried to prod Congress into passage of the bill. Two of the early, and important, hearings took place at Little Rock, Arkansas and Muskogee, Oklahoma in 1936. Both of these hearings were well attended by leaders of civic organizations and by State, County, and City officials. Also involved were railroad representatives, levee district officials, and farmers. These hearings generally expressed a strong desire for improvement of the Arkansas River, from the

vicinity of Tulsa to the mouth, providing dependable navigation for the type of river craft that utilized the Mississippi River. Also of great interest was the hope for improved flood control, especially at the Little Rock meeting.²

Many groups, including the Southwest Valley Association, the Chambers of Commerce of Tulsa, Muskogee, Fort Smith, Little Rock, and Pine Bluff; the Mississippi Valley Association; the Arkansas Valley Association; and others, were in disagreement with the navigation section of House Document 308. This section seemed to say that the amount of navigation on the River at that time did not warrant the expense of making the River navigable. Rather, the aforementioned groups felt that the estimated annual movements of commodities, according to Document 308, were much less than could be expected. This latter view was especially expressed by the traffic manager of the Little Rock Chamber of Commerce, the Little Rock Cotton Exchange, the Arkansas-Oklahoma Coal Operators Association, and Dr. Joseph E. Pogue, Vice President of the Chase National Bank of New York City. The hearings, such as these, finally showed the Congress that there was a good deal of support for the project at the grass roots level.³

The plan that was now before Congress was an evaluation of House Document 308 of the 74th Congress, 1st Session, that had been House Document 447 of the 78th Congress, 2nd Session, and now was known as House Document No. 758 of the

79th Congress, 2nd Session. Charged with the presentation of this plan to the Congress was Jack Murray, the Little Rock traffic engineer, and the famous River proponent, Newton Graham.

The plan they were to ask Congress to pass was estimated to cost some \$435,000,000 in 1946 dollars. It was to be a plan for a multi-purpose development of the Arkansas River including navigation, hydro-electric power, flood control, and other less important objectives. The detailed plan will be presented later in this study.

The problems that these men, who worked for passage of the plan, saw were very formidable. Among the problems was opposition to the project by the railroads, who felt they would lose their monopoly and then they would have to reduce their high rates. Some landowners opposed it out of fear of losing farm land and pastures to the project. There was also dissension in the ranks of the developers, led by home state political leaders such as Congressman Mike Monroney and Oklahoma Governor Roy Turner. But perhaps the greatest opposition came from those out of the affected area who thought the whole project smacked of pork-barrel. Some called it the "greatest boondoggle since the building of the Tower of Babel."⁴

The late Will Rogers is supposed to have said that it would be cheaper and easier to pave the Arkansas than to make it navigable. It is interesting to note that by coincidence, or otherwise, the ranch that the Oklahoma humorist

grew up on, is now covered by the waters of the new River system.⁵

Oilman W. A. Skelly, of Oklahoma, like Will Rogers, also felt it made more sense to pave the Arkansas than to make it navigable and thus opposed the project. His main reason for opposition seems to have been this railroad interest that he thought would suffer from the competition of River traffic. His fight against the project was successful in that Congress did not feel there was unity among the forces that should be favorable towards the project. In one case a congressional committee told the Oklahoma lobby that, "You people will have to go back home and get together on this."⁶ Later, after Skelly had some 800 acres of crop land destroyed in a flood he became a supporter of the project.

Also opposed to the project in the early stages were many of the people in Oklahoma City who felt that Tulsa would benefit more from the project than their city since the projected port of Catoosa was only a few miles from Tulsa. At that time there was a feeling of jealousy or rivalry between Tulsa and Oklahoma City. The fact that Tulsa would become a port city only added fuel to the fire. Congressman Mike Monroney's district included Oklahoma City, thus he was opposed to the project and made several pleas against it on the floor of the House of Representatives.⁷

Representative Monroney's argument against the

project, when debated on in 1946, seemed to be based on the fact that it would cost too much and that not enough adequate planning had gone into the proposals. The bill that was to be voted on in 1946 would provide for \$55,000,000 for the construction of the Eufaula Dam on an Arkansas River tributary. In doing this, Congress would commit itself to the approval of the entire \$435,000,000 project according to Congressman Monroney. He contended that nine out of every ten citizens of Oklahoma did not care about the proposed project. His most logical argument seems to have been, that even the Corps of Engineers was not unanimously in favor of the program. He used a quote from Brigadier General John J. Kingman of the Corps:

"The Board is not convinced that the benefits to be derived from the navigation project warrants its construction at the present time. All navigation features are recommended to be deferred until there is more definite assurance that the benefits will justify the expenditure."⁸

Monroney further contended that the only benefits claimed by the Corps would be \$19,000,000 for navigation; electric power, \$5,500,000, and less than \$1,000,000 for flood control. The Congressman felt that \$435,000,000 was too much to pay for such small benefits. His basic argument can best be summed up in his own words. "I do not believe the Government at this time should or could logically put up this kind of a pledge that we will, without further study, approve in toto this mammoth dream that has been fostered

for several years by some of the local enthusiasts but which up until a recent time had not received the tiniest sprinkle of a blessing by the Army Engineers."⁹

Arguments such as this from a Congressman whose home state would greatly benefit from the proposed project could have cast doubt on the entire program. The fact is that Monroney's objection to the plan did not slow its passage much, if at all, due to the great amount of support the project drew, both from within and without the area that it would benefit.

Representative Hugh Peterson of Georgia rose to defend the project. He was well qualified as he had served as chairman of the Committee on Rivers and Harbors at the time the Arkansas Project was discussed, due to the absence of the regular chairman. Congressman Peterson pointed out that during the two days of hearings on the project there was a great number of witnesses that testified but that Monroney was not among them. The witnesses included a number of members of Congress from both Arkansas and Oklahoma, as well as the Governors of Arkansas and Oklahoma. Most of these people were in favor of the proposed project. Peterson recalled that there had been some opposition from the railroads but none from members of Congress or any other public officials. He also pointed out that while the bill that was before Congress did endorse the entire project it specifically authorized only \$55,000,000 for flood control purposes. He also pointed out

that the 55 million would benefit the region even if no further appropriations were forthcoming.¹⁰

Representative W. A. Stigler of Oklahoma also voiced his support of the project. He pointed out that in addition to the public officials, that testified in favor of the project, there were 130 others including members of the Oklahoma Resource and Planning Board, the Arkansas River Development Committee, and the Arkansas-Oklahoma Water Resources Committee of which Newton R. Graham was chairman. Representative Stigler felt that Mr. Graham had "made out an irrefutable case, in favor of the project. Congressman Stigler also refreshed the memories of the other Congressmen about the destruction the flood of 1943 brought. "I have seen the havoc it has wrought, the damage it has done, the amount of money it has cost our people, to say nothing of the misery it has caused."¹¹

Congressman Stigler also differed with Monroney as to the conclusions Monroney drew from the Corps of Engineers reports. Whereas Monroney seemed to feel the Corps of Engineers opinion was unfavorable toward the navigation aspect of the project, Stigler felt the Corps was very much in favor of the program for the River improvements. He based his information on that given him by the Chief Engineer, General Eugene Reybold. General Reybold's report, of 1945, on the development of the Arkansas River Basin read:

"I recommend improvement of the Arkansas River and tributaries to provide a navigable depth of 9 feet from the Mississippi River to Catoosa... in accordance with the plans of the Arkansas River Survey Board, and with such modification as in the discretion of the Secretary of War and the Chief Engineer may be desirable."¹²

Stigler seemed to reason that if a man of the reputation that General Reybold had was for the project, then it should be carried out.

Congressman Brooks Hays of Arkansas, was in accordance, with Congressman Stigler on this point. Mr. Hays re-emphasized the effects of the flood of 1943, where the total damage ran over \$31 million, and some 26 lives were lost. He also pointed out that the area of the Arkansas Basin had great potentialities for the production of materials that moved by water transportation such as cotton, coal, lumber, bauxite, petroleum products, lead, and zinc. He stressed that a navigation project would make these products more easily transported to where they would be of use.¹³

Congressman J. J. Mansfield, from Texas, also voiced his support for the project. He pointed out that the Arkansas was probably the third best river in the United States for power purposes behind the Columbia and the Tennessee. He felt that the wasted power resources should be utilized. Representative J. E. Rankin concurred with Mansfield in this statement.

He said that there were some 2,200,000,000 kilowatt-hours of electricity being wasted due to a lack of means to tap this resource, while at the same time some 400,000 homes in the area had no electricity.¹⁴

Congressman Monroney was further attacked by Fadijo Cravens, a fellow Representative from Oklahoma, who made the point that the development plan was not something that had been dreamed up overnight; but that, it had been planned for many, many years and had been under review for even longer. Cravens also attacked Monroney's stand by telling of the rivalry between Tulsa and Monroney's Oklahoma City. This tended to make Monroney look like a spoiled child. After this rebuttal of Monroney, offered by Congressman Cravens, the project was passed unamended.¹⁵

Although the River and Harbor Act of 1946 that was passed provided some \$55,000,000 for the Eufula Dam and Congress was now, in a way, committed to the entire project, the fight had really just begun. The cries of "pork-barrel" increased. Many felt that it was a project to help only the relatively very few residents of the Arkansas River Basin, at the expense of the entire nation. Some felt that the Corps of Engineers had taken an unfair advantage as a lobby group and were offering this project only as a means to keep their contractors supplied with work. Arthur C. Morgan, former chairman of the Tennessee Valley Authority, felt that the Corps had an unfair advantage in that they could act as lobbyest,

but because they were public officials they did not register as lobbyist and could thus stay in the Senate and House office buildings to fight for their project. He also felt that hundreds of contractors, working under the Corps, were also members of what he called the River and Harbors Congresss. He seemed to feel that this group had far too much power and influence for their size.¹⁶

But if this be true then, in all fairness, it should be pointed out that there were also lobby groups opposed to the project. Indeed one of the most powerful groups in Congress at that time, the Association of American Railroads, fought the project at every turn. They were opposed, because where a system of river navigation is effected, there is generally a considerable amount of tonnage diverted from the rails. It was John W. Barrigen, former president of the Missouri-Kansas-Texas Railroad, that called the project the "greatest boondoggle since the tower of Babel."¹⁷

But despite such critics as these there was widespread support for the project and many who saw it, not in terms of, pork-barrel but rather, in terms as a project, that would return benefits to the whole nation.

Congressman Fadijo Cravens of Oklahoma expressed it very well when he said: "This project, of course, will help our parts of the country; there is no question about that; but when this project is completed it is going to help you, and you, and you in the great industrial part of the United States

to get your products in to us. We will ship products that we sell to you, and in return will take the products that you manufacture and we need."¹⁸

Some saw the necessity of such a River project, in much broader terms, such as, Colonel Robert R. Robertson. He felt that throughout history the development or lack of development of a nation's water resources had a direct effect on whether they were successful or not.

"It is of more than academic interest that the advance of early western civilization followed the development by those surprisingly competent Roman Engineers of water supply projects throughout Africa, Europe, and Western Asia. Of even greater significance is the fact that destruction by the Goths and the subsequent neglect of these great water systems was a major contributing factor to the decline of the Roman Empire. We must see that false economy does not do to our civilization what the barbarians did to the Roman Empire."¹⁹

So, despite the cries of "pork-barrel", there were many who saw that such a project, as was planned for the Arkansas River Basin, would not only help that area, but also benefit the nation as a whole. Now that the idea of such a project was accepted by the Congress the drive for funding was begun. To head this drive a Tri-State Committee, made up of Arkansas, Kansas, and Oklahoma, was formed with a long time leader of the project as its head, Clarence Byrns. It was to be a very difficult job as the project would need more funds to be completed

than either the Tennessee Valley Authority or the Panama Canal.²⁰

At this time it might be advantageous to review what had been accomplished up to this point. After many long years of hard work by many great men the government had finally committed itself to the taming of the uncontrolled Arkansas. To progress this far took much time and effort by the men mentioned in this chapter and many others too numerous to mention. It is logical that the next step of this study should be to present the plan that the Corps of Engineers had created for the Multi-Purpose Development of the Arkansas River and how this was implemented.

CHAPTER VII

-The Plan and Implementation -

"The Arkansas River Survey Board has prepared a comprehensive plan of improvement for the basin below Big Ben Canyon. It provides for canalization of the Arkansas and Verdigris Rivers to secure a navigation channel with a controlling depth of 9 feet from the Mississippi River to Catoosa, Oklahoma, together with further flood control and the development of hydro-electric power."

-Lieutenant General E. Reybold¹

President Harry S. Truman signed the Rivers and Harbors Act of 1946 on July 24 of that year. Included in that Act were the plans, that when completed, would comprise the McClellan-Kerr Arkansas River Navigation Project. It is the purpose of this chapter to explain that plan, its modification, and finally its implementation.

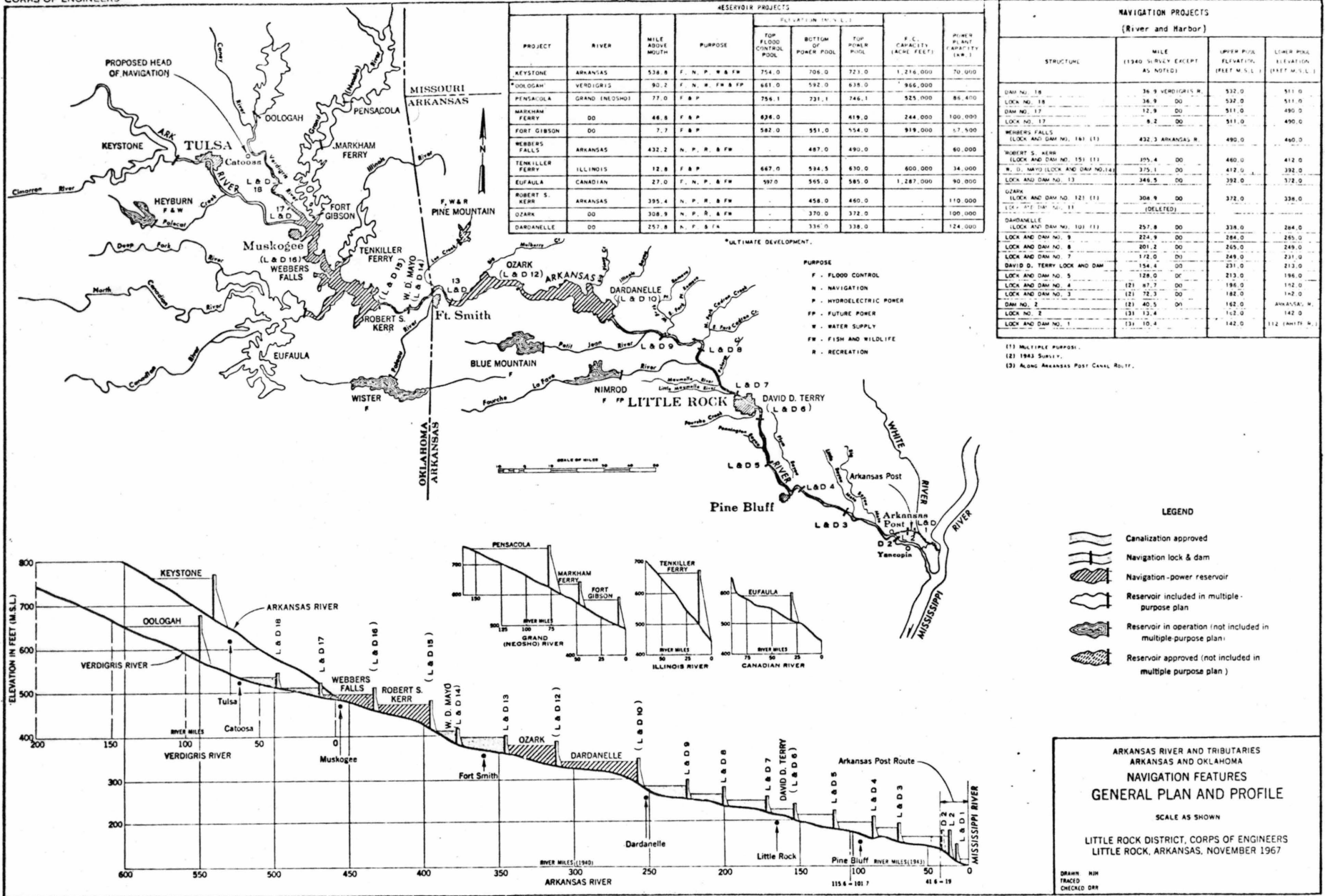
The original plan was prepared by the Arkansas River Survey Board of the Corps of Engineers and was presented in House Document 746 of the 79th Congress, 2d Session. The plan of development that was preferred by the Survey Board was a multi-purpose plan that consisted of "coordinated developments" that would serve navigation, produce hydro-electric power, afford additional flood control, and provide for related benefits in areas such as recreation and wild-life benefits. The estimated cost of the project was thought to be \$522,678,000 for construction and \$3,578,000 for annual maintenance and operational cost.²

The basic plan called for the construction of a navigation channel with a projected depth of 9 feet following the Verdigris River from Catoosa, Oklahoma, 52 miles downstream to the Arkansas River, then down the Arkansas to mile 53, meaning the 53rd mile of the Arkansas upstream from its mouth; from this point a lateral canal would be dug to mile 25.3; again down the Arkansas some four miles to mile 21.8; here a canal would be dug over to the White River to a point some 12.4 miles above its mouth; from this point the project would go to the Mississippi River and flow into that river at a point some 15.5 miles above the mouth of the Arkansas. The total length of the channel was to be some 465 miles. A minimum channel width of 150 feet for the Verdigris River and 250 feet for the rest of the route would be maintained. The plan called for the canalization to be made possible by the construction of three navigation locks and dams on the Verdigris River and then 24 more locks and dams to the Mississippi. Four of the locks and dams on the Arkansas, Webber Falls, Short Mountain, Ozark, and Dardanelle, were to be used also for power development. The lifts, up the stairway provided by the locks and dams, were to range from 10 to 37 feet. The plan called for a lock big enough to hold a load 110 by 600 feet on the Arkansas and 74 by 600 feet on the Verdigris. Also called for was the alteration of 25 existing bridges and the construction of 2 new bridges on the Verdigris River. The plan contained a means for control-

CORPS OF ENGINEERS

-68A-

Diagram Showing the Project and Locks and Dams



LEGEND

- Canalization approved
- Navigation lock & dam
- Navigation-power reservoir
- Reservoir included in multiple-purpose plan
- Reservoir in operation (not included in multiple-purpose plan)
- Reservoir approved (not included in multiple-purpose plan)

**ARKANSAS RIVER AND TRIBUTARIES
 ARKANSAS AND OKLAHOMA
 NAVIGATION FEATURES
 GENERAL PLAN AND PROFILE**

SCALE AS SHOWN

LITTLE ROCK DISTRICT, CORPS OF ENGINEERS
 LITTLE ROCK, ARKANSAS, NOVEMBER 1967

DRAWN RHM
 TRACED
 CHECKED DRB

ling the unusually heavy load of sediment on the River. This was the purpose of the Eufaula Reservoir on the Canadian River and the Mannford Reservoir on the Cimmaron River. It was thought that the major amounts of sediment came from these two tributaries. Other tributaries were to be dammed for flood control and hydro-electric power. Among these projects were the proposed Tenkiller Ferry and Oologah Reservoirs.³

The plan goes into much more detail than is either practical or advantageous to examine in this paper. What I have done above is to present a brief outline of what the plan was to entail. The plan of 1946 was in no way final. It was to be altered time and time again before the final completion of the project although the basics remained the same.

Responsibility for implementing the plan of improvements fell under the jurisdiction of two separate Engineering Districts. These Districts were the Tulsa and Little Rock Districts. The Tulsa District would be in charge of the project eastward to Fort Smith, and the Little Rock District would be in charge of all aspects of the project in Arkansas.⁴

MAGNITUDE

The magnanimity of the project that the Corps of Engineers was to undertake in the construction of this project was quite evident. The cost of the project was to exceed that of the Panama Canal and T.V.A. combined. Many

critics doubted that it could be done at all. For example, the late A. C. Ingersoll, President of Federal Barge Lines, Inc., and a great proponent of inland waterways, thought it was hopeless. Before construction began he tried to navigate the Arkansas by outboard motorboat and after getting stuck nine times on sand banks, he declared it could never be canalized.⁵

Many others had their doubts also. After all, when one heard in 1946 that Catoosa, Oklahoma was to be the termination for the great project they could only laugh. As one glanced around Catoosa all that could be seen was acre after acre of dry, dusty land, broken only by a patch of grass or scrub brush here and there. The only water was a trickle in the nearby Verdigris River, that could barely float a canoe. The idea to turn this town into a "seaport" could be considered little more than a joke.⁶

But to the Corps of Engineers it was no joke. Lieutenant General E. C. Itschner, Chief of the Army Engineers, assured the Arkansas Basin Development Association that the plan was no "pipe dream"; rather it would become a reality and well before its projected completion date.⁷

The basic problems to be faced by the Corps were first to stabilize the channel so that improvement works would not be left high and dry by channel meanderings and second, to control the flow of sediment to prevent the navigation pools from filling up with silt that would require

costly dredging in the future.⁸

The first of these basic problems to be attacked was that of bank stabilization. The Corps had to reshape and contain the channel giving it a permanent location, thus eliminating its previous wanderings. The first work on the project was begun in 1946 with the bank stabilization program.⁹

The stabilization was necessary on some 234 miles of the River, mostly in Arkansas. The basic means for accomplishing the project were the construction of bank re-
vetments, of pile and rock dikes. Most of these methods had already been tried in work done on the Missouri River. The rock and pile dikes are used to ease bends and otherwise train the channel. Where there was difficulty in straightening the River a cut was made between two sections of the River. The combination of these cutoffs resulted in the River being shortened some 40 miles between Fort Smith and the mouth of the River.¹⁰

In order for the Corps of Engineers to get a better idea of whether their ideas would work or not they developed a test area of the Arkansas on the stretch between Wilsons Rock, Oklahoma and Fort Smith. There the Engineers installed various types of structures that were tested to see if they could be used in stabilization of the channel. These Engineers were assisted by the Engineers of the Mississippi Waterways Experiment Station, at Vicksburg, Mississippi. There

they built scale models of the River to test flow patterns and stabilization techniques prior to the actual construction.¹¹

The channel stabilization on the Arkansas seemed to have presented many problems that had not previously been encountered on any other River in the United States. That was especially true in the stretch of the River between the mouth of the Grand River in Oklahoma and the vicinity of Little Rock. Some of the basic problems included protracted low flow periods, relatively shallow depth of bed rock, heavy sediment loads, and the unstable, shifting nature of the channel itself. Many structures, such as pile dikes and pile revetments, stone-full dikes, toe-trench revetments and steel jetties were developed and improved as a result of the work done on the Arkansas. Actually many of these same improvements have been made in many other areas.¹²

The next problem that had to be solved was to reduce the heavy load of sediment carried by the River. Some of this would be eliminated by the bank stabilization program because it helped to prevent bank caving but much more was needed. Before any corrective measures were taken, the Arkansas had carried the third highest load of sediment of any river in the United States. Every year some 105 million tons of sediment flowed past Little Rock. This led some to say that the River was just, "a little too thin to plow." The Corps concluded that if the proper measures were taken the

amount of sediment could be cut one-tenth of the original amount. They determined that the majority of sediment came from well defined sources such as 50% from the Canadian River, 25% from sources west of Tulsa, and 25% from various other tributaries. Thus to control the flow of sediment the Corps proposed the construction of three upstream storage reservoirs - Keystone on the Arkansas west of Tulsa, Eufaula on the Canadian, and Oologaph on the Verdigris. These would be multi-purpose reservoirs to provide benefits of flood control, hydroelectric power, water supply, recreation, regulation of navigation depths, as well as sediment control. In addition, four other large reservoirs on the main navigation channel - Robert S. Kerr and Webber Falls in Oklahoma; Ozark and Dardenelle in Arkansas, would aid in the trapping of the sediment.¹³

It is interesting to note that the sediment that remained in the River was put to good use. The remaining sediment acted as an abrasive to maintain the navigation depth and to obtain a flatter water surface by cutting away shoals that would form in the River. This helped to eliminate some of the dredging that would otherwise be necessary.¹⁴

Work began on the first of these reservoirs in 1950 with the Oologah Dam on the Verdigris River some 27 miles northeast of Tulsa, Oklahoma. It is an earthfill dam about 4,000 feet long and some 137 feet high, and was constructed in two stages due to the interruption by the Korean War. It

was finally completed in 1963. An important function of the dam was to store a huge water supply that could be used to maintain navigation depths on the downstream river during periods of low flow.¹⁵

The Keystone Dam was begun in 1956 and is located on the Arkansas River about 14 miles upstream from Tulsa, Oklahoma. It is an earthfilled and concrete structure. In addition to its flood control and sediment retention function this dam also has two 35,000-kilowatt generating units for hydro-electric power.¹⁶

Work was also begun on the Eufaula Dam in 1956. This structure is located on the Canadian River some 31 miles south of Muskogee, Oklahoma and is an earthfilled and concrete dam. It too is important for hydro-electric power with three 30,000-kilowatt generating units that began operation in 1964.¹⁷

These three key reservoirs, along with three others on the Grand River and still another on the Illinois River, provide the major flood control, and sediment retention benefits of the new River system.

It is interesting to note at this point that throughout the construction period the Corps had planned the entire project in stages that would be useful by themselves. This was in case the project, as a whole, had to be stopped for any reason. For example, the previously mentioned reservoirs would have been useful for flood control if no further work

had been done on the project as a whole.¹⁸

The solving of the initial problems set the stage for the next step. This being the creation of a stairway giving a total lift of 420 feet between the Mississippi River and Catoosa. The "steps" in the stairway would be provided by a series of locks and dams. The dams would provide a pool of water that would give the River between each enough water to maintain the required 9 ft. depth for navigation. The question arose as to how many locks and dams were actually needed. Originally it was thought that there were 19 locks and dams needed but Dr. H. A. Einstein, son of the famous scientist, thought that only 17 were needed. To assist the scientist, a computer was used to help plan the flood control and navigation features of the project.¹⁹

The efforts of Einstein and the computer, along with the engineers of the Corps, led to the development of a new method of planning based on the formula, $CPM + VE =$ efficiency. What it means is that the critical path method plus value engineering would equal efficiency. The purpose of the formula is to cut cost through proper scheduling of design and construction. An example of the success with which it was used was in the relocation of Ozark Lock and Dam 10 miles downstream which made Lock and Dam No. 17 unnecessary. A similar situation was found to exist with Lock and Dam No. 19 which made it unnecessary also. The basic principle behind the new system was to encourage contractors to seek

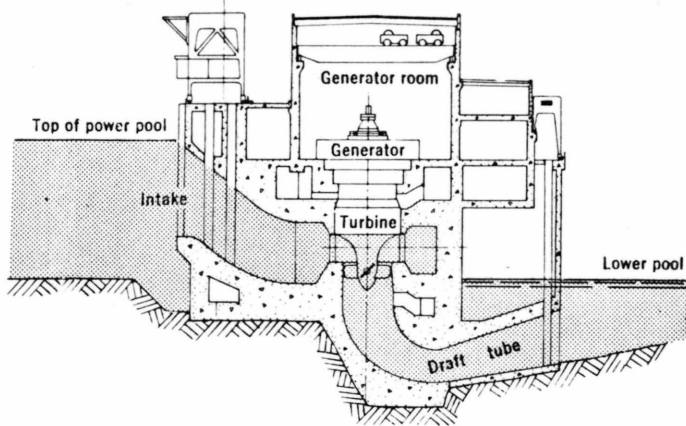
out possible changes in design or project specifications that would reduce costs without compromising function, quality, or reliability.²⁰

At this point most of the general planning had been accomplished and the Engineers were ready to begin the construction of the "ladder" of locks and dams up the River. There were now just 17 locks and dams instead of the original 19 but because the two that were eliminated were already on a multitude of drawings, documents, etc. the remaining structures were not renumbered.²¹

The specifications of the locks and dams that were actually constructed were most the same as those in the original plans. They were about two football fields in length and some 110 feet wide. They were designed to be able to lift a tow boat with eight barges of the normal size that are used on all inland waterways.²²

The method of lifting the barges is very interesting. A tow, going upstream, pulls into a lock with the water in the lock at the lower pool level and the upper gates of the lock are closed. After the tow is in the lock the lower gate is closed and the valves are opened that would allow water to enter through the intake ports into the lock chamber. Through this means the water level in the lock is raised to that of the upper pool level. Then the upper gate is opened and the barge exits having "gone up another step." For tows going downstream the process is reversed.²³

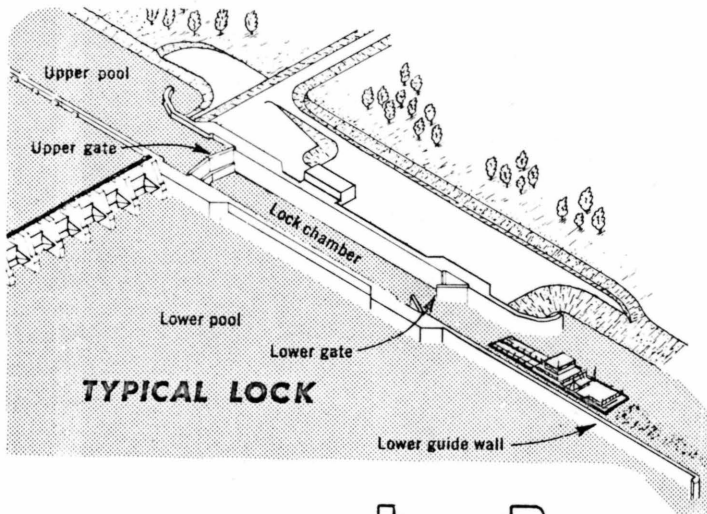
SECTION THROUGH POWERHOUSE



HOW IT WORKS

POWER

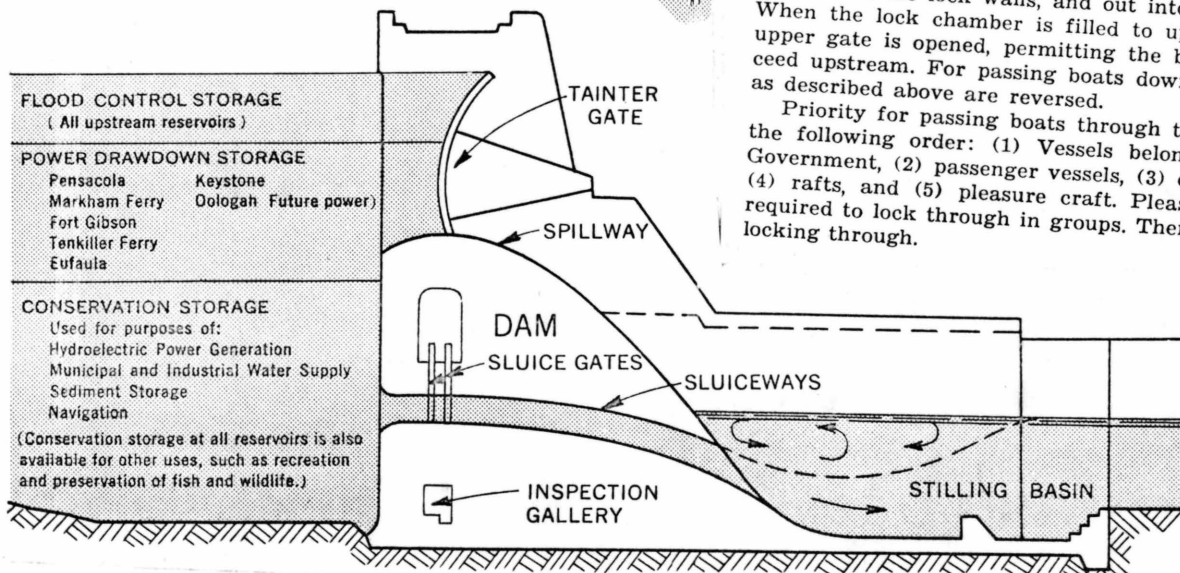
To generate power, water from the reservoir enters the powerhouse through the gate-controlled intakes, rotates the turbine runners, and discharges through the draft tubes into the river downstream from the dam. The electric power is produced by generators mounted on the same shafts with the turbines. It is increased in voltage by transformers and transmitted from the project through high-voltage transmission lines leading from the switch-yard.



LOCKING THROUGH

Traffic is passed from one level to another by means of the lock. With the water in the lock at lower pool level and with the upper gate and valves closed, a boat or tow going upstream enters the lock chamber through the open lower gate. The lower gate and valves are then closed and the upper filling valves are opened. These valves allow water to enter through the intake ports, flow through the culverts in the lock walls, and out into the lock chamber. When the lock chamber is filled to upper pool level, the upper gate is opened, permitting the boat or tow to proceed upstream. For passing boats downstream, operations as described above are reversed.

Priority for passing boats through the locks will be in the following order: (1) Vessels belonging to the U. S. Government, (2) passenger vessels, (3) commercial vessels, (4) rafts, and (5) pleasure craft. Pleasure craft may be required to lock through in groups. There is no charge for locking through.



The first lock and dam to be built on the River was to be the Dardenelle Lock and ^{DAM} located at river mile 201.2, which is five miles southwest of Russellville, Arkansas. The Dam was constructed beginning in 1957 and the powerhouse for hydro-electric power was completed in June 1966. The reason for its being built out of sequence, was the fact that power was needed as soon as possible. It was felt that even if navigation never came as far as this dam the electric power generated would be of great value. This was within the engineer's plan to build the project one step at a time.²⁴

Construction of the remaining locks and dams was to begin with Lock and Dam No. 1 near the Mississippi River and then move up the River to Lock and Dam No. 19 near Catoosa, Oklahoma.

Construction of Lock and Dam # 1 began on November of 1963 and was completed in June of 1967 at a cost of some \$22 million. One interesting aspect of this structure is that the level of water is controlled by the Mississippi River and there are times when the entire lock is inundated and traffic must either go around it or over it.²⁵

The route covered by the first three locks and dams includes Arkansas Post, mentioned earlier in this work as the first settlement west of the Mississippi River. It was first established in 1686 and in 1819 became the territorial capital. Due to the efforts of the navigation project, Arkansas Post, after being destroyed in the Civil War, is

again a busy town.²⁶

Moving up the River one comes to Lock and Dam #6 called the David D. Terry Lock and Dam. (This structure was dedicated to Judge David D. Terry of Little Rock, who was mentioned earlier in this paper and about whom more will be said.)²⁷

The next project, up the River, is a Lock and Dam with which I am very familiar. It is located only a few miles from my home and is visible from there. It is Lock and Dam #7 which was initiated in April 1965 and completed in November of 1969 at a cost of \$28,000,000. Near Little Rock, this structure plays an important part in recreational facilities for the Little Rock area. On a hillside above it is located one of the most modern overlook structures in America.²⁸ These structures afford visitors to the project a remarkable view of the completed structure.

The next structure is Lock and Dam #8 and is the only structure with a highway across the top of the dam. Construction was begun in December of 1965 and completed in November of 1969 at a cost of some \$27,800,000.²⁹

The W. D. Mayo Lock and Dam was the first to be located in the state of Oklahoma. It is located some nine miles southwest of Fort Smith. Construction was begun in May of 1966 and was completed in 1969 at a cost of \$27.2 million. Behind the dam is a reservoir that extends some 20 miles to the previously mentioned Robert S. Kerr Lock and Dam. The

Project Data on Locks and Dams

-79A-

Structure	Navigation Mile	Date Opened To Navigation	Construction Contract Cost
Norrell Lock and Dam	10.4	13 May 68	\$15.8
Lock No. 2	13.2	13 May 68	11.2
Dam No. 2	40.5 ¹	13 May 68	9.9
Lock and Dam No. 3	49.3	31 Dec 68	26.0
Lock and Dam No. 4	65.0	31 Dec 68	19.4
PINE BLUFF			
Lock and Dam No. 5	85.0	31 Dec 68	19.5
David D. Terry Lock and Dam	106.3	31 Dec 68	23.3
LITTLE ROCK			
Murray Lock and Dam	123.0	29 Dec 69	18.3
Toad Suck Ferry Lock and Dam	152.9	29 Dec 69	15.6
Lock and Dam. No. 9	173.4	29 Dec 69	14.5
Dardanelle Lock and Dam	201.2	29 Dec 69	82.0
Ozark Lock and Dam ²	251.0	29 Dec 69	67.4
Lock and Dam No. 13	286.8	29 Dec 69	13.6
FT. SMITH			
W. D. Mayo	314.0 Ark	24 Oct 70	33.2
Robert S. Kerr	330.0 Ark	11 Dec 70	92.3
Webbers Falls	363.0 Ark	17 Dec 70	79.7
MUSKOGEE			
Chouteau	398.0 Verd	2 Dec 70	31.8
Newt Graham	417.0 Verd	30 Dec 70	43.4
CATOOSA			

¹ Mileage above mouth of Arkansas River² Installation of powerhouse equipment due for completion in 1973

structure is near the "Spiro Mound Group" that is the archaeological remains of an Indian ceremonial center which existed between 700 A.D. and 1,500 A.D.³⁰

Above the Robert S. Kerr structure is Chouteau Lock and Dam. It is interesting because it is in two sections. The Lock is located in an excavated channel cut-off 7.0 miles above the mouth of the Verdigris River. The Dam is located in the old river channel at mile 9.8. The basic work began in 1966 and was completed in December 1970 at a cost of \$31,860,000. The structure was named for the famous pioneer Chouteau family of eastern Oklahoma.³¹

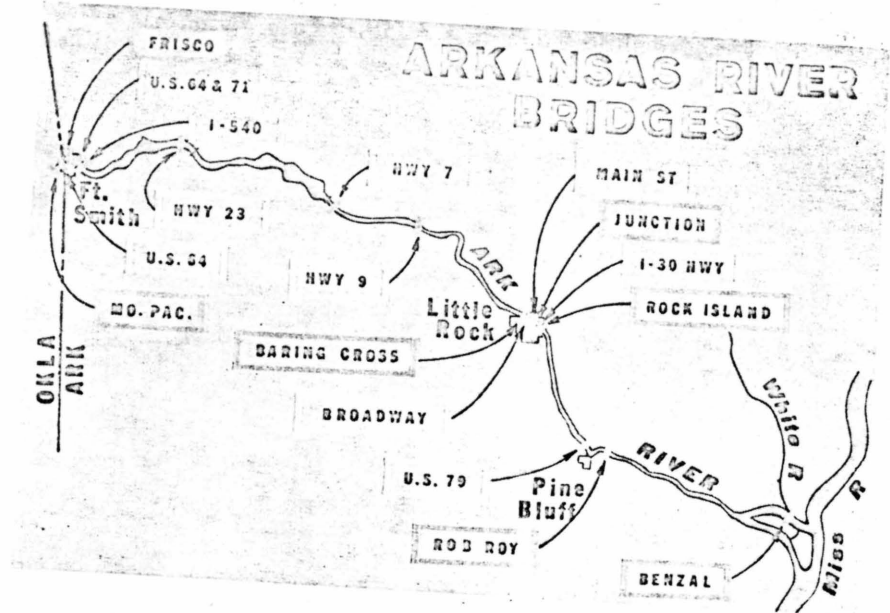
The next Lock and Dam, and the furthestest upstream, is the Newton Graham Lock and Dam. It is located at river mile 25.7 on the Verdigris River and is seven miles south of Inola, Oklahoma. The construction on this project was begun in 1967 and completed in 1970. This structure was named for Newton Graham of Tulsa who, as previously mentioned, was a great proponent of the entire program of improving the Arkansas.³²

The actual construction of these Locks and Dams is very interesting to study. Of the 17 Locks and Dams the 11 northwest of Little Rock are built on rock. Of the six southeast of Little Rock five rest on piles driven into sand. Three are on concrete piles and two are on other types of piles. Lock and Dam #5, near Pine Bluff, is built on strong clay reinforced by steel bars.³³

In order to keep the areas of construction dry, large cofferdams were built. These cofferdams consist of steel pilings driven into the sand in a circle, then filled with soil. They were built to withstand floods 35 feet above the normal river levels. Most of these cofferdams were filled with material dredged from the River and this job normally fell to the Dravo Corporation, of Pittsburgh, to complete.³⁴

One of the great problems in making the River navigable was the use of bridges too small, either vertically or horizontally, to allow the passage of the barges. In Arkansas there was a total of 17 bridges, seven railroad and ten highway types. Of the seventeen, ten required little improvement and two others required only the replacement of a couple of spans, such as the Broadway Street bridge in Little Rock. The rest had to either be replaced or have major work done on them so that they would meet the minimum requirements of 52 feet vertical clearance and 300 feet horizontal clearance. Some of the problem bridges included the Main Street Bridge and two railroad bridges in Little Rock, the Junction Bridge and Bearing Cross Bridge.³⁵

To correct the Main Street Bridge problem a new bridge was constructed at a cost of \$9.1 million and was built by the K. Eby Construction Company of Wichita, Kansas.³⁶ The Rock Island Railroad Bridge in Little Rock, put into operation a remote control system of TV and radios to



ARKANSAS RIVER NEW HI-LEVEL GIRDER BRIDGES

	NO. LANES	COST (MILLIONS)	START CONST.
HWY 79 Pine Bluff	4	2.3	Apr 68
MAIN STREET Little Rock	4	5.9	Jul 69
HWY 9 Morrilton	2	2.7	Jan 68
HWY 7 Dardanelle	4	4.3	Oct 67
HWY 64-71 Van Buren	4	6.3	Jun 68
HWY 64 Fort Smith	4	6.3	Feb 69

ARKANSAS RIVER RAILROAD LIFT SPAN

	COST (MILLIONS)	START CONSTRUCTION
BENZAL White River	3.6	Jun 68
ROB ROY Pine Bluff	4.5	Apr 68
ROCK ISLAND Little Rock	3.4	Jun 68
JUNCTION Little Rock	5.9	Jul 68
BARING CROSS Little Rock	4.6	Jul 68
FRISCO Van Buren	3.2	May 68
MO PAC Ft. Smith	2.0	Abandonment Proposed

control the lift span of their bridge. This process of remote control is one of the first in the nation.³⁶

With the completion of the new bridges the basic construction of the River Project was completed except for some of the planned recreational facilities. The next section of this study will deal with the ways and the means used to obtain appropriations necessary to complete the construction of this great project.

CHAPTER VIII

- The Appropriations -

"Which is more wasteful: the loss of life and property caused by floods or the cost of the multipurpose project which will ultimately pay for itself?"¹

- President John F. Kennedy

To devise and implement a plan that would create a project that some called impossible was indeed a formidable task for the Army Corps of Engineers. No less formidable was the task of obtaining funds that would bring the project to completion. It is the purpose of this chapter to examine the men and the methods they used to secure the necessary funds to make the project a reality. An earlier section of this paper dealt with securing passage of the project in Congress but it should be realized that this was not the end of the fight, rather it was the true beginning, for with the passage of that bill only \$55,000,000 of a total \$1.2 billion, that was necessary for completion, was appropriated.

Although the bill had passed Congress many of the opponents of the project condemned it as a monumental "pork barrel." "Pork barrel" is defined in the dictionary as "a fund of money appropriated from the Federal Treasury, as for improving rivers and harbors, erecting public buildings, etc.

regarded as appropriated more for local patronage than to make needed improvements."²

Will Rogers, the humorist, while chiding Congress for its heavy spending on pork barrel projects, once asked an Oklahoma senator why he couldn't "get me a harbor on the Verdigris River at Oologah." Today, 48 years later, there is indeed a harbor only a few miles south of Oologah, Oklahoma.³

To some the coming of the McClellan-Kerr Arkansas River Navigation Project was a gross example of pork barrel politics in action. To others it was a text book case of the democratic legislative process at work, with its inputs and outputs functioning within the limits of representative government. Before any judgement is attempted to place the Arkansas River Project in either of these categories it might be advantageous to study the process through which demands on Congress concerning water resources are handled.

Congress in the past has followed a procedure of legislative self-restraint with respect to water resource developments. It will not authorize any improvement which has not received a favorable report from the Chief of the Army Corps of Engineers. Arthur A. Maass of Harvard University, concludes from this that since the Engineers attempt to maximize local desires, it may be said that Congress transfers the responsibility for adjustment of group interest from its own body to the U. S. Engineer Department, an executive

agency. A Chief of the Engineers explained the process when he said: "The authorization of a river and harbor or flood control project follows a definitely prescribed, democratic course of action. It is based upon the activation of the desires of local interest, who are most vitally interested. Local interest, as individuals or groups through the actions of their representatives in Congress, make request for an item to be included in a rivers and harbors or flood control bill."⁴

In the past it seems that the members of Congress from the Mississippi delta area, where flood protection, drainage, and river navigation problems assume great importance, have been the representatives that are most active in efforts to obtain improvements for their respective area. This leads, in some cases, to the Engineer Department being more directly responsible to individual members of Congress than to either the executive branch or Congress as a whole. This is because it is the member of Congress who initiates the legislative proposal for a project and must be kept abreast of the status of a proposal concerning any action that is taken on it. The basic means used by any member of Congress to articulate a request for action on a project is through the Rivers and Harbors Congress.⁵

The National Rivers and Harbors Congress is the country's oldest and largest water organization and occupies a semi-official status because of its continuous close liaison

with the governmental agencies responsible for public works. Included in the membership of this "congress" are local interest such as local officials, local industrial and trade organizations, contractors, the Corps of Engineers and the U. S. Congress itself with all Representatives and Senators as honorary members. It is interesting to note that the President of this Congress in 1950 was Senator John McClellan, for whom the Arkansas River Project was named. There he was in an excellent position to articulate the interest which he represented.⁶

At this point I would like to interject this writer's opinion on the critics who called the Arkansas River Project "pork barrel." I feel that in the light of our democratic system, in which the people at the local level elect representatives to articulate their requests of the government, the men who worked for the project in the government were not engaging in "pork barrel" politics, but rather were representing, in the best manner possible, the people who elected them. Also, as will be pointed out later in this paper, the project did not merely benefit the states of Arkansas and Oklahoma, but also the nation as a whole.

The project itself was passed in 1946 with \$55 million appropriated for the construction of the Oologah Dam in Oklahoma that would aid in flood and sediment control during construction of projects downstream. The next job for the Arkansas and Oklahoma Congressional delegations, along

with the aid of various lobby groups, was to raise the \$55 million limit that Congress had put on the expenditures.

The men who were to carry on this fight were backed with much praise for the project. The Secretary of the Interior said that, "full development of the resources of the Arkansas Basin will make a substantial contribution to the nation and the area most immediately affected."⁷ The Department of Agriculture believed that construction of the entire project would render "substantial benefits" to agricultural and industrial interest in areas of the River. Governor Ben Laney of Arkansas said that he was "in thorough accord" with the recommendation of the Corps of Engineers. Governor Robert S. Kerr of Oklahoma felt that the benefits would "greatly exceed all estimates."⁸

The support was wide spread but little was actually done until Governor Robert S. Kerr of Oklahoma was elected to the U. S. Senate in 1948. Kerr had always been a long time proponent of the River development project and now he had a chance to do something about it. He got himself assigned to the Rivers and Harbors Sub-Committee of the Senate Public Works Committee. That is the Sub-Committee that decides on what public works projects will be recommended to Congress. As a member of the Committee he was able to help start a trickle of appropriation going towards the Arkansas River project.⁹

Also, in a position to help with appropriations

for the project was Senator John L. McClellan. He was also a member of the Public Works Committee and of the Sub-Committee of the Committee on Appropriations which handles the Engineer Corps funds. Thus he too could fight for the project with some authority.¹⁰ Another influential Congressman working for the project was Congressman William F. Norrell, of Arkansas, who served for many years on the House Appropriations Committee which put him in an excellent position to fight for funds.¹¹

Outside Congress there were many more who worked to put pressure on the government for funds to complete the project. Perhaps, the most important was the Arkansas Basin Development Association. It is made up of volunteer business leaders, waterways associations, municipalities, chambers of commerce, civic groups, and hundreds of private citizens. In the early 1950s this group was headed by Fred S. Smith, a long time supporter of the development plan.¹²

Another important lobby group was the Arkansas, Kansas, and Oklahoma Tri-State Committee. The Committee consisted of five representatives from each of the ~~three~~ states and each appointed by the Governor of their respective state. The aim of the Committee was to represent the common interest of the three states in matters concerning the development of the water resources of the Arkansas River Basin.¹³

Some of the most basic and damaging opposition of the project came from the Daily Oklahoman published in

Oklahoma City by E. K. Gaylord. He seemed to believe that the return on the investment was inadequate. He was known to say, "the sucker is paying for this one." Opposition along the same line was continued by Senator A. S. Mike Monroney of Oklahoma City. He admitted that he opposed the project because it seemed to favor Tulsa over Oklahoma City.¹⁴

The forces in favor of the project far outweighed any opposition and thus the project was finally completed but not without a great struggle between the two groups. By early 1949 the pro-River forces were ready to begin the long fight. Congressman Norrell, along with Senators McClellan and Kerr, introduced legislation to begin work on the Dardanelle Lock and Dam; bank stabilization work; and to eliminate a sharp bend in the River near Morrilton, Arkansas. The total cost of the proposal would be about \$3.4 million. This money was included for the Arkansas project in the Rivers and Harbors Act of 1950, which totalled \$136 million, but Congress did not approve any of the spending. The problem was the coming of the Korean conflict. Congress finally decided to pass some \$1 million for the Dardanelle project but President Truman froze the funds, feeling that the war was more important.¹⁵

The next major effort to obtain funds came in early 1952 when Fred Smith of the Arkansas River Basin Association (ARBA) went to Washington to ask for \$12 million for bank stabilization. Also, Arkansas Governor Sid McMath went

to the White House to ask for an increase in funds. Congress responded to these pleas by appropriating about \$2 million which disappointed the ARBA.¹⁶

Further support for the project came from Captain C. W. Thomas, Commandant of the U. S. Coast Guard District II. He felt that the River Project was essential to the industrial and military future of the United States. Thomas said that the River's development would help to provide a new, less central, area for industry to locate that would be helpful in case of a missile attack. But in spite of such pleas the 1952 budget of President Truman fell far short of what was hoped for. Senators McClellan and Kerr, along with Representatives David D. Terry began to work harder and succeeded in getting the House Appropriations Committee to increase the amount allocated to the Arkansas Project to \$7 million for bank stabilization. It seems amazing that the Arkansas-Oklahoma Congressional delegations were able to accomplish this raise in appropriations, when at the same time, the work on rivers and dams, as a whole, was cut 34%. This was made possible, in part, by the work done by Representatives Brooks Hays and Jim Trimble who convinced President Truman that the project was necessary for the "defense effort." Thus by the end of 1952 the bank stabilization project was well under way.¹⁷

But by the mid 1950s again the project was in need of funds. In 1955 the request for bank stabilization funds was cut by two-thirds. Senator Kerr was to work for a re-

versal of this trend, when he became chairman of the River and Harbor Sub-Committee in 1955. He was now in a position to bargain with Congressmen from other states to get increased support for the Arkansas River work. This method of bargaining is called "logrolling" and Kerr became a master of such tactics. He had no doubts that he was acting correctly in using his political powers. He once told a reporter of the Associated Press, "Every Senator and every member of the House represents one or more of some basic elements. That's what representative government is supposed to be. The sum total of those pressures working through Congress is the catalyst that produces our laws. I'm not ashamed of it. I'm proud of it."¹⁸

Kerr was responsible for winning, now Senator, Mike Monroney over to the side of the River Project proponents. Don McBride, one of Kerr's assistants, said that "Mike Monroney voted 'no' in the House but Bob Kerr twisted his arm and gave him a little religion."¹⁹

Fighting alongside Kerr was rookie Congressman Ed Edmondson of the Oklahoman Second District. He was able to persuade the House to amend an appropriations bill to include \$900,000 to begin work on the Dardanelle Dam and finish the Eufaula project. The amendment passed by a vote of 112-87 and was sent to the Senate. Few realized that this amendment would start the construction phase of a \$1 billion project. In Edmondson's own words, "Only one now recognized

what was involved. He was a Congressman from Massachusetts and he said, 'Hey, isn't this a \$1 billion project?' No one else seemed to realize it."²⁰

Edmondson's job was made somewhat easier due to a revolt in Congress against the "no-new-start" policy of President Eisenhower which put a freeze on public works for economic reasons. When the bill went to the Senate, Kerr and McClellan saw to it that the bill would not be killed in a conference committee. After the bill passed there was still a problem of seeing that the money would be budgeted by the executive branch. To make sure this happened the only Republican on the Oklahoma delegation, Page Belcher, had a conference with President Eisenhower. In the plainest terms he told the President that if the appropriation didn't get through he would be replaced by a democrat in the election that year. Eisenhower assured Belcher that the money would be budgeted and, in 1956, work began on the Eufaula Dam, and by 1957, construction began on the Dardanelle Lock and Dam. That was the year when one of the earliest River proponents, Newt Graham, died.²¹

Outside of Congress the pressure was also increasing for more funds. Everett T. Winter, Executive Vice President of the Mississippi Valley Association, was working very hard to have funds increased. Also the Arkansas Basin Development Association continued their fight with leadership and funds provided by such men as Newt Graham, C. Fred Johnson,

W. G. Skelly, Clarence Byrnes, and Colonel Francis J. Wilson.²²

One of the major problems faced by the River Development was the opposition to the project afforded by those who would lose their land because of it. The farmer and other landowners began to seek compensation when the Engineers' channel improvement affected their land. One farmer in Jefferson County, Arkansas, brought a suit for \$10,000 basing his claim on the loss of 35 acres of his 225 acre farm, alleging that this would not have happened without the tampering of the Corps. In this case the Corps proved that if they had not done something eventually all of the farmer's land would have been carried away by the River. The court's precedence for this type of case had been set long ago by saying that the "Government could not be held responsible for losses suffered by individuals when improvements were being created for the benefit of a larger community of people."²³

Another case of opposition to the project occurred when Glade R. Kirkpatrick, a long time advocate of River improvements, and Colonel Claude Chorpenning, addressed a menacing crowd of local citizens in Oklahoma who were outraged by the plan that would bury some of their land beneath a large reservoir. Kirkpatrick recalled that they had to be escorted out of town by a deputy sheriff.²⁴

But, despite the small pockets of resistance, the

project had the great support of local government leaders. Governor Orval E. Fabus of Arkansas stated in a letter to Wilber M. Brucher, Secretary of the Army, that "the plans for the state of Arkansas, when completely accomplished, should be of untold benefit to the State."²⁵ Also, Governor John Anderson, Jr. of Kansas supported the project saying that since the 1,700 mile-long River crosses his state, any future extension would benefit Kansas.²⁶

Appropriations continued at a good pace but in 1960 a new President came into office, John F. Kennedy. There were some who doubted his sincerity with regards to the project, but Senators Kerr and McClellan again went to work and convinced Kennedy that the project was necessary. After Kennedy's election the Corps only needed to designate the amounts needed and when.²⁷

Kennedy stated his position in favor of the project, when he reasoned in a speech delivered in Arkansas six weeks before he was assassinated that:

"Which is more wasteful: the failure to tap energies of our streams and our rivers when new power is needed for new industry or the construction of hydro-electric projects to serve the homes and farms and factories of these areas?

Which is more wasteful: to let land lie arid and unproductive and resources lie uncapped, while rivers flow unused - or to transform those rivers into natural water resources to alleviate those conditions?"²⁸

Kennedy seemed to conclude that the project would

return to the nation and the Federal Treasury far more than its original cost.

To show their appreciation to Kennedy some of the River proponents in Oklahoma sent the President a "sea chest" that travelled by water from Oklahoma to Washington. It contained some raw materials from the River Basin area, such as grain, coal, lead, zinc, and crude oil. All of these would travel the River in barges after completion.²⁹

On January 1, 1963 Senator Kerr died and eleven months later Kennedy was assassinated. Thus a void in leadership supporting the project was created. Soon Glade Kirkpatrick and Clarence Byrns, aides to Senator Kerr, asked Senator McClellan if he would take over the overall leadership for the project and McClellan agreed. The Senator then moved to persuade President Lyndon Johnson that the completion of the project was very important and Johnson agreed. The funds were to continue. In 1965 Congress approved \$140 million for civil works construction. That was 11% of the total allocated for all 50 states. By April 1966 the project was 50% completed.³⁰

Also by 1966, of the total estimated cost of \$1,201,000,000, Congress had already appropriated some \$652,863,000 and had a request for \$159,570,000 for 1967.³¹ In remarks, at the dedication of the David D. Terry Lock and Dam that year, Senator McClellan pointed out how the cost of the project was a good investment. "Every dollar expended on this

ARKANSAS RIVER PROJECT

(Dollars in Thousands)

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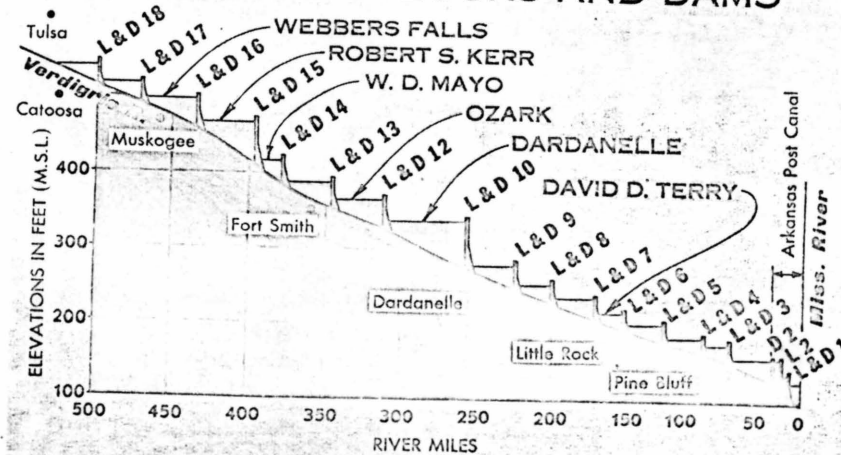
	CURRENT ESTIMATED COST	COST THRU FY 67	BALANCE
BANK STAB.	133,000	115,181	17,819
NAVIGATION L & D	461,000	219,600	241,400
DARDANELLE	82,300	36,036	16,214
OZARK	85,300	23,552	41,748
ROBERT S. KERR	92,500	50,107	42,393
WEBBERS FALLS	76,000	18,828	57,172
UPSTREAM RES.	289,300	275,094	14,206
TOTAL CE FUNDS	1,199,400	763,448	430,952
NAV. AIDS (Coast Guard)	2,450		
GRAND TOTAL	1,201,850		

ARKANSAS RIVER PROJECT

(Dollars in Thousands)

	BUDGET FY 68	BUDGET FY 69
Bank Stab.	5,300	3,500
Navigation L & D	100,400	80,879
Dardanelle	3,500	3,600
Ozark	12,000	10,500
Robert S. Kerr	13,000	14,200
Webbers Falls	11,700	15,500
Upstream Res.	5,920	3,500
Total CE Funds	155,020	133,679

NAVIGATION - LOCKS AND DAMS



River program is a sound capital investment of federal funds from which our government will reap a bountiful harvest. And, it will also further strengthen the national economy and security of our nation."³²

Although the funds were now being allocated at the rate of nearly \$100 million a year, the fight was not yet over. For by 1968 the Vietnam War had escalated and President Johnson, as an economic measure, ordered a freeze on construction starts and proposed to cut \$14 million from public works projects.³³

The River proponents went back to work. Glade R. Kirkpatrick, now Chairman of the Board of the Arkansas Basin Development Association, went before a congressional committee and argued in favor of no cuts in the funds authorized for the Arkansas River Project. He spoke in opposition to the expenditure control limitations that would be imposed on the Corps of Engineers by the Revenue Expenditure Control Act of 1968 (Public Law 90-364). He pointed out that any slow down in construction caused by a lack of funds could have at least three negative aspects. First, many of the industries that had said they would come into the Arkansas Basin because of navigation might cancel out. Also, if a major flood should develop, many of the existing works could be destroyed and lives lost. Third, he pointed out that, due to inflation, any delay would make the project cost even more in the future.³⁴

The Arkansas Congressional Committee put much pressure on the White House. Senator J. W. Fullbright pointed out that even the immense cost of the Arkansas River Project would only run the war in Vietnam for two weeks.³⁵

But it was Senator John L. McClellan who finally convinced President Johnson to let enough money be budgeted to complete the project. In a small cubicle off the cabinet meeting room, a group consisting of McClellan, Monroney and Edmondson went to work on the President. For 20 or 30 minutes the group gave Johnson all the reasons for going ahead with the project and finally Johnson turned to McClellan and said, "John, you have convinced me. I have something here for the Committee. Should I send it down or do you want to take it?" "What is it?" McClellan asked. "A request for additional money." "I'll take it down" replied the Senator.³⁶

Thus, with these few words, the last money was appropriated that would be needed to complete the \$1.2 billion project.

With the completion in October 1968 of the David D. Terry Lock and Dam, navigation was possible as far north as Little Rock. The first tow to pass through the lock and dams was made up of the towboat "Mike" and two barges. Also the small sternwheeler "Border Star" navigated the River as far as Little Rock. The first barge line to navigate to Little Rock was the Union Barge Lines towboat "Arkansas Traveler"

in January of 1967. In charge of the tow were two East Arkansas brothers, Lloyd and Ken Murphy. Accompanying the tow was the Corps of Engineers' River patrol boat "Dumas." By the end of 1970 Colonel William C. Burns of the Corps of Engineers had declared navigation open to the Port of Catoosa, the end terminus of the project.³⁷

To honor the project and the men who built it, there was a commemorative stamp issued by the U. S. Government on October 1, 1968, that was issued first in Little Rock, Arkansas.³⁸

On January 5, 1971, President Nixon signed an act to honor the two men who perhaps worked the hardest to see the project completed. The bill honored Senators John L. McClellan of Arkansas and Robert S. Kerr of Oklahoma by naming the project "The McClellan - Kerr Arkansas River Navigation System."³⁹

June 5, 1971 marked the day the McClellan - Kerr Arkansas River Navigation System officially was dedicated. The dedication was attended by President Richard M. Nixon, Senator John L. McClellan, and a host of other state officials including Congressman Wilber Mills and Arkansas' Governor Dale Bumpers.⁴⁰

President Nixon compared the spirit of undertaking such a project as to the forging of the United States, the purchase of Louisiana, the transcontinental rail development, the settlement of Oklahoma, the greening of the Tennessee

Valley and the landing of men on the moon. In a few words, he stated his feelings about the project and the men who fought for it when he said: "For years there were many who dismissed the idea of the Arkansas Waterway as a foolish dream. But there were others that held it as a bold and achievable vision... and the completed project that we dedicate today has proven them right."⁴¹

This chapter has explained the battle for funds necessary to complete the project. The purpose of the next section is to examine the result of the River system and after this perhaps the question, "Was it worth it?" can be better understood and an answer attempted.

CHAPTER IX

- The Results and Future -

"In an era when some voices urge Americans not to aim so high, to turn from the pursuit of greatness to the cultivation of comfort, it is valuable for our youth, our future leaders, to have before them this dramatic example of the young spirit still at work in building our nation.

"Without this spirit all wealth, all ease, all privilege would be ashes for Americans. With this spirit, all the future is ours."

- President Richard M. Nixon¹

This paper, up to this point, has been concerned only with the development of the McClellan-Kerr Arkansas River Navigation System. This final section's purpose is to examine the present results of the project and what can be expected in the future. Also included in this chapter is a brief study of how the completed system is operated. It is with this question we begin.

According to Section 7 of the Rivers and Harbors Act of August 8, 1917, the power to govern, the use and administration of public river and harbor and flood-control improvements is vested in the Department of the Army, specifically the Corps of Engineers. They are to execute the operation, maintenance, and control of such improvements.²

Under this responsibility the Corps must operate all of the locks and dams and must maintain the

widths and depths of the channel along its entire length. It is estimated that the annual cost to maintain the channel and operate the locks will be from \$16 million to \$18 million. This operating cost is to be paid from U. S. government funds and there are to be no tolls for travel on the River System.³

Also included in the Corps' duties is the job of issuing permits for the construction of structures in or across the River System and also permits for the discharge or deposit of any substance into the project. The authorization of these duties can be found in Section 14 of the Rivers and Harbors Act of March 3, 1899.⁴

The decision as to whether or not a permit is issued rests on the local officer of the Corps of Engineers and must be arrived at by an evaluation of all relevant factors. Among these factors are the effects of the proposed work on navigation, fish and wildlife, conservation, pollution, aesthetics, ecology, and the general public interest.⁵

Of great interest, in this day of increased concern about man's relation with nature, is the effect of such a structure as the Arkansas Project on the environment. The efforts being made to clean up and keep clean the waters of the Arkansas could, I feel, be an example to other inland waterways. Before the navigation program got under way almost every town along the River poured its sewage and wastes into the already littered River. But with the coming of the new

River System all of this is beginning to end.⁶

The Corps of Engineers is beginning to enforce an old and all too often forgotten act, the Refuse Act of March 3, 1899, that states it is unlawful to:

"Throw discharge, or deposit, or cause, suffer, or procure to be thrown, discharged, or deposited from out of any ship, barge, or other craft...or from the shore, wharf, manufacturing establishments, or mill of any kind, any refuse matter of any kind...into any navigable water of the United States."⁷

Also enforced by the Corps are the "Water Quality Improvement Act of 1970," Executive Order No. 11574," "The National Environmental Policy Act of 1969," and the "Fish and Wildlife Coordination Act."⁸ All of these and more direct the District Engineer to consult with regional representatives of the Federal Water Pollution Control Administration on problems associated with dredging, disposal of toxic bacterial, biological, chemical, and physical material.⁹

Senator McClellan was very interested in seeing that the River was cleaned up. He introduced two bills of his own to help in the anti-pollution campaign, Senate Bills #10 and #907. He was very obviously concerned with the environment of the area when he said: "I shall continue to devote my fullest energies and efforts to the further development of the natural resources of our section of the country... and also to protect our environment so that our people in this

valley can be assured of a better way of life."¹⁰

Already the effects of the campaign to clean up the River can be seen. Little Rock is already well on its way toward having a 100% of its sewage treated. Fort Smith constructed an \$11 million sewage disposal system while Russellville built a \$2 million facility. Also working on plans for treatment are the cities of Pine Bluff, Ozark, Clarksville, Atkins, and Conway, Arkansas.¹¹

There have already been some problems with the River Project. There have been reports of some shoaling on the Project at two locations between Little Rock and Fort Smith. These shoalings reduced the normal 9 foot depth to 7 feet. The Corps of Engineers used dredges to remove the shoales and normal navigation was restored.¹²

Another problem developed in December of 1971 when flood waters caused barge traffic and other navigation to be halted for five days. Although the seven upstream reservoirs in Oklahoma helped to prevent a disaster there was much higher water due to the fact that much of the rain fell below the area protected by these reservoirs. The basic problems to navigation were caused by the high water making the clearance between a tow and the many bridges crossing the River too low for passage. Also, Lock and Dam No. 9 near Morrilton had to be closed because the high water went around the dam and got into the operating machinery for the lock. Many of the tows already on the River had to tie up

and wait for the water, 16 feet above normal, to recede. But it must be said that without the Arkansas Project things would have been much worse.¹³

In charge of safety on the Arkansas Waterway is the United States Coast Guard. The Guard is responsible for the extensive network of buoys, daymarkers, and lights necessary to mark safe channels for navigation. The Guard has two 75-foot river buoy tenders to assist them in their work. Also included in the Coast Guard's responsibility is merchant marine safety which is concerned with the safe movement of commerce on the waterway. They inspect all commercial carriers, as well as, all shore facilities serving River traffic.¹⁴

Besides, these duties the Guard also licenses motor vessel operations, inspects shipyards, monitors pollution, serves as law enforcement agents, and are available for disaster assistance. Also important are the Boating Safety Detachments or BOSDETS. Each of these BOSDETS consists of a three-man crew and a 17-foot motor patrol boat. These men enforce the laws of the waterways and help to educate boaters about the rules of the waterway. In summary, the Coast Guard's duty is to keep the River safe through a program of education, inspection, enforcement and, if necessary, search and rescue.¹⁵

Another important organization in the administration of the River System is the Arkansas-Oklahoma River Compact

Commission. The purpose of this Commission, authorized by both federal and state governments, is to administer a program of water apportionment between the two states. Senator McClellan declared that: "the ratification of this compact marks another stage in our efforts to enhance the development of the water resources of the Arkansas River Basin."¹⁶

The discussion of how the project is run naturally leads to the question, why is it run? The next section of this chapter will deal with the results of the project in the major areas of industrial development, recreation, and flood control in an attempt to answer this question.

Senator John L. McClellan is known to have said that the project could change the character of the whole Valley from an agriculturally orientated area to an industrial region. E. S. Stephens, an official of the Garland Coal Company and Chairman of the Fort Smith River Development Committee, stated that he felt the Arkansas Valley could rival the Ohio in development within a few years.¹⁷

Another interesting point brought out by Senator McClellan was the fact that there is great importance to a city in having a navigable waterway. He noted that of the world's fifty largest cities, 46 are located on a sea-coast or on a navigable river. He concluded that navigation played a vital role in all of those cities' development.¹⁸

He expressed himself too on the effect the

waterway would have when he said:

"Rural outposts, once sparsely settled and poor, now bustle with economic rejuvenation as a result of some 13,000 newly created jobs. But the upsurge is only the beginning. Communities up and down this navigation corridor and in our other river valleys - their stores, churches, and schools - are preparing for the thousands more who will be soon employed here with industry and business that will be attracted during the next quarter of a century by this region's unparalleled promise and advantages."¹⁹

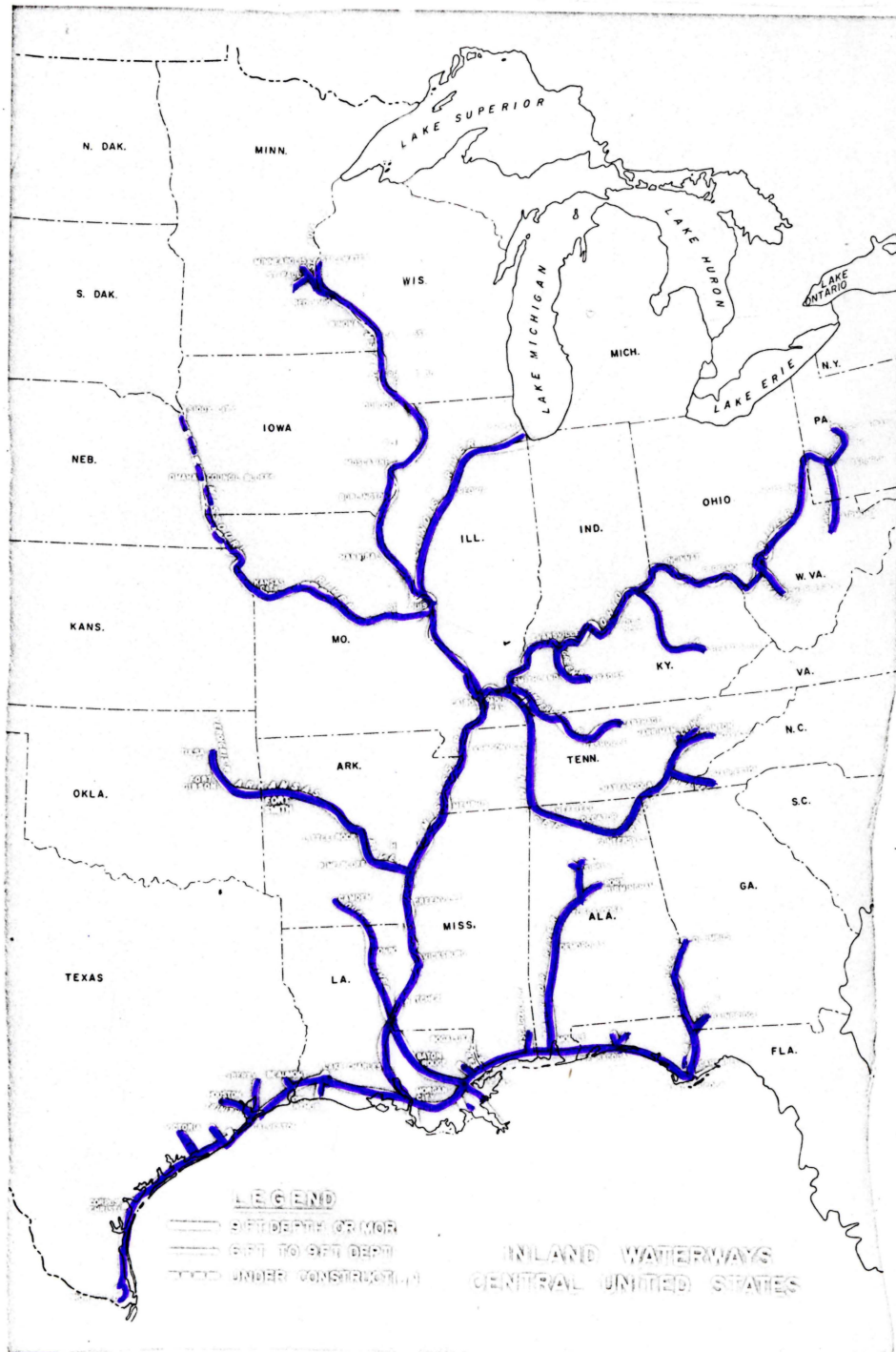
At this point one might ask why does the availability of this new River System assure the economic growth of the Valley? One answer is because this has been the pattern that other areas have followed after River development. For example, the Ohio River carried about 10 million tons of freight in 1920. In 1929, after the development of the River, there were 20 million tons carried, doubling the level carried in the underdeveloped stage. By 1966 the Ohio was carrying about 109 million tons. For the last ten years there has been about a \$1 billion annual investment made in the Valley of the Ohio. The same story is true of the Tennessee Valley, the Gulf Intracoastal Waterway, and the Upper Mississippi. The Arkansas Industrial Development Commission expects the same to be true with the Arkansas, due to the fact that more than \$500 million in new investments have already been made in the Valley.²⁰

The basic reasons why industry is expected to

come into the Arkansas Valley are many. First there is the large supply of electric power made available by the hydro-electric generating stations, also there is a large supply of water. Perhaps the most important reason is the savings in transportation that industry will have because of the relative inexpensive water transportation. An example of this can be seen in the shipping of grain to New Orleans. A bushel of wheat can be sent for 13 cents less now than before the project. A ton of steel can be sent from Pittsburgh to Tulsa for \$10 less. Glade Kirkpatrick, Chairman of ABDA, stated that: "The waterway gives us the opportunity to compete with other areas that have cheap transportation."²¹

As early as 1963, some large companies applied for permits from the Interstate Commerce Commission, in an effort to be first on the River, even though, navigation would not be complete to Little Rock until 1968. Among the lines to be turned down, because the bids were held premature, were the Mississippi Valley, Sioux City and New Orleans, American Commercial, and many others. These are only a few of the ones that are now operating on the River.²²

The Arkansas Project fits into the complete United States Waterway System providing a vital link. The Arkansas Project will fit into the center of the 15,000 mile Mississippi River - Gulf Intracoastal Waterway System. The point where the Arkansas Project meets the Mississippi is almost the center of the entire Waterway System. From that



point it is 1350 miles to Pittsburgh, 908 to Chicago, 1344 to St. Paul, 1281 to Sioux City, 937 to Western Florida, and 1196 to Brownsville on the Mexican border. Another important feature of the Arkansas System is the fact that Tulsa is the most northwestern year-round port on the entire Mississippi system. Many of the others are plagued with ice during the winter months.²³

Many were concerned that the new low cost transportation would have an adverse effect on other forms of transportation such as trucking or railroads but J. W. Hersey, Chairman of American Commercial Lines, Inc. sees it another way. He said: "Navigation projects in an underdeveloped region are quickly followed by heavy capital investments in new industry. The result is that you get a lot of additional business for all modes of transportation."²⁴ He also pointed out that while river transportation is incomparable at moving materials in large volume, where fast delivery at low inventories are needed the railroads and truck lines have an obvious advantage.²⁵

Some of the industry that is being attracted to the Arkansas Valley include those involved in transportation, mining, agriculture, manufacturing, and warehousing. In 1969 the Arkansas Waterway ranked fifth of 13 national inland waterways with 24 new plants and expansions. In the second quarter of 1970 the waterway ranked second in the country's inland waterways systems in terms of plant locations and ex-

pansions. By 1970, already over \$850 million had been invested in or near the navigation channel. Among these new constructions was the Arkansas Power and Light Company's \$165 million nuclear powerplant. Many other industries have chosen to locate on the project including many blue chip industries such as Dow Chemical, Remington Arms, Rheen Manufacturing, Allis Chalmers, International Paper and Portland Cement Company.²⁶

Certain products are likely to see more movement on the River than others. Among these are stone, coal, steel, lumber and paper, and grain. Due to the fact that there is little or no stone in the South, and the nearest source of supply has been Southern Missouri, the large quantity of stone found in Arkansas will likely have no trouble finding a market with the new low cost transportation system available.²⁷

Another substance that is at a great advantage with the new water system is coal. The Kerr-McGee Corporation already operates the deepest United States coal mine which produces over one million tons per year. With the new Waterway, Kerr-McGee can place a lower price on the coal making it competitive with coal produced nearer to the destination for its use.²⁸

Steel is already being shipped on the River in large quantities to be used in the construction of bridges over the Waterway. There has been much steel pipe, rolls of sheet steel and steel castings moving on the River. In addition, iron and scrap steel has been shipped out of the area.

In 1969 there were 37,199 tons of steel shipped but this jumped to 126,244 tons in 1970.²⁹

Barges also have moved much lumber and paper in the Valley. Logs and pulpwood have been moving downstream on barges while imported lumber and some finished products have been moving up the River. The prospects for growth of the lumber industry in the region seems to be great.³⁰

Perhaps the most important commodity that is moved on the River is grain. Arkansas has a huge soybean crop that has to be shipped out, with much of it going to the Far East. Also, to benefit from the low cost transportation are the wheat and rice farmers. In 1969 some 36,152 tons of grain was moved on the River and this increased to 106,200 tons in 1970.³¹

In terms of the amount being moved on the Arkansas System, since its construction, it seems to be a success with more and more moving each year. For instance, in the first eight months of 1970 there were 1,992, 743 tons moved on the River but in the same period of 1971, 3,053,550 tons were transported. Three products moved on the River for the first time, in 1971, gypsum, petroleum, and rubber.³²

To handle the ever increasing tonnage on the River it was necessary to construct many ports and harbors. Among the more important are the ports of Catoosa, Muskogee, Fort Smith, Van Buren, Dardanelle, Russellville, Little Rock, North Little Rock, and Pine Bluff. Most of these ports have a terminal area as well as an adjacent industrial port. Some

of these cities, such as Little Rock, have created port authorities and have a U. S. Customs Office for foreign goods.³³

Also important to the people involved with the River is the aspect of recreation. The Corps of Engineers has been at work constructing many public use areas along the River that will total 91, varying in size from 5 to 900 acres. It is estimated that the total amount of people who will use the recreational aspects of the River will total over 11,000,000.³⁴

Already the Arkansas has provided the setting for perhaps the most important recreational event ever held in the history of the River. On Sunday, February 27, 1972, there was a race of old fashioned stern-wheelers that drew a crowd of some 10,000 persons. The race was held near Little Rock between the "Border Star" and the oldest and largest stern-wheeler in the country, the "Delta Queen." It is interesting to note that the much smaller "Border Star" was the winner in what is hoped to be an annual event.³⁵

* * * *

Earlier in this study the question was raised "Was it worth it?" This final section will attempt to provide information so that the reader can draw his own conclusions if such is not already the case. The author believes that the best means of ascertaining an answer to this difficult question

lies not in statistics that might be misleading, but rather in what people say concerning it. For instance, one of the most striking and to the point statements, as to its worth, was made by a citizen of Little Rock when he said: "It's worth every penny of the cost just for the flood protection, and that doesn't include putting a price on the death and misery we've had throughout this area over the years."³⁶

A discussion in the area of economics might lead to a better understanding of the benefits that will accrue. The Corps of Engineers has offered a cost-benefit ratio of \$1.50 returned in benefits for every dollar spent.³⁷ But many feel that that figure has grossly underestimated the real return. Some say that the benefit returned on the Ohio River Project has been 5.7 more than was estimated and many agree the case will be the same for the Arkansas. Glade Kirkpatrick testified in hearings before a congressional committee that the minimum figure would probably be a \$3.30 return in benefits for every dollar spent, these benefits coming from flood prevention, hydro-electric power, lowered transportation cost, and attracted industry.³⁸

Cass S. Hough, a member of the Arkansas Industrial Development Commission, was eager to point out how he thought the project would be an asset.

"The navigation channel opens possibilities for economic growth previously non-existent in the area's once land-locked economy. Direct advantages of low-cost transportation, bank stabilization, flood control, and hydro-

electric power as well as conservation of wild-life and new recreation opportunities, promise to create a chain of dynamic economic reactions throughout the Arkansas-Oklahoma region."³⁹

This author believes that Mr. Hough's comments provide a good summary of what can be expected from the McClellan-Kerr Project. It is hoped that the reader is now in a position to judge for himself the worth of this project. I, for one, tend to agree with a comment Senator McClellan made to me when he said that the new River Development Project would, "make the Arkansas Valley America's Valley of the future."⁴⁰ Perhaps more valuable are some remarks made by the Senator in his dedication of one of the locks and dams.

"Ladies and gentlemen, it is now my great honor and privilege to touch the button that will put these constructive forces in motion for the benefit and welfare of the people of the Arkansas River Valley and for strengthening the might of our great nation - the United States of America."⁴¹

CHAPTER X

- Conclusion -

"And for generations to come, the McClellan-Kerr Arkansas River Navigation System will be a living monument to what man and nature together can accomplish."¹
- President Richard M. Nixon

A. L. Rouse defined history as a compound of fact and imagination. He further stated that it was the job of the intellectual to interpret, reduce to order, and extract the significance of the aforementioned compound.²

Throughout this paper the author has been trying to act out the part of Rouse's "intellectual," according to the the above statement. The title of this study is, "An Historical Description Concerning the Development and Construction of the McClellan-Kerr Arkansas River Navigation System." The term "Historical" is based on the definition of history given by Rouse in his, The Use of History, and because of this I have attempted to fulfill the necessary obligations he set forth for a historian. The entire structure of the paper was an effort to "reduce to order" the combination of facts that tell the story of the River's development. Sections in the paper devoted to politics required some "interpretation" by the author, such as in the question of "pork barrel." And finally,

the last section attempted to assess the "significance" of this gigantic project.

When one has completed the reading of this study it is hoped that he has a better understanding not only of the largest civil works project ever undertaken by the United States government but that he also has a better understanding of the political system of the United States and how it functions. Further, it is hoped that the reader can reaffirm his faith in man's ability to "dare great things and achieve what he dares."³

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Chapter X

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- 2 Class Lecture, History 385.
- 3 Same as #1.

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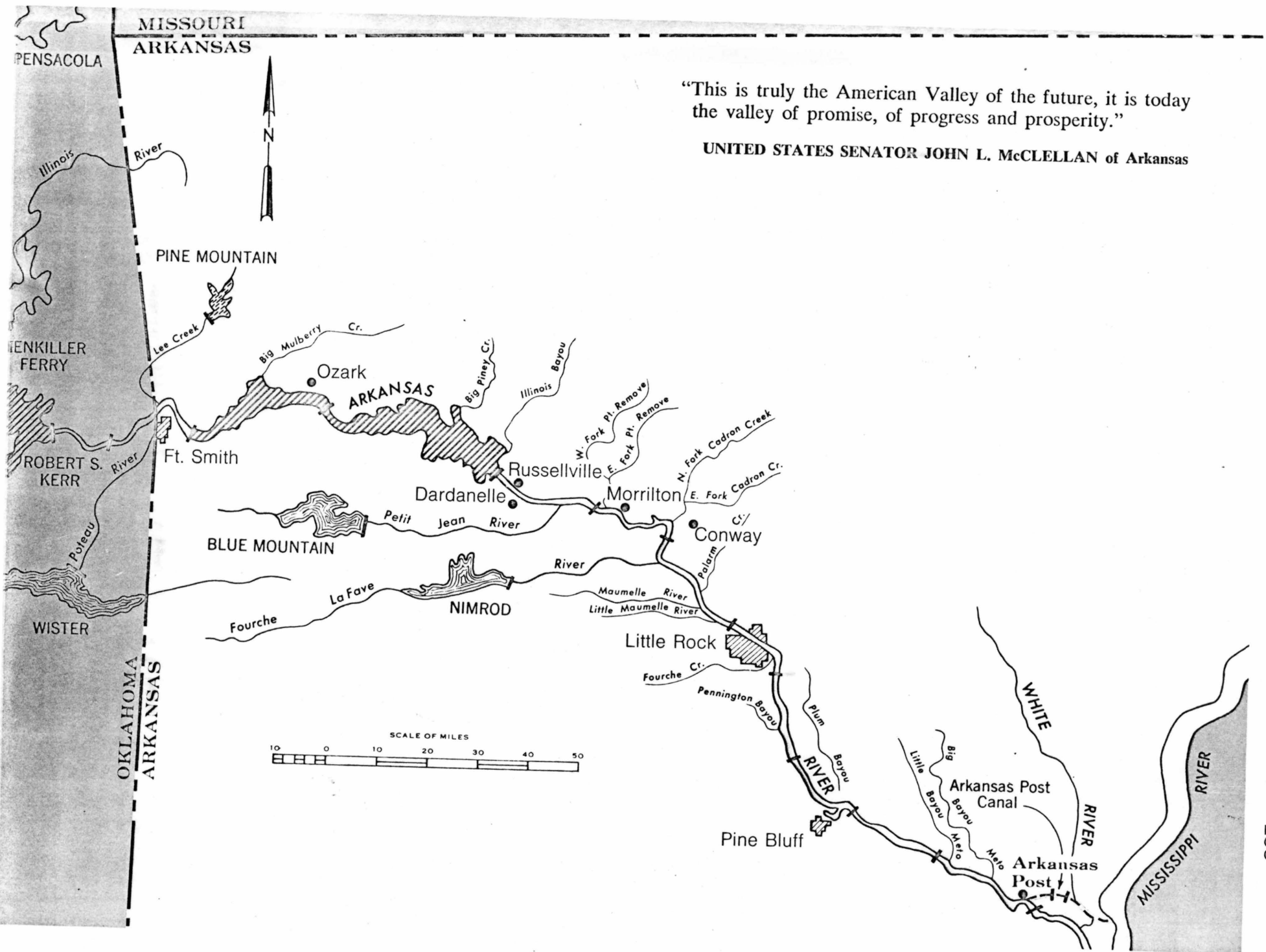
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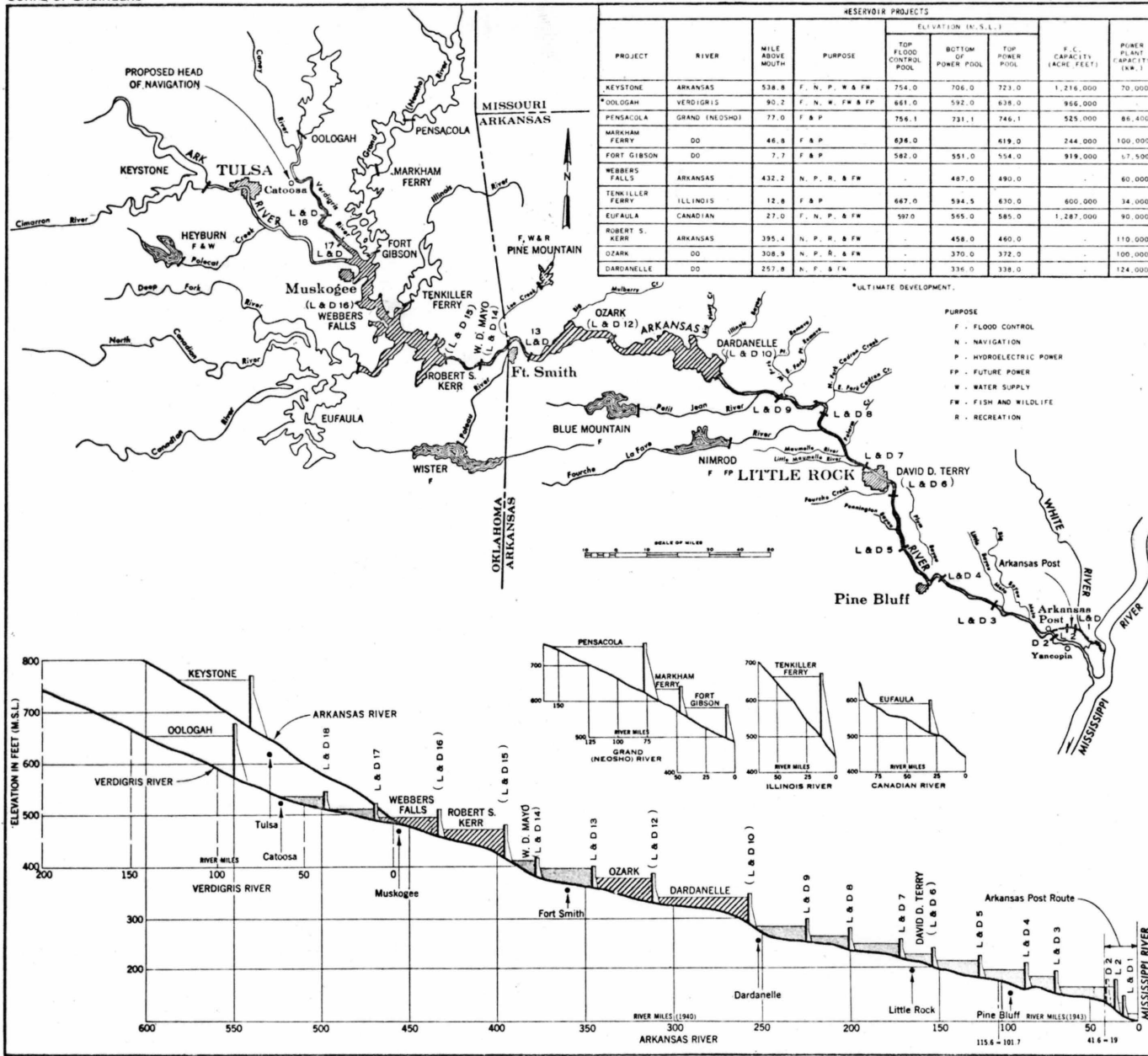
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"This is truly the American Valley of the future, it is today the valley of promise, of progress and prosperity."

UNITED STATES SENATOR JOHN L. McCLELLAN of Arkansas



RESERVOIR PROJECTS

PROJECT	RIVER	MILE ABOVE MOUTH	PURPOSE	ELEVATION IN S.L. 1			P. C. CAPACITY (ACRE FEET)	POWER PLANT CAPACITY (KW.)
				TOP FLOOD CONTROL POOL	BOTTOM OF POWER POOL	TOP POWER POOL		
KEYSTONE	ARKANSAS	538.8	F. N. P. W & FW	754.0	706.0	723.0	1,216,000	70,000
OOLOGAH	VERDIGRIS	90.2	F. N. W. FW & FP	661.0	592.0	638.0	956,000	
PENSACOLA	GRAND (NEOSHO)	77.0	F & P	756.1	731.1	746.1	525,000	88,400
MARKHAM FERRY	DO	46.8	F & P	838.0		419.0	244,000	100,000
FORT GIBSON	DO	7.7	F & P	582.0	551.0	554.0	919,000	17,500
WEBBERS FALLS	ARKANSAS	432.2	N. P. R. & FW		487.0	490.0		80,000
TENKILLER FERRY	ILLINOIS	12.8	F & P	567.0	534.5	670.0	600,000	34,000
EUFULA	CANADIAN	27.0	F. N. P. & FW	597.0	565.0	585.0	1,287,000	90,000
ROBERT S. KERR	ARKANSAS	395.4	N. P. R. & FW		458.0	460.0		110,000
OZARK	DO	308.9	N. P. R. & FW		370.0	372.0		100,000
DARDANELLE	DO	257.8	N. P. & FW		534.0	338.0		124,000

*ULTIMATE DEVELOPMENT.

NAVIGATION PROJECTS
(River and Harbor)

STRUCTURE	MILE (1940 SURVEY EXCEPT AS NOTED)	UPPER POOL ELEVATION (FEET M.S.L.)	LOWER POOL ELEVATION (FEET M.S.L.)
DAM NO. 18	36.9 VERDIGRIS R.	532.0	511.0
LOCK NO. 18	36.9 DO	532.0	511.0
DAM NO. 17	12.9 DO	511.0	490.0
LOCK NO. 17	8.2 DO	511.0	490.0
WEBBERS FALLS (LOCK AND DAM NO. 18) (1)	432.3 ARKANSAS R.	490.0	460.0
ROBERT S. KERR (LOCK AND DAM NO. 15) (1)	395.4 DO	460.0	412.0
W. D. MAYO (LOCK AND DAM NO. 14)	375.1 DO	412.0	392.0
LOCK AND DAM NO. 13	348.5 DO	392.0	372.0
OZARK (LOCK AND DAM NO. 12) (1)	308.9 DO	372.0	338.0
LOCK AND DAM NO. 11 (DELETED)			
DARDANELLE (LOCK AND DAM NO. 10) (1)	257.8 DO	338.0	284.0
LOCK AND DAM NO. 9	224.9 DO	284.0	265.0
LOCK AND DAM NO. 8	201.2 DO	265.0	249.0
LOCK AND DAM NO. 7	172.0 DO	249.0	231.0
DAVID D. TERRY LOCK AND DAM	154.4 DO	231.0	213.0
LOCK AND DAM NO. 5	126.0 DO	213.0	196.0
LOCK AND DAM NO. 4	(2) 97.7 DO	196.0	182.0
LOCK AND DAM NO. 3	(2) 72.3 DO	182.0	142.0
DAM NO. 2	(2) 40.5 DO	162.0	ARKANSAS R.
LOCK NO. 2	(3) 13.4	162.0	142.0
LOCK AND DAM NO. 1	(3) 10.4	142.0	(1)2 (WHITE R.)

(1) MULTIPLE PURPOSE.
(2) 1943 SURVEY.
(3) ALONG ARKANSAS POST CANAL ROUTE.

- LEGEND
- Canalization approved
 - Navigation lock & dam
 - Navigation-power reservoir
 - Reservoir included in multiple-purpose plan
 - Reservoir in operation (not included in multiple-purpose plan)
 - Reservoir approved (not included in multiple purpose plan)

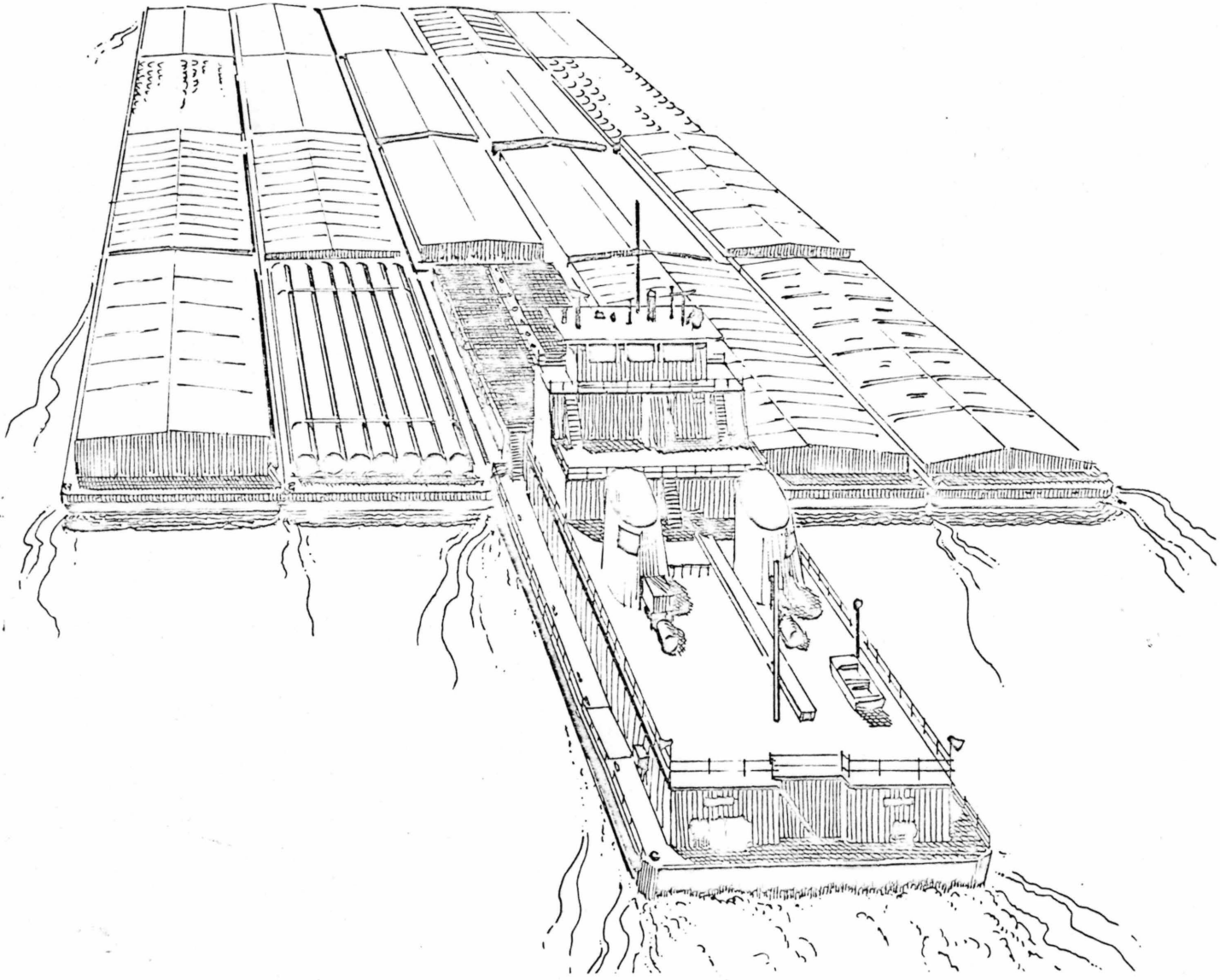
ARKANSAS RIVER AND TRIBUTARIES
NAVIGATION FEATURES
GENERAL PLAN AND PROFILE

SCALE AS SHOWN

LITTLE ROCK DISTRICT, CORPS OF ENGINEERS
LITTLE ROCK, ARKANSAS, NOVEMBER 1967

DRAWN: HJH
TRACED:
CHECKED: DRR

The over-all Plan



MAIN STEM LAKES

Project data	Tulsa District		Little Rock District	
	Webbers Falls	Robert S. Kerr	Ozark	Dardanelle
Location				
Navigation Miles	359.3	330.3	251.0	201.2
Purpose	N.P.R. & FW	N, P, & FW	N.P.R. & FW	N, P, & FW
Drainage Area				
Upstream from dam, sq. mi.	97,033	147,756	151,820	153,703
Elevations (feet above m.s.l.)				
Top of dam	520	483.5	399	355
Top of power pool	490	460	372	338
Top of navigation pool	487	458	370	336
Lake Area (acres)	10,900	42,000	10,600	36,600
Storage Capacity (acre-feet)				
Power	30,000	79,500	19,400	65,000
Navigation	135,200	414,100	129,000	421,000
Lock				
Size, feet	110 x 600	110 x 600	110 x 600	110 x 600
Lift, feet	30	48	34	54
Power Capacity (kw.)				
Initial installation	66,000	110,000	100,000	124,000
Ultimate installation	66,000	110,000	100,000	124,000

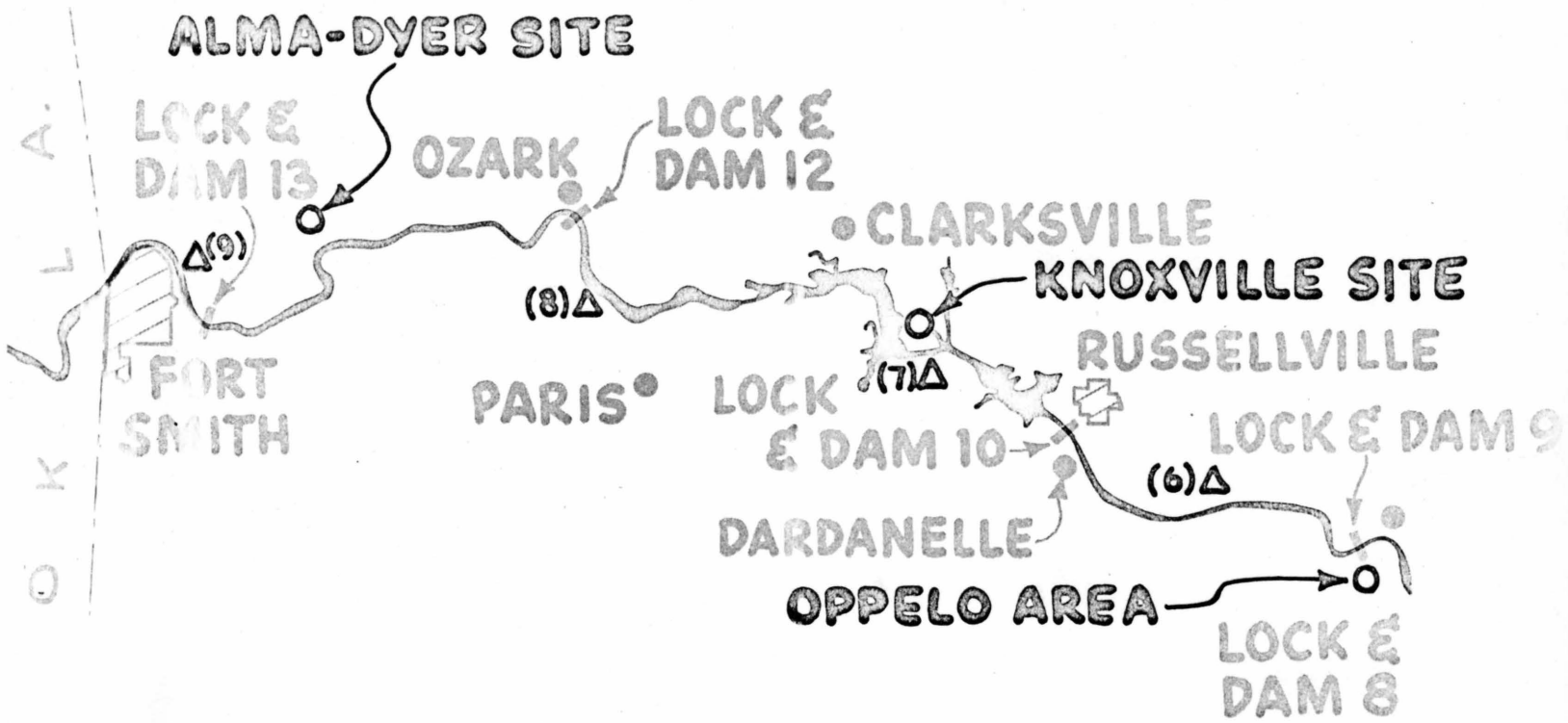
k.w. - Kilowatt
 m.s.l. - Mean sea level
 R - Recreation
 F - Flood control
 P - Hydroelectric power
 N - Navigation
 FW - Fish and Wildlife

4. Project funding. Total funds appropriated for project features within the Little Rock District through FY 1970 are as follows:

Feature	Estimated construction cost (1 July 1970 prices)	Construction costs thru FY 70	Maintenance costs thru FY 70
Bank stabilization	\$122,300,000	\$111,401,184	\$4,561,666
Navigation locks and dams Maintenance fleet, repair fleet, and marine terminals	373,350,000	328,694,572	8,710,505
Dardenelle Lock, Dam, and Power generating facilities	83,449,000	81,738,522	3,522,032
Ozark Lock, Dam, and Power generating facilities	79,600,000	54,743,512	581,361
Total	658,709,000	576,577,790	17,375,564

5. Commerce on the completed project. The navigation route was opened to Little Rock in 1959, to Fort Smith in 1970, and to Tulsa in 1971. Commerce, which moved on the completed project, is as follows:

1959	- 2,905,841 Tons
1970	- 3,994,783 Tons
1971 (9 months)	- 3,385,003 Tons (Unofficial)



LOCATION MAP OF PROPOSED INDUSTRIAL SITES

- PRINCIPAL SITES STUDIED
- △ OTHER FAVORABLE SITES

KEY-OTHER FAVORABLE SITES

- (1) DAM NO. 2 AREA
- (2) SOUTH BEND AREA
- (3) LOCK & DAM 4 AREA
- (4) LITTLE ROCK-NO. LITTLE ROCK AREA
- (5) BIGELOW-FOURCHE AREA
- (6) GALLA CREEK AREA
- (7) RIVER MOUNTAIN AREA
- (8) ROSEVILLE AREA
- (9) FORT SMITH AREA

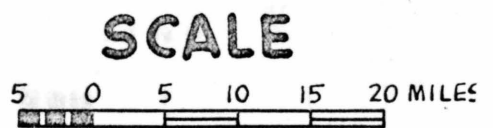
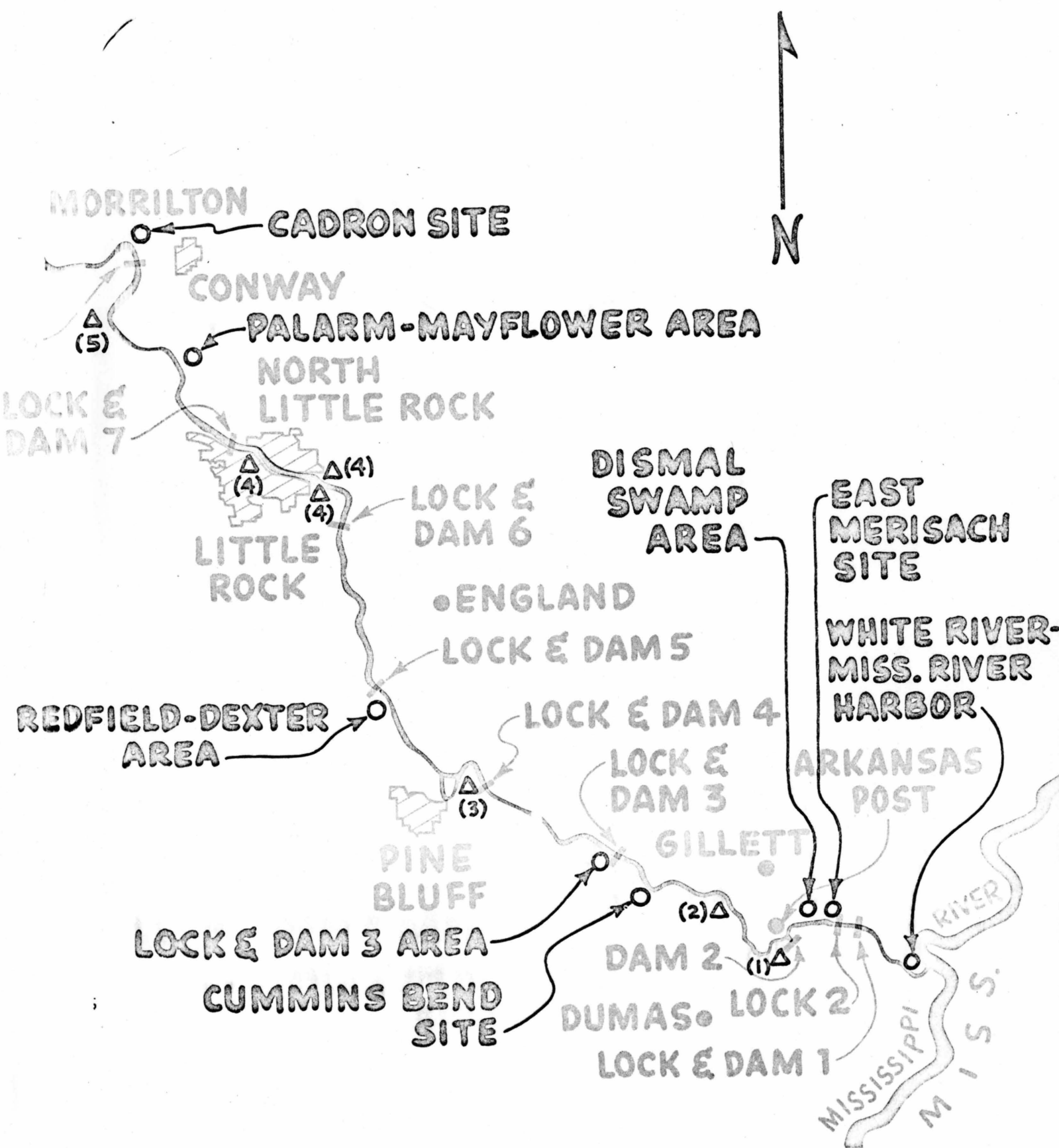


Figure 2



ANNOUNCEMENTS OF NEW INDUSTRIAL STARTS

ARKANSAS

25 September 1970

<u>INDUSTRY</u>	<u>PRODUCTS</u>	<u>LOCATION</u>	<u>INVESTMENT</u>	<u>NO. EMPLOYEES</u>	<u>SOURCE OF INFORMATION</u>
AP&L Nuclear Powerplant No. 1	power	Russellville	\$165,000,000	500	AP&L Co.
Kraft Corp.	paper	Morrilton	10,000,000	250	AIDC
Ward Furniture Mfg Co.	furniture	Russellville	3,000,000	400	AIDC
Puryear Wood Products Co.	wood products	Dumas	1,000,000	150	AIDC
Great Plains Bag Co.	paper/plastic bags	Jacksonville	1,500,000	300	AIDC
Remington Arms Co.	sporting ammunition	Lonoke	25,000,000	900	AIDC
Dow Chemical Co.	aluminum extrusion	Russellville	20,000,000	100	AIDC
Cement Asbestos Products Co.	asbestos cement pipe	Van Buren	3,500,000	100	AIDC
Crompton Shenadoah Co.	textiles	Heber Springs	8,000,000	500	AIDC
Kimberly-Clark Co.	diapers-tampons	Conway	6,000,000	150	Ark Democrat
McGehee Industries Inc.	uniforms	McGehee	300,000	150	AIDC
Rheem Manufacturing Co.	heating equipment	Ft. Smith	12,000,000	600	Ft. Smith C of C
Armstrong Rubber Co.	innertubes	Little Rock	5,000,000	150	AWO
Waldron Furniture Mfg Co.	chairs	Waldron	175,000	100	
Allis-Chalmers	electric motors	Little Rock	1,000,000	150	Little Rock C of C
Global Steel of Ark	conveying equipment	Ft. Smith	200,000	30	Ft. Smith C of C
Singer Controls Co.	electric motors	Jacksonville	8,500,000	950	AIDC
Ouachita Marine & Ind Corp.	boats	Little Rock	1,000,000	150	Ark Democrat
A. G. Spalding & Bros Inc.	golf clubs	Ft. Smith	2,000,000	500	Ft. Smith C of C
Wolverine Toy Co.	metal/plastic toys	Booneville	3,500,000	350	AIDC
McGraw-Edison Co.	appliances	Searcy	5,000,000	70	State C of C
Diamond Shamrock Chemical Co.	poultry feed	Van Buren	400,000	-	State C of C
Phil-Maid Inc.	lingerie	England	500,000	200	AIDC
Plastronics Inc.	insulation material	Ozark	300,000	40	AIDC
Builders Services of America	steel door frames	Jacksonville	100,000	8	AIDC
International Paper Co.	paper	Russellville	5,000,000	140	AIDC
Hepence Inc.	aluminum foil	Atkins	270,000	60	State C of C
Otis International	home modules	Russellville	1,000,000	-	AIDC
IPCO Hospital Supply	hospital uniforms	McGehee	825,000	300	Dept of Commerce
Phelps-Dodge	wire & cable	Fordyce	8,500,000	125	Dept of Commerce
Ark Grain Corp.	grain processing	Stuttgart	2,500,000	30	Dept of Commerce
Allied Mills	poultry processing	Danville	2,800,000	-	Dept of Commerce
Larkwood Farms	poultry processing	Van Buren	3,500,000	-	Dept of Commerce
AP&L Nuclear Powerplant No. 2	power	Russellville	180,000,000	-	AIDC

ANNOUNCEMENTS OF EXPANSIONS OF EXISTING INDUSTRIES
ARKANSAS

25 September 1970

<u>INDUSTRY</u>	<u>PRODUCTS</u>	<u>LOCATION</u>	<u>INVESTMENT</u>	<u>NO. EMPLOYEES</u>	<u>SOURCE OF INFORMATION</u>
Central Transformer Corp.	motors	Pine Bluff	\$1,500,000	150	AIDC
Crompton Mills	fabrics	Morrilton	4,000,000	350	AIDC
Whirlpool Mfg Co.	appliances	Ft. Smith	1,600,000	600	-
Amerace Corp.	combs	Booneville	1,500,000	400	AIDC
Chamberlin School Furniture Co.	furniture	Conway	300,000	40	AIDC
Ark General Industries Inc.	motors	Bald Knob	600,000	200	State C of C
Morton Frozen Foods	food products	Russellville	6,500,000	800	Ark Democrat
Riverside Furniture Corp.	furniture	Ft. Smith	1,000,000	-	Ft. Smith C of C
Federal Compress & Warehouse Co.	cotton	Dumas	175,000	-	-
		Total	<u>\$17,175,000</u>	<u>2,540</u>	

ANNOUNCEMENTS OF NEW INDUSTRIAL STARTS

ARKANSAS

25 September 1970

<u>INDUSTRY</u>	<u>PRODUCTS</u>	<u>LOCATION</u>	<u>INVESTMENT</u>	<u>NO. EMPLOYEES</u>	<u>SOURCE OF INFORMATION</u>
Excel Tool & Machine Inc.	tool & die mfg	Little Rock	\$1,000,000	40	Construction News
Razorback Boot Co.	boots	Conway	120,000	15	AIDC
Bersted Mfg Co.	heaters	Dumas	-	250	Ark Gazette
Rico Liquids	cattle feed (molasses)	Little Rock	150,000	-	Ark Gazette
Port of Pine Bluff	general commodities	Pine Bluff	3,000,000	-	P B Port Authority
Port of Little Rock	general commodities	Little Rock	4,300,000	-	L R Port Authority
Port of Fort Smith	general commodities	Ft. Smith	80,000	-	Ark Gazette
Port of Van Buren	general commodities	Van Buren	2,000,000	-	Ark Municipalities mg
Bauxite Port	bauxite	Little Rock	2,000,000	-	Little Rock C of C
		Total	\$500,020,000	7,758	

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Industrial Information III

ANNOUNCEMENTS OF EXPANSIONS OF EXISTING INDUSTRIES
OKLAHOMA
25 September 1970

<u>INDUSTRY</u>	<u>PRODUCTS</u>	<u>LOCATION</u>	<u>INVESTMENT</u>	<u>SOURCE OF INFORMATION</u>
Public Service Co. of Oklahoma	electric utility	Oologah	\$35,000,000	AWO
Armco Steel Corp.	steel products	Sand Springs	5,000,000	-
Oklahoma Tire & Supply	distribution center	Tulsa	4,000,000	-
		Total	<u>\$44,000,000</u>	

SUMMARY

Total investment- new industries	\$808,520,000
Total investment- expansions	61,175,000
	<u>\$869,695,000</u>

NOTE: This is an unofficial, incomplete listing of public announcements made during the period 1968 - present date concerning plans for establishment of new industries or expansion of existing facilities. Only those industries locating in the vicinity of the navigation route or who announced that the availability of the navigation channel was a factor are listed.

ANNOUNCEMENTS OF NEW INDUSTRIAL STARTS
OKLAHOMA
25 September 1970

<u>INDUSTRY</u>	<u>PRODUCTS</u>	<u>LOCATION</u>	<u>INVESTMENT</u>	<u>SOURCE OF INFORMATION</u>
Kerr-McGee Interests	uranium plant	Gore	\$25,000,000	-
Kerr-McGee Interests	coal mining	Sequoyah	40,000,000	AWO
Howe Coal Co.	coal mining	Heavener	10,000,000	AWO
Dewey Portland Cement Co.	cement	Tulsa	18,000,000	AWO
Mid-America Ind District	industrial park	Pryor	31,000,000	-
Firestone Tire & Rubber Co.	rubber products	Oklahoma City	48,000,000	-
LeBerge Pipe & Steel Div.	steel products	Wagoner	1,000,000	-
Port of Catoosa (Tulsa)	port facility	Catoosa	20,000,000	Tulsa Port Authority
Port of Muskogee	port facility	Muskogee	2,500,000	-
Kin-Ark Corp.	chemical terminal	Catoosa	3,000,000	Tulsa Tribune
Williams Bros.	terminal-pipeline	Catoosa	2,000,000	Tulsa World
Public Service Co.	electric generating plant	Jenks	100,000,000	Tulsa World
Standard Industries	frozen food warehouse	Tulsa	8,000,000	Tulsa World
		Total	\$308,500,000	