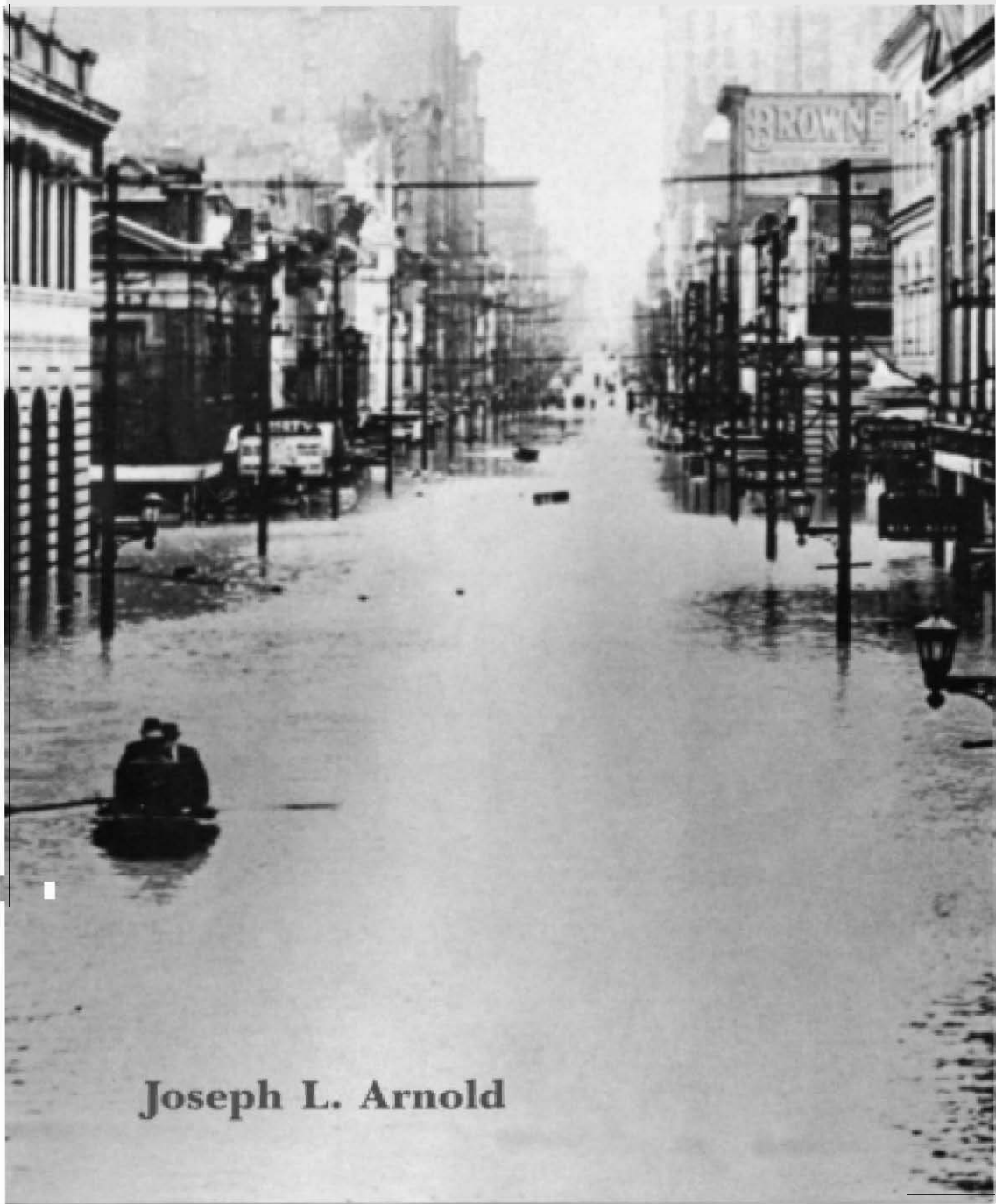


The Evolution of the 1936 Flood Control Act



Joseph L. Arnold

Other Publications by the Office of History

- The Corps, the Environment, and the Upper Mississippi River Basin*, by Raymond H. Merritt (GPO S/N 008-022-00220-1).
- Engineers of Independence: A Documentary History of the Army Engineers in the American Revolution, 1775-1783*, by Paul K. Walker (GPO S/N 0822-00166-2).
- Vanguard of Expansion: Army Engineers in the Trans-Mississippi West, 1819-1879*, by Frank N. Schubert (GPO S/N 0822-00149-2).
- “To the immortal name and memory of George Washington”; The United States Army Corps of Engineers and the Construction of the Washington Monument*, by Louis Torres (GPO S/N 008-022-00225-1).
- From the Atlantic to the Great Lakes: A History of the U.S. Army Corps of Engineers and the St. Lawrence Seaway*, by William H. Becker (GPO S/N 008-022-0221-9).
- United States Coast Defense, 1775-1950: Bibliography*, compiled by Dale E. Floyd (GPO S/N 008-022-00227-8).

ON THE COVER

Flooding in Wheeling, West Virginia, March 1936.

THE EVOLUTION OF THE 1936 FLOOD CONTROL ACT

by

Joseph L. Arnold

**OFFICE OF HISTORY
UNITED STATES ARMY CORPS OF ENGINEERS
FORT BELVOIR, VIRGINIA
1988**

Library of Congress Cataloging in Publication Data

Arnold, Joseph L.

The evolution of the 1936 Flood Control Act.

Bibliography: p.

Includes index.

1. United States. Flood Control Act of 1936.

2. Flood control— law and legislation -United States.

I. Title.

KF5588.A316A162	1988	344.73'0534937	86-18137
		347.304534937	

First Printing

EP 870-1-29

Foreword

Few laws have had such an impact on the United States Army Corps of Engineers as the 1936 Flood Control Act. For over 50 years before passage of this act, Congress had been periodically charging the Corps with flood control responsibilities. However, lawmakers generally justified the work on the basis of aiding navigation. It was only in the 1936 act that Congress stipulated that flood control was an appropriate federal activity. The act authorized hundreds of flood control projects and established policies that endure to this day. Moreover, it dramatically increased the Corps' work load, forcing the agency to develop new procedures and offices.

I take particular interest in the 1936 Flood Control Act since its lineal descendant is the Water Resources Development Act of 1986 (Public Law 99-662). In 1936, lawmakers decided that local interests ought to share in the costs of flood control measures. At that depression-ridden time, the decision resulted in relatively modest local contributions for channel and levee projects but left flood control storage in reservoir projects as a 100 percent federal responsibility.

In the years since passage of the 1936 landmark legislation, increasing pressures developed for greater nonfederal contributions in all types of water resources development projects. With the increased environmental awareness of the 1960s and 1970s, arguments for additional nonfederal contributions to enhance economic efficiency were bolstered by demands to reduce the number of water projects with adverse environmental impacts. The executive and legislative branches reached an impasse. Until 1986, no significant new project authorizations had been made since the mid-1970s. Consequently, a backlog of problems created by flooding, drought, and other water-related activities developed.

Over the past several years we, along with other administration representatives and a bipartisan coalition of congressmen and senators, have made a concerted effort to resolve the impasse. To the credit of both those beneficiaries of water projects who agreed to a greater local contribution than in the

past and those who desired 100 percent reimbursement of federal costs, acceptable compromises were made.

I am proud to say that our efforts were concluded with passage of the Water Resources Development Act of 1986. I want to thank the congressmen and senators, especially Congressman Robert Roe and former Senator James Abdnor, who helped us achieve our goal. The 262 water projects it authorizes, at a total cost of \$16 billion, will allow us to continue the work set in motion by the 1936 Flood Control Act. We look forward to working with local interests and other agencies of government to promote the safety and welfare of citizens in flood-prone areas of our country.

A handwritten signature in black ink, appearing to read 'Robert W. Page', with a large, stylized initial 'R' and 'P'.

ROBERT W. PAGE

Assistant Secretary of the Army
(Civil Works)

Preface

This history commemorates an important event in the development of the United States and, especially, of the United States Army Corps of Engineers. In 1936, in response to public demands for federal aid for flood-prone areas of the country and for work relief in the midst of the Great Depression, Congress passed and President Roosevelt signed the first general flood control bill – the first piece of legislation to provide for flood relief throughout the country and to recognize that flood control “is a proper activity of the Federal Government.” Most of the responsibility for planning and designing federal flood control projects was assigned to the Army Corps of Engineers, an agency that had been continuously involved with water resources projects since **1824**. Under the authority of the Flood Control Act of 1936, the Corps has developed into the foremost flood control agency in the nation and has shared its knowledge with many organizations in this country and abroad.

The hundreds of reservoir, levee, and channelization projects that resulted from the 1936 act and subsequent amendments have literally changed the face of the nation. The projects have contributed to both the growth of towns and the protection of rural farmlands. Secondary purposes, such as recreation and water supply, have become more important to an increasingly urbanized nation. There are few areas of the United States that have not received the benefits of these flood control projects.

The billions of dollars saved because of flood control projects have more than repaid the cost of the original construction investment. Today, when designing flood control projects, we attempt to balance the economic benefits against potential damage to the environment. We also are aware that even small projects must depend on an equitable sharing of costs between the federal government and local interests. In fact, new cost-sharing provisions were incorporated into the Water Resources Development Act of 1986 (Public Law 99-662) signed by President Ronald Reagan on 17 November 1986. This law, whose passage owes much to the joint efforts of the Honorable Robert K. Dawson, former Assistant Secretary of the Army, Civil Works,

and a bipartisan coalition of congressmen and senators, established methods to weed out dubious projects, while granting more credibility to supporters of worthwhile proposals. The act thereby represents perhaps the most important change in federal water resources policy since the passage of the 1936 Flood Control Act. However, these shifting political and economic developments should not obscure the one fact that remains constant: the Corps of Engineers' firm commitment to the protection of life and property against natural disasters.

A handwritten signature in black ink, appearing to read "E. R. Heiberg III". The signature is stylized with a large, looped initial "E" and a horizontal line at the end.

E. R. HEIBERG III
Lieutenant General, USA
Chief of Engineers

Author's Note

Half a century ago the United States officially recognized “that destructive floods upon the rivers of the United States ... constitute a menace to national welfare” and that “flood control on navigable waters or their tributaries is a proper activity of the Federal Government in cooperation with States, their political subdivisions, and localities thereof.”¹ The origins of the Flood Control Act of 1936 date back to the 19th century, even though its passage came as part of the New Deal administration of Franklin D. Roosevelt. Every major 20th-century historian has agreed that the New Deal was a turning point in the history of American politics and in the federal government's role in the life of the nation. This certainly applies to the history of flood control. The 1936 act still stands as the fundamental legislative authority under which a vast program of public works costing billions of dollars has been executed throughout the union. The act authorized a program that has saved countless lives and billions of dollars in property. In addition, the program has provided benefits in hydroelectric power, navigation, and recreation. No other nation in the world has undertaken such an ambitious water resources program. The act was the culmination of almost a century of increasing federal concern and engineering progress.

However, the act also mirrored the innumerable conflicting political issues that marked New Deal politics during a presidential election year. Arthur Maass, one of the nation's leading authorities on water resources development, has called the 1936 act a “confused and confusing piece of legislation.” The most prominent historian of the New Deal, William Leuchtenburg, said it was “ill conceived and wretchedly drafted,” subject to widely conflicting interpretations, misunderstood by most of those who voted for it, and misinterpreted by President Roosevelt, who signed it.²

How can this important piece of legislation have such a reputation? The act can be understood only in the context of its political history. The reason for the divergent perceptions of the flood control act is that it states a principle that almost everyone in the government and nation endorsed in 1936 -that the federal

government should take primary responsibility for dealing with the menace of terrifying, huge floods. However, the exact means by which the government was to accomplish this goal was subject to wide disagreement. Those who advocated national flood control could not always agree on financial arrangements, the role of state and local interests, or the relationship of flood control to other water resources goals or programs (particularly hydroelectric power). Thus the final version of H.R.8455 that Congress approved and sent to President Roosevelt contained a clear statement of federal flood control responsibility, but a rather hastily drawn series of implementation features that were a patchwork of compromises thrown together by overworked congressmen on the eve of the presidential and congressional elections of 1936. News of the passage and signing of the act can be seen in the newspapers of May and June 1936 amid long articles on the upcoming national political conventions and elections. The act was forged in the midst of the "Second New Deal" and was part of the great political upheavals of the mid-1930s.

The Flood Control Act of 1936 is a good example of congressional legislation that is fairly clear in its general goals, but confusing and even irrational in its specific policies and administrative machinery. Eventually, new generations of politicians, lobbyists, and experts recast the particular policies and, over time, even altered some of its general goals. Nevertheless, the fundamental goals and direction of legislation in a major problem area like flood control are seldom reversed once the law is set in place. The manner in which our free society makes these fundamental legislative decisions may look awkward to some observers, but it is in fact one of the most impressive and admirable aspects of our system. The establishment of our national policy of flood control in the stormy spring of 1936 is an illuminating example of this great democratic process.

A number of individuals and institutions aided me throughout the development of this study. The staff of the Albin O. Kuhn Library at University of Maryland, Baltimore County (UMBC), was, as always, extremely helpful. In particular I would like to thank Sarah E. Crest, Howard E. Curnoles, Simona E. Simmons, and the Library Director, Dr. Billy Wilkerson. In the Department of History at UMBC, I owe special thanks to Carol Warner and Linda Hatmaker, who typed all the original drafts of the manuscript. I am also indebted to my daughter, Elizabeth C. Arnold, for her many hours spent culling articles from the newspapers of the 1930s.

The staff at the Franklin D. Roosevelt Library in Hyde Park, New York, was diligent and efficient in providing many of the key documents for this study. Equally helpful was the staff in charge of the National Resources Committee records at the National Archives in Washington, D.C. The staff in the manuscript section of Louisiana State University kindly provided helpful background material on Congressman Riley Wilson.

My major debt is owed to the Office of History, Headquarters, U.S. Army Corps of Engineers, at Fort Belvoir, Virginia. Dr. Martin Gordon shared information he had gathered earlier concerning the 1936 Flood Control Act, and Kathy Richardson, Diane Arms, and Fran Watson provided vital support services. My greatest thanks go to Dr. Martin Reuss, who is responsible for this research project and whose vast knowledge of flood control issues and the Corps of Engineers helped me at every turn.

JOSEPH L. ARNOLD

The Author

Dr. Joseph L. Arnold is a Ph.D. graduate of Ohio State University and is currently in the Department of History at the University of Maryland, Baltimore County, where he is director of the graduate program in historical studies. He is the author of *The New Deal in the Suburbs: A History of the Greenbelt Town Program, 1935-1954* and *Maryland: Old Line to New Prosperity*. He has also written a history of the Corps of Engineers and environmental issues in the Potomac and Susquehanna river basins for the Office of History of the Army Corps of Engineers. Dr. Arnold's other research interests are city and regional planning, comparative urban development, and American cultural society.

Contents

<i>Chapter</i>	<i>Page</i>
I. THE ORIGINS OF FEDERAL FLOOD CONTROL ACTIVITY, 1849-1912.....	3
II. CONGRESS, FLOOD CONTROL, AND MULTI-PURPOSE RIVER DEVELOPMENT, 1912-1933.....	11
III. THE NEW DEAL AND FLOOD CONTROL, 1933-1934	23
IV. THE FLOODS OF 1935 AND H.R. 8455: CONGRESS TAKES THE INITIATIVE	39
V. THE FLOODS OF 1936 AND THE COPELAND FLOOD CONTROL BILL	59
VI CONCLUSION	91
APPENDIX A: EXCERPTS FROM THE FLOOD CONTROL ACT OF 1936	97
NOTES	101
SELECT BIBLIOGRAPHY.....	115
INDEX	121

Illustrations

Refugees and Livestock on a Levee During the Mississippi River Flood, 1912	12
Vicksburg, Mississippi, During the 1927 Flood	18
Floodwall at Cairo, Illinois, During the 1927 Flood	19
President Franklin Delano Roosevelt	24
Frederic A. Delano, Chairman, National Resources Planning Board, 1933-1943	27
Riley J. Wilson, Representative From Louisiana, 1915-1937	28
Harold L. Ickes, Secretary of the Interior, 1933-1946	30
Morris L. Cooke, Chairman, Mississippi Valley Committee of the Public Works Administration, 1933	40
Major General Edward M. Markham, Chief of Engineers, 1933-1937.....	41

Abel Wolman, Chairman, Water Resources Committee of the National Resources Committee, 1935-1939	43
Millard E. Tydings, Senator From Maryland, 1927-1951.....	55
Sebago Lake Flooding Highway in Southwestern Maine, March 1936	60
Johnstown, Pennsylvania, During the 1936 Flood	60
Duquesne Way and 9th Street, Pittsburgh, Pennsylvania, 18 March 1936	61
Allegheny River at Pittsburgh, Pennsylvania, 18 March 1936, Viewed From the Thirty-eighth Floor of the Gulf Building	61
Allegheny River Flood Wreckage, Pittsburgh, Pennsylvania, 20 March 1936.....	62
Flooded Cofferdam at Emsworth Lock, Ohio River Below Pittsburgh, 24 March 1936	62
Engineer Lieutenant Colonel Francis C. Harrington, With the Works Progress Administration, and Harry L. Hopkins, Administrator of the WPA, Watching Workmen Erect an Emergency Levee in Rear of Munitions Building, Washington, DC, March 1936	64
Swollen Mountain Stream Threatening a Valley Home in West Virginia, March 1936	66
Royal S. Copeland, Senator From New York, 1923-1938.....	68
Hugh Bennett, Director, Soil Conservation Service, 1935-1951	85
One Result of the 1936 Flood Control Act: A Concrete Flood Control Channel To Help Prevent the Los Angeles River From Flooding Metropolitan Los Angeles.....	92
Subsequent to Passage of the 1936 Flood Control Act, Hundreds of Flood Control Dams Were Built Throughout the United States	94

Illustrations courtesy of the following sources: pp. 24, 64, and **85**, National Archives; pp. 27, **28**, **30**, **40**, and 55, Library of Congress; pp. 60 (top) and 66, Farm Security Administration photo collection, Library of Congress; and p. 43, The Johns Hopkins Archives. All other illustrations from the files of the **Office** of History, Headquarters, U.S. Army Corps of Engineers.

THE EVOLUTION OF THE 1936 FLOOD CONTROL ACT

CHAPTER I

The Origins of Federal Flood Control Activity, 1849-1912

The history of federal flood control measures must be explained in the context of half-a-dozen major floods between 1849 and 1936 that moved Congress to pass legislation. The first significant federal flood control laws were the Swamp Land Acts of 1849 and 1850, which encouraged the reclamation of millions of acres of flood-prone wetlands, especially in the lower Mississippi Valley. A major Mississippi River flood in 1874 inspired a series of federal actions finally resulting in the creation of the Mississippi River Commission in 1879. Costly floods in the lower Mississippi Valley, the Northeast, and the Ohio Valley between 1907 and 1913 led to the establishment of the House Committee on Flood Control in 1916 and the Flood Control Act of 1917, the first act aimed exclusively at controlling floods. A gigantic flood on the Mississippi in 1927 substantially expanded federal flood control funding and raised public awareness to a new level. And, finally, the disastrous nationwide series of floods in 1935 and 1936 were critical in the passage of the Flood Control Act of 1936.

Of course, it would be highly simplistic to explain federal flood control policy in terms of responses to great floods. Certainly, floods affected the timing of federal actions, but the nature of the response-- the means adopted by Congress to deal with flooding -- still requires explanation. The very use of the term "flood control" as the goal of the federal government, rather than the more restrictive and accurate term "flood damage reduction," represents a more optimistic human, institutional, and political response to a set of natural, engineering, and economic problems.

It should be noted that no major federal response to flood destruction occurred until the beginning of the 20th century. Despite the long history of severe flooding by the nation's rivers in the 19th century, Congress passed no legislation that was directly and openly aimed at flood control until 1917 and under-

4 THE EVOLUTION OF THE 1936 FLOOD CONTROL ACT

took no nationwide flood control program until 1936. There are several reasons for this. First, the national government's modest financial resources seemed to preclude federal financing of expensive flood control measures during the 19th century. Second, there were formidable engineering and economic obstacles to flood control by methods other than levees, such as reservoirs. Third, the relatively modest growth of cities along the nation's rivers kept flood damage fairly low until the end of the 19th or the beginning of the 20th century. Finally, many political leaders believed that federal aid for flood control was unconstitutional.

The constitutional issue periodically erupted in flood control debates until 1936. The framers of the Constitution appeared to agree that the federal government should not be allowed to spend tax dollars to make improvements that benefited only a particular locality. While the Constitution did not specifically prohibit federal funding of "internal improvements," neither did it categorically authorize them. Those wishing to see the development of a national system of roads and federally funded navigation improvements on the nation's rivers focused on Article I, Section 8, of the Constitution, the Commerce Clause, which gave Congress the authority "to regulate commerce ... among the several states." Supporters of internal improvements, such as John C. Calhoun and Henry Clay, argued that the right to regulate commerce meant the right to facilitate or aid in its movement by funding road and river navigation projects. Presidents Madison (in 1817) and Monroe (in 1822) disagreed, and they vetoed federal transportation bills. The issue was hotly contested until 1824, when, in the landmark decision of *Gibbons v. Ogden*, John Marshall's Supreme Court stretched the Commerce Clause to permit the federal government to finance and construct river improvements. This decision launched the federal government, including the U.S. Army Corps of Engineers, on a program of river improvements that began in the 1820s and continues today. Over the whole period the subject has pitted one locality and region against another amid cries of "pork barrel" spending and "log-rolling," with the Corps of Engineers often caught in between.¹

For reasons that have yet to be investigated adequately, the right of the federal government to improve navigation under the Commerce Clause was extended to flood control in a very slow, halting, and, it must be admitted, occasionally disingenuous

manner; sometimes projects were authorized under the guise of navigation improvement when everyone in Congress knew the work was also for flood control. Until the Progressive Era of the early 20th century, many, perhaps most, congressmen continued to believe that federal flood control projects (except perhaps on the Mississippi) were unconstitutional. They suggested that the aid to navigation from levees or dams was small compared to the enormous local benefits received by residents and property owners in the protected area. This issue arose repeatedly between the 1870s and 1917 in regard to the federal expenditures for levees along the Mississippi. However, these expenditures were viewed less rigidly from a constitutional perspective, because many believed that the Mississippi was uniquely national. Some politicians went so far as to contend that the Mississippi was actually a piece of federal property, and Congress had the responsibility to protect residents and navigation interests alike against the onslaught of the river's periodic floods. Those who advocated this position often referred to Article IV, Section 3, of the Constitution, which states that "the Congress shall have Power to dispose of and make all needful Rules and Regulations respecting the Territory or other Property belonging to the United States."

By the time Congress established the Inland Waterways Commission (1909) and the Committee on Flood Control (1916) and passed the Flood Control Act of 1917, its traditional reluctance to spend federal funds for local benefits was weakened but not dead. It continued to enter into discussions right up until passage of the 1936 act.² As one of the leading authorities on water resources law recently stated, the federal government has taken "a rather attenuated construction" of the Commerce Clause promulgated in 1824 and used "this somewhat flimsy-looking, but by no means shaky structure for a foundation.. [for] a huge program of river regulation and water control."³

The result of the constitutional controversy over the Commerce Clause and internal improvements was legislation relating to navigation improvements, which was promptly passed, while flood control legislation received indirect and limited attention. Passed partially in response to severe flooding in the lower Mississippi Valley in 1849, the Swamp Land Acts of 1849 and 1850 transferred "swamp and overflow land" to most of the states along the lower Mississippi on condition that the revenue

the states obtained from selling the land be used to build levees and drainage channels. The acts required no expenditure of federal funds, but they provided a means to put millions of acres of land into agricultural use.⁴

The emergence of the flood control issue at that time appears linked to the increasing burden of levee construction along the river, the frustrations of coordinating plans among various state and local interests, increasing commerce on the river, and the growth of various towns along the Mississippi. The building of levees along the Mississippi had begun in New Orleans in 1717 and had proceeded in fitful spurts up and down the Mississippi and its tributaries. Until the 1840s and 1850s the work, expensive and difficult, was largely the responsibility of the riparian landowners. By the 1840s it had become evident that a more coordinated approach was needed in order to spread the cost and work more equitably. Consequently, the delta states created public levee districts. While a distinct improvement over the earlier reliance on individual landowners, these districts still faced formidable financial and engineering challenges. They joined navigation interests in looking to Washington for help. John C. Calhoun, a man familiar with the problems of levee construction, called for federal aid at the Memphis Commercial Convention of 1845. Mississippi Valley politicians echoed Calhoun's call on countless subsequent occasions.⁵

Aside from passage of the Swamp Land Acts, the federal government's response to the floods of 1849 and 1850 was relatively modest. However, one act was passed that was to have an unforeseen and substantial impact on flood control development. This was an 1850 act that appropriated \$50,000 for a "topographical and hydrographical survey of the Delta of the Mississippi, with such investigations as may lead to determine the most practicable plan for securing it from inundation." The appropriation was eventually split in order to fund two separate surveys: one by Charles Ellet, Jr., a well-known civil engineer, and the other by Captain A.A. Humphreys and Lieutenant H.L. Abbot of the U.S. Corps of Topographical Engineers.

Ellet's report was published in 1852 and immediately created a controversy because of the author's contention that tributary reservoirs could effectively contribute to flood control hundreds of miles distant on the lower Mississippi. The larger and more influential Humphreys-Abbot report was not completed until

1861. In it the authors emphatically stated that only levees could solve the flood control problem on the lower Mississippi. When Humphreys became Chief of Engineers in 1866, he labored constantly to quash opposition to the “levees only” policy, and it became the gospel for the Corps of Engineers for over 60 years, until the 1927 Mississippi River flood decisively showed its limitations.⁶

Between 1866 and 1926, the Corps investigated the flood problems on many of the nation’s rivers — and as in 1850 -- often in response to some particularly disastrous flood. Nearly always, these investigations were labeled navigation surveys. The surveys dutifully discussed, often in great detail, how some wild and rocky river could be improved for navigation. Then, as a sort of lagniappe, a brief survey and discussion of flood control measures that might be undertaken by local interests was added. If the only solution was a reservoir system, Corps reports seldom judged the project to be practical from either an engineering or economic standpoint.

The use of dams for flood control was often suggested, but the idea seemed impracticable to most people. Furthermore, dam failures such as the one at Johnstown, Pennsylvania, in 1889 that killed more than 2,000 people created public skepticism over this type of protection. The Pittsburgh Flood Commission Report of 1912 was the first effort to interest the federal government in funding a reservoir system for flood control. And the first conclusive proof that such a system could work did not come until the completion of the Miami Valley Conservancy District in 1923 — only 13 years before the passage of the 1936 Flood Control Act.⁷

Meanwhile, the problems of floods on the Mississippi River — the “nation’s highway” as some politicians called it — continued to elicit federal interest but very little agreement on what the federal role ought to be. After the Civil War, which resulted in the neglect, deterioration, and destruction of hundreds of miles of levees, President Andrew Johnson, Secretary of War Edwin Stanton, and various congressmen spoke in favor of federal levee aid. A number of bills were introduced for this purpose, but none made it through the congressional committees; and the postwar flurry of interest waned as states and local levee districts renewed their own efforts.⁸

The Mississippi flood of 1874 stirred Congress again. It

appropriated \$90,000 for flood relief and authorized another Corps of Engineers study. The study stated that while local efforts to build levees were heroic, they were uncoordinated and inadequate. Congress was still reluctant to act, and it was not until 1879 that it finally created a Mississippi River Commission (MRC) to identify and implement the most satisfactory flood control plan possible in order to improve navigation and protect population and property.⁹ In accordance with the authorizing statute, the MRC consisted of seven members: three officers from the Corps of Engineers, three civilians, and one employee of the Coast and Geodetic Survey. With some modifications, commission members eventually adopted the “levees only” policy of Humphreys and Abbot as their own plan.

Despite nagging legal and constitutional questions, Congress allowed the MRC to move gradually into a full-scale campaign to control the river. Periodic floods forced the congressional hand, as it became increasingly clear that only a substantial federal commitment would solve flood problems along the lower Mississippi. The first congressional appropriations for levee construction were emergency relief measures, but even these repairs were justified as navigation improvements. However, by the turn of the century, the MRC was engaged in full-scale levee construction, dredging, and revetment work. Congressional proponents of openly avowed flood control whittled away at the wording of the rivers and harbors acts, dropping the specific prohibition of flood control that had appeared in every commission appropriation since 1881 and inserting a phrase stating that funds could be used for “the general improvement of the river” and other language implying the goal of flood control.¹⁰ By 1912 the MRC was plainly stating that “the main purpose” of its levee construction program was “to protect the alluvial lands and their owners” from floods.¹¹

Once again, however, the river became an issue in Congress. It was reported in the *Congressional Record* that the federal government had spent \$30 million on Mississippi River levees during the years 1882 to 1916 and that local levee districts had spent approximately \$90 million during the same period.¹² The results were impressive. The levee system, which had contained 33 million cubic yards of earth in 1882, now contained approximately 250 million cubic yards. Unfortunately, the floods of 1912 and 1913, the worst yet seen on the river, showed that the levees

still were not strong or extensive enough. Property losses from these floods were estimated at \$61 million, and over 270,000 people were driven from their homes.¹³ The federal government was now caught in a dilemma. The Mississippi River levee districts said they had taxed and borrowed themselves to the limit and were unable to continue bearing the financial costs necessary to strengthen the levees. But they, along with almost all state and local officials in the Mississippi Valley, agreed with the Corps of Engineers that levees were the only reasonable hope for containing the river's ever higher crests. Either Congress would have to bear a much larger share of the cost of levee building or the system would have to be abandoned. Millions of acres of rich farmland would revert to swamp, and the millions of tax dollars already spent on the levees would have been wasted.¹⁴

CHAPTER II

Congress, Flood Control, and Multipurpose River Development 1912-1933

The Mississippi River floods of 1912 and 1913 were significant in the history of congressional flood control policy, but equally significant were other major floods. From the late 1890s until 1917, all of the country's major river basins experienced periodic inundations. The 1907 flood virtually devastated Pittsburgh's "Golden Triangle" area and caused \$6.5 million in damages. This disaster sparked the formation of the first large flood control lobby group outside the lower Mississippi -the Pittsburgh Flood Commission. The commission's 1912 report became a landmark study of diversified flood control programs including reservoirs, levees and floodwalls, and reforestation.¹ The Pittsburgh flood of 1907 and the Ohio floods of 1913 opened a new chapter in the history of flood control. They severely damaged heavily settled regions in Pennsylvania and Ohio. The losses in the Ohio floods of 1913 amounted to \$147 million while they amounted to "only" \$61 million in Mississippi's predominantly agricultural flood plain during the flood of the same year. Also, the Ohio floods (in the Miami Valley area) killed 467 people, while the slowly rising Mississippi seldom claimed lives.² City-dwellers who had thought themselves relatively safe from flooding suffered as much as farmers had previously on the banks of the Mississippi in other floods.

The destruction resulting from the Ohio and Mississippi floods, along with flood damage on a number of other rivers from California to New England, stirred Congress to think seriously about a nationwide program of flood control. Spearheading this reform was Senator Francis G. Newlands (R-Nevada), author of the Reclamation Act of 1902 and the indefatigable proponent of a multipurpose inland waterways program that would encompass flood control, navigation, water power, and irrigation.³



Refugees and livestock on a levee during the Mississippi River flood, 1912.

Newlands, and a brilliant group of conservationists who worked closely with him, convinced President Theodore Roosevelt that traditional rivers and harbors navigation projects should not be considered separately from other possible water resources uses. In 1907, the year of the great Pittsburgh flood, Roosevelt appointed an Inland Waterways Commission to study the entire question of water resources. The commission, guided by Newlands and his associates, recommended that the federal government undertake a coordinated program of multipurpose river development under the control of a permanent commission appointed by the President.⁴

This recommendation was quickly translated into a bill that Newlands introduced in the Senate in 1909. Congress, however, was unwilling to transfer the gigantic rivers and harbors navigation improvement program into the hands of an independent commission—especially one that would no longer rely on the Corps of Engineers for its decisions. Newlands criticized the Corps and proposed replacing it with civilian engineers responsible to a cabinet-level commission. However, the rivers and harbors bloc in Congress was quite satisfied with the Corps and its own Rivers and Harbors Committee. Moreover, to eliminate serious pork barrel abuses, in 1902 Congress had created within

the Corps of Engineers a Board of Engineers for Rivers and Harbors. Undaunted, from 1909 to 1916 Newlands tried to push his own legislation through Congress, but each time he was defeated.⁵ The first break in this wall of congressional intransigence came in 1916 with the creation of the House Committee on Flood Control. This action was sponsored by congressmen from the lower Mississippi River states, led by the popular and powerful Speaker of the House, James B. "Champ" Clark (D-Missouri). It also received support from the Ohio Valley states, which had been hit hard by floods. Congressmen interested primarily in navigation improvements were suspicious of the effect the new committee would have on the Rivers and Harbors Committee, but there was general agreement that machinery should be established to funnel congressional funds into all areas of the nation that suffered from severe flooding.⁶ The debate's timing, in the spring of 1916, was fortuitous for flood control proponents; the Mississippi River and several others were again over their banks. Congressman Thaddeus H. Caraway (D-Arkansas) told the House that he supported the measure because the district he represented "is composed of eleven counties, and a portion of every one of those counties is now under water."⁷ The measure passed without a recorded vote, but it appeared to have no significant opposition once its proponents argued that it posed no threat to traditional rivers and harbors projects.⁸

The establishment of this committee is of obvious importance, since it created a permanent forum for congressional flood control proponents. The committee was dominated by congressmen from states with serious flood problems, particularly from the lower Mississippi River Valley. In fact, one of its charter members in 1916 was the new Democratic congressman from Louisiana, Riley J. Wilson, the man who, 19 years later, introduced the bill that became the Flood Control Act of 1936.

The most concrete result of the Progressive Era's flood control movement was the passage of the Flood Control Act of 1917, the most important piece of flood control legislation prior to the 1936 act. While its scope was limited to the lower Mississippi and the Sacramento rivers, the latter river devastated by hydraulic mining in California, it established important precedents and frameworks for the Flood Control Act of 1936. The 1917 act was important in four respects. To begin with, it marked the

first time that Congress appropriated funds openly and primarily for the purpose of flood control. As one congressman said during debate on the bill, the measure “removes the mask” from years of covert federal flood control spending under the “pretext” of navigation improvements.⁹ Second, it established a congressional commitment to fund a long-range and (it was believed) comprehensive program of flood control for at least two flood-prone areas -- the lower Mississippi and the Sacramento rivers.¹⁰

Third, the act introduced the principle of including the requirement for local financial contributions in flood control legislation. This provision, found in Section 1(b), was the subject of considerable debate in the House. It was based on the relatively recent precedent of local contributions for certain rivers and harbors projects. In 1905 Republican Representative Theodore Burton of Ohio, the dominant figure on the House Rivers and Harbors Committee, forced the city of Dallas, Texas, to contribute approximately 30 percent of the cost of a river project that clearly had only local value. It was just one more method Burton hit upon in his long struggle to hold down the massive pork barrel expenditures on rivers and harbors projects having no national value and often little local value. Burton was unable to make local contributions a standard requirement, but such contributions were required in a number of the more dubious rivers and harbors appropriations after 1905.¹¹

The issue of local contributions never came up with the Mississippi River Commission, because the local levee districts always appropriated more than did the federal government. Congress stated that by 1917 local interests had spent three dollars for every federal dollar spent on the levees. While congressmen appreciated that this kind of financial burden on lower Mississippi residents could hardly continue, neither would they give up the principle of local contributions. Consequently, the 1917 act stipulated that local interests should pay at least one dollar for every two dollars spent by the federal government. The act authorized the expenditure of \$45 million from the federal treasury for Mississippi River flood control, not more than \$10 million to be spent in any one year. In addition, local interests were to pay the cost of acquiring rights-of-way for construction and maintenance expenses once the levees were completed. This meant that the local levee boards actually paid about half the total cost of the levee program between 1917 and 1928.¹²

Finally, Section 3 of the act authorized the Corps of Engineers to undertake examinations and surveys for flood control improvements, which were to be “a comprehensive study of the watershed or watersheds” and to provide information regarding the relationship of flood control to navigation, water power, and “other uses as may be properly related to or coordinated with the project.” As with the old navigation improvement reports, flood control studies were to be submitted to the Board of Engineers for Rivers and Harbors, which was to judge what federal interest might be involved in the proposed improvements; “what share of the expense, if any, should be borne by the United States”; and the advisability of funding the project.¹³ The Board of Engineers must have winced at the second item, because Congress itself could not decide on a generally acceptable policy on local contributions or even a clear rationale for including them in the act. Congress now expected the board to succeed where it had failed.

The Flood Control Act of 1917 changed the federal government’s activities on the nation’s rivers from a single-purpose program (navigation improvement) to a limited dual-purpose program. Senator Newlands’ hopes of a genuine multipurpose program supervised by a civilian commission failed to overcome congressional opposition and President Woodrow Wilson’s unwillingness to force the issue on Newlands’ behalf, although the idea had been endorsed several times in the Republican and Democratic party platforms between 1908 and 1916.¹⁴ Newlands actually succeeded in getting a waterways commission authorized by Congress in the Rivers and Harbors Act of 1917, but he immediately fell to wrangling with the rivers and harbors bloc over its membership. Newlands insisted on a cabinet-level commission while the rivers and harbors bloc desired a lower level commission that would be more responsive to Congress. Both sides appealed to President Wilson in the spring of 1917, but Wilson, preoccupied with the events leading to U.S. involvement in World War I, had no time for such controversies. The commission was never appointed, and Newlands died in 1919. As a result, neither a waterways commission nor a national program of flood control emerged at this time. All the talk of such a nationwide plan at the time of the establishment of the House Flood Control Committee led to nothing beyond the programs for the lower Mississippi and Sacramento rivers. The door had been opened,

but not very wide.

After World War I, when Congress finally returned to water resources issues, the debate over hydroelectric power had become paramount and, in an odd twist of circumstances, had spurred the development of the most detailed and comprehensive flood control studies and plans ever. Congress had given little attention to hydroelectric dams, and the General Dam Acts of 1906 and 1910 had not addressed the complex issues regarding the many new uses to which the rivers were being subjected, particularly in regard to water power and navigation.¹⁵ Having rejected comprehensive waterways development, Congress decided to move forward in the field of hydroelectric power— an area it had come to believe was critically important. It enacted the Water Power Act of 1920, which created the Federal Power Commission, but it still failed to address the issue of coordinating hydroelectric development with navigation and/or flood control. In order to gain a better understanding of the hydroelectric potential of the nation and the ways its development might be coordinated with other water projects -principally navigation, irrigation, and flood control-the House Rivers and Harbors Committee suggested that the federal government examine the cost for a detailed survey of the nation's navigable rivers. The Secretary of War, acting in his capacity as chairman of the Federal Power Commission; was requested to direct the Corps of Engineers to provide Congress with an estimate of the cost of such a survey.¹⁶

The Corps' response, sent to Congress in April 1926 and subsequently published as House Document 308 of the 69th Congress, stated that the Corps could survey more than 180 rivers and a number of unnamed tributaries for a total of \$7.3 million.¹⁷ Congress responded favorably and began to fund the surveys under the Rivers and Harbors Act of 1927. Major General Harry Taylor, the Chief of Engineers, commenting on the inauguration of the survey program, said it "will have a far-reaching influence in controlling and coordinating all works in connection with the diverse beneficial uses which may be made of the streams under federal jurisdiction." The importance of this work, he thought, was "so pronounced" that it should be started as soon as possible.¹⁸ General Taylor was not exaggerating the significance of this piece of legislation. Historian William Leuchtenburg called it "one of the most important acts affecting water

resources in our entire **history.**"¹⁹

The "308" reports placed the Corps at the center of multipurpose river development even though the work's major emphasis was on hydroelectric power. In the course of preparing the 308 reports, Corps officers worked closely with water resources officials and experts throughout the nation. They came to know the municipal engineers, the drainage district officials, water power company engineers, and university water resources experts—a far wider circle of people than they had ever had reason to work with previously.²⁰ Moreover, through the study of river basins such as the Tennessee Valley, Corps officials substantially increased their knowledge of flood hydrology.²¹ Indeed, the Corps' 308 report on the Tennessee Valley, published in 1930, provided Senator George W. Norris (R-Nebraska) and the proponents of multipurpose reservoirs in the valley with data that helped them push the Muscle Shoals bill through Congress in 1931. The bill was vetoed by President Herbert Hoover because of its federal retention of power distribution, but Norris's ideas were adopted in 1933 by President Franklin D. Roosevelt and the new Congress, which created the Tennessee Valley Authority in May 1933. Over the next decade the TVA developed a system of multipurpose reservoirs very similar to the system laid out in the Corps' Tennessee River 308 report.²²

By 1935, the Corps' 308 reports represented the most comprehensive and detailed body of data and planning ideas on multipurpose river development to date; the Corps' engineers, both civilian and military, constituted the largest pool of water resources experts in the nation. Certainly, a number of water resources experts outside the federal government continued to question the Corps' judgment and expertise in flood control matters. However, even opponents of the Corps generally did not impugn the Corps' integrity and efficiency. It was the Corps' outstanding reputation, combined with its domination of federal water resources expertise, that overwhelmed the skeptics. Most congressmen came to accept the Corps as the preeminent water resources agency, and it seemed natural to assign to the Army Engineers the responsibility for constructing and operating a nationwide flood control program.

It was fortunate for the Corps that the 308 reports began to appear in 1930, because in 1927 and 1928 its credibility as an engineering organization had been severely challenged in the



Vicksburg, Mississippi, during the 1927 flood.

aftermath of the “greatest disaster of peace times in our history,” in the words of Herbert Hoover, then Secretary of Commerce? Hoover was describing the 1927 Mississippi River flood, which at its height covered 26,000 square miles in seven states. More than 700,000 people were driven from their homes. In some areas the collapse of newly constructed higher levees meant that the floodwaters, which had in the past risen slowly, now rushed across the level countryside and 330,000 people had to be rescued from housetops, levee crowns, and trees. Due to massive and heroic rescue efforts, only about 250 people drowned before boats could get to them.

Total direct property losses were estimated at \$236 million. Hoover thought that indirect losses amounted to approximately \$200 million. The economic effects were devastating for the lower Mississippi, but were also felt from Boston and New York to California. For many weeks no railroad trains crossed the Mississippi south of St. Louis, and more than 3,000 miles of track were under water. The Red Cross flood relief drive raised \$17.5 million to aid flood victims, and total relief contributions from private and governmental sources totaled \$31.8 million.²⁴

Attacked in Congress and in the public press for single-minded adherence to outmoded ideas, the Corps no longer



Floodwall at Cairo, Illinois, during the 1927 flood.

attempted to defend the “levees only” policy. Everyone from the poorest sharecropper to the richest landowner understood that something more than levees was necessary, although exactly what was much debated in the coming years. Major General Edgar Jadwin, the Chief of Engineers, further alienated public opinion when, in what seemed an arrogant and obstreperous manner, he defended his recommendations for a new Mississippi River flood control project against all critics, including some of the most well-respected engineers in the country. In particular, he attacked the rival plan of the Mississippi River Commission, from which he had in fact borrowed some of his ideas—both plans called for a mixture of spillways, floodways, levees, and channel clearing—but Jadwin’s plan substantially decreased the amount of federal dollars to be committed to the project.

Congressman Frank R. Reid (R-Illinois), chairman of the House Flood Control Committee, wanted to prepare legislation for a nationwide flood control program, prompted by both the Mississippi River flood as well as a smaller but still devastating November flood in New England that killed 55 people and caused approximately \$40 million in damages, primarily in Vermont.²⁵ The Mississippi problem, he said, would be dealt with first, but he would urge the committee to keep the national problem

“constantly in mind.”²⁶ Even the conservative *Baltimore Sun* agreed with Reid, stating that the New England flood seemed to justify Reid’s proposal to expand Mississippi River basin protection to other parts of the country “which lie at the mercy of the same uncurbed natural forces.”²⁷

For reasons that are not clear, no such bill emerged from the committee. Possibly the gigantic costs of the Mississippi flood control program caused Reid and others to shrink from assuming added burdens. Another possibility is that the complex debate that shortly erupted over engineering, financial, and political questions in regard to Mississippi River flood control may have convinced the Mississippi Valley people who dominated the Flood Control Committee that enlarging the bill to address a nationwide program would be futile and only endanger immediate action on the Mississippi. As it turned out, the congressional representatives from New England who appeared before the committee were staunch states’ rights conservatives and, unlike their colleagues from the South, could not bring themselves to ask for federal flood control aid.²⁸

The nature of the controversies that raged in Congress and in the national press over the Mississippi River question are beyond the scope of this study except for the issue of local contributions. Suffice to say that most of Jadwin’s plan was finally adopted, although with the expectation that parts would be modified as more data were obtained. So far as financing was concerned, President Calvin Coolidge continued to insist throughout the congressional debate that local interests pay a portion of the cost of the new flood control projects to be constructed by the Corps of Engineers, just as they had done since the Flood Control Act of 1917. Nevertheless, it was clear that local levee boards had exhausted their financial resources. Many of them had issued bonds far beyond the total assessed valuation of their districts, and financial experts said any further issues would go unsold. Given this incontrovertible evidence, Coolidge relented. As a conciliatory gesture, however, Congress added the following statement during the final drafting of the bill.

It is hereby declared the sense of Congress that the principle of local contribution toward the cost of flood control work, which has been incorporated in all previous national legislation on the subject, is sound, as recognizing the special interest of the local population in its own protection, and as a means of preventing inordinate requests for unjustified items of work having no material national interest.

The statement went on to say that an exception to the general principle was being made in the present act in view of the major contributions already made by the local levee districts and that flooding on the Mississippi was a problem "far exceeding those of any other river in the United States."²⁹

This compromise satisfied all but a small minority firmly committed to the principle of no federal flood control funds without local contributions, regardless of the economic hardship. The final version of the bill sailed through Congress with large bipartisan margins and was signed by Coolidge on 15 May 1928. In the presidential election in November, both the Republicans and Democrats claimed the legislation as their own, but neither party endorsed any wider program of flood control.³⁰

With the exception of the laws authorizing certain multipurpose dams in the West, such as Boulder Dam and Bonneville, the Flood Control Act of 1928 was the last major piece of flood control legislation passed by Congress prior to the 1936 Flood Control Act. Its significance is difficult to assess, but three aspects of it are worth noting. First, the long debate over the bill and the various flood control plans considered during the course of debate greatly increased public (and congressional) awareness of the major advances in flood control theory and practice since 1916 and 1917. Also, radio broadcasts and news films showing the destructiveness of floodwaters had an impact on the public that newspaper accounts could not equal.³¹ Second, the 1928 act put flood control on a par with other major projects of its time. The act authorized an expenditure of \$325 million, the largest public works project appropriation ever authorized by the federal government, even exceeding the construction cost of the Panama Canal, which was \$310 million. Finally, the act raised the debate on local contributions to a new level. The issue became one of the central questions surrounding the Flood Control Act of 1936.

President Coolidge, General Jadwin, and key Republicans in Congress were the major architects of the Flood Control Act of 1928, but it fell to Herbert Hoover to undertake its implementation from 1929 to 1933. Hoover, of course, had barely entered upon his duties as President in 1929 when the stock market crashed and the national economy began the long slide into the greatest depression in the country's history. Although Hoover was far more interested in flood control and multipurpose development than any President had been since Theodore Roosevelt,

the nation's economic woes confined him to a small, but nonetheless significant, role in the development of federal flood control activities. He can be credited with advancing the cause of flood control in the United States in three major ways.

First, Hoover helped initiate some important water resources projects. He worked with political leaders in California to start the Central Valley project, which involved constructing a series of high dams on the Sacramento, Kings, San Joaquin, and American rivers. Of even greater portent, he issued orders in 1930 for the Corps of Engineers to begin detailed engineering studies for the construction of the Cove Creek (later named Norris) dam in the Tennessee Valley as a flood control and hydroelectric power project—the first major reservoir project to be undertaken by the federal government outside of the Bureau of Reclamation dams in the West. If Hoover had been reelected in 1932, he may well have had most of the work undertaken that was eventually done by the TVA. His efforts to construct the Cove Creek dam were blocked by Senator Norris and his allies, who wanted the electric power from the Tennessee Valley dams kept in federal hands rather than being turned over to private companies as Hoover wished, but both men agreed on the flood control aspect of the project and endorsed it as a legitimate federal activity.

Second, Hoover pushed the flood control work on the Mississippi ahead as an unemployment relief measure — uniting work relief with flood control in a manner that the New Deal was to continue doing throughout the 1930s and that became one of the rationales for the 1936 Flood Control Act. Third, through the new Chief of Engineers, Major General Lytle Brown, he directed that the boundaries of the Corps of Engineers' Districts be redrawn to approximate better the major river basin areas of the nation.³² This can be looked upon as a key administrative change to move the Corps into position to administer multipurpose projects more efficiently. Thus, in the area of flood control, as in a number of other areas, the Hoover administration provided a bridge between the Harding-Coolidge era and the New Deal.

CHAPTER III

The New Deal and Flood Control 1933-1934

A national program of flood control finally emerged during the course of the New Deal. It was part of the profusion of important Depression Era legislation enacted by the 74th Congress in 1935-1936, including the Social Security Act, the National Labor Relations Act, the Banking Act of 1935, the Wealth Tax Act, the Public Utilities Holding Company Act, the Rural Electrification Act, the Soil Conservation Service Act, and the \$4.8 billion Emergency Relief Appropriation Act of 1935. Out of this last act, designed to create public work relief programs, came the Works Progress Administration (WPA) programs, the National Youth Administration, the Resettlement Administration and, ultimately, the Flood Control Act of 1936.

The flood control act reflected the general tendency of New Deal legislation to amalgamate the concerns of a variety of groups and public constituencies. The final version of the act embodied ideas from at least six different political entities within the federal government which, in turn, represented the larger interests outside the government. These internal forces were the House Committee on Flood Control, the Senate Commerce Committee, the Army Corps of Engineers, the Department of Agriculture, the White House (the President and his chief advisors), and, through the White House, the National Resources Committee. Each of these groups approached the issue differently, and within each group there was disagreement, often minor but sometimes substantial. During 1935, when legislation on the subject first appeared, discord was the rule rather than the exception. No aspect of the question evoked general consensus.

By the spring of 1936, flood control proponents had achieved considerable progress. Primarily as a consequence of the unprecedented floods of that spring, nearly unanimous agreement had been reached in Congress that major floods were indeed a great national menace, that the solution rested with



President Franklin Delano Roosevelt.

some form of nationwide flood control administered by an agency of the federal government, and that it should be financed in some measure by federal funds. This left five specific areas of disagreement: the degree to which the flood control effort should be linked to a larger multipurpose river basin development program; the agency that should administer the program; the proper division of costs between the federal government and the state and local interests; the advisability of combining watershed soil conservation pro-

grams with the more traditional structural approaches to flood control, such as levees or, increasingly common, reservoirs; and the specific potential flood control projects that should be recommended for construction.

The attitudes and opinions of President Roosevelt are central to any understanding of the New Deal, and this applies specifically to the evolution of the Flood Control Act of 1936. Even though congressional flood control advocates, rather than the White House, initiated this act, Roosevelt's position on this legislation, although not particularly well understood, generally influenced the tactics of both promoters and detractors of the bill, and FDR's direct influence was important during the final stages of drafting and lobbying in 1936. Those who have written about flood control during the New Deal era have linked the act directly to Roosevelt's conservation program. While this is not entirely correct, no doubt the President, as well as most conservationists, thought of flood control as part of natural resources conservation. Roosevelt was not, as some have thought, a strong advocate of a "planned society," but natural resources conservation, including the multipurpose development of river basins, was one area where he did advocate centralized federal planning.¹ Roosevelt was devoted to the idea of a federal natural resources

planning agency to coordinate all aspects of conservation and resource development. This idea, embodied in the National Resources Committee, nearly derailed the flood control bill in the spring of 1936 because the bill made almost no attempt to coordinate flood control with other aspects of water and land conservation, including multipurpose development.

Roosevelt's attitudes and opinions about flood control, river development, and conservation are difficult to explain. They reflect both pragmatic and romantic qualities. Foremost in FDR's mind was the land itself-the nation's greatest single resource. Soil conservation, reforestation, irrigation, scientific agriculture, and parks were all subjects close to the President's heart and almost continually on his mind. Rural America-its farms, forests, and small towns and its vast, rolling landscapes -had a grip on his imagination that almost no other subject held.² His private letters, public speeches, and press conferences all testify to this enduring love affair.

Still, there were purely political calculations to be considered in regard to the 1936 flood control bill. The bill came up for his consideration just as the 1936 presidential campaign opened. This was the first major test of the New Deal, and FDR still felt little assurance that a great electoral victory was at hand. He was clearly unhappy with the flood control bill and was urged by his National Resources Committee to kill it. On the other hand, many important areas of the nation had just suffered severely from disastrous floods in 1935-1936 and there was some intense political pressure on the White House to take action. Thus, the President's views in this matter were motivated by his personal attitudes and preferences toward natural resources development, his response to a national disaster, and the realities of politics in an election year.

Oddly, the "Squire of Hyde Park" did not appear to have quite the same deep feeling about rivers and water resources that he had for the fields and forests. He enjoyed gazing at the Hudson from his estate and was fairly well informed on the subject of waterways development and flood control, but these areas never sparked his interest as did the subject of agriculture or, to be sure, forests.³ He strongly believed that reforestation could significantly reduce flooding.⁴ Roosevelt's attitude partially explains his curiously passive role in the legislative history of the Flood Control Act of 1936. It may also explain why developing a

national flood control policy appears to have ranked below a large number of other natural resource efforts, such as reforestation, on the White House priority list.⁵ In 1935 and 1936 Roosevelt was asked about flood control at several press conferences, and his responses indicate that while he had a general idea of how his own National Resources Committee was proceeding in this area, he had not considered the question in detail. He appeared to have even less knowledge of how Congress was proceeding with its own bill until May 1936, when it was almost on his desk.⁶

However, the low priority given flood control in the White House did not mean that the President was necessarily indifferent or opposed to a national flood control program. From his earliest days in politics, Roosevelt had supported flood control as part of a larger program of multipurpose river development. In a 1914 letter, he told a Louisiana engineer that the Mississippi flood problem could probably be solved by more levees, a large number of reservoirs (which could be paid for by selling electric power from them), and, of course, by an ambitious reforestation program.⁷ Following the Mississippi flood of 1927, Roosevelt was among those who immediately pushed for a special session of Congress to draft flood control legislation, and he questioned senators in the affected states as to what needed to be done.⁸ While campaigning for the presidency in 1932, Roosevelt stated that he would support a major expansion of Hoover's reservoir construction program, and he made a specific commitment to build a basin-wide system of dams for the Tennessee Valley for power and flood control.⁹

Upon taking office, Roosevelt appeared to move rapidly in the area of flood prevention. As promised, the Tennessee Valley Authority (TVA) was created. The President's unemployment relief program of 1933, which led to the creation of the Civilian Conservation Corps and the other work relief programs, included projects aimed at flood control. Title II of the National Industrial Recovery Act of 1933 also authorized public funding of flood control projects.¹⁰

Unfortunately, the TVA work, the Title II Public Works Administration (PWA) dams, and the continuing series of Bureau of Reclamation projects in the West (which had some flood control value) did not add up to anything like a significant flood control program nor were the projects well coordinated with other river basin activities. Much of the flood control money

actually went to reforestation and erosion control activities, which were only indirectly useful for flood control, or for work on the Mississippi and on just a few other rivers.¹¹ Under Title II of the National Industrial Recovery Act of 1933, large construction programs on the nation's waterways, highways, rural areas, and cities were to be coordinated by the Interior Department's Public Works Administration. When the problems of project coordination became more apparent, the responsibility was given to a national planning board, which Interior Secretary Harold L. Ickes created on 30 July 1933 with Frederic A. Delano, the distinguished planner (and the



*Frederic A. Delano, Chairman,
National Resources Planning Board,
1933-1943.*

President's uncle), as chairman. Within this agency, water resources projects were the responsibility of a group called the Mississippi Valley Committee under the direction of Morris L. Cooke, an engineer from Philadelphia. Rather than simply coordinating PWA river project planning, this committee also undertook a very broad study of the entire Mississippi basin. The National Planning Board eventually became the National Resources Committee (NRC), and that committee proposed a detailed, nationwide multipurpose river basin program, including a large flood control component that was embraced by the President. Unfortunately for the NRC, however, its proposal did not appear until six months after passage of the Flood Control Act of 1936.¹²

Congress showed little interest in a coordinated multipurpose water resources program. The rivers and harbors bloc remained suspicious of any tampering with its historic ties to the Corps of Engineers. Flood control advocates, enthusiastic about projects promising both flood protection and unemployment relief, showed little concern over how those projects related to other aspects of waterway development. Until the great floods of 1935 and 1936 galvanized almost the entire Congress behind



Riley J. Wilson, Representative from Louisiana, 1915-1937.

flood control, the chief flood control proponents were from the lower Mississippi and Ohio river valleys, although there were many supporters, mainly Democrats, from other flood-threatened sections of the nation. These congressmen had hoped to see a large program of reservoir and levee construction initiated in the early days of the New Deal and were frustrated by the slow pace of the emergency relief program in this field.¹³ The center of congressional interest was the House Committee on Flood Control and its new chairman, Representative Riley J. Wilson.

Wilson has received almost no credit for his role as the original author of the Flood Control Act of 1936. He was born in Winn Parish, Louisiana, which is located in the northern part of the state between the Mississippi and Red river valleys, an area that today is liberally dotted with flood control reservoirs, none of which bear his name. After both of his parents died, he struggled to get an education and to build a career. With a law degree, he was elected to the state House of Representatives and later appointed a judge in Louisiana's 8th Judicial District. In 1914, at the age of 43, he was elected to the U.S. Congress. He entered the 64th Congress in 1915 and began his rise to power on the Flood Control Committee soon after its establishment in 1916. Flood control became the great issue upon which he staked his political career and to which he devoted almost all his efforts. He was a dedicated lobbyist for federal flood control for Louisiana; however, he gradually became determined to extend the generous federal expenditures, such as those Louisiana received, to all areas of the nation that suffered from flood disasters.

By 1933 Wilson was a congressional expert on flood control and one of the few members of Congress to have participated in nearly all the flood control hearings and debates since the

establishment of the Flood Control Committee in 1916 and the passage of the nation's first flood control act in 1917. In 1933 he advanced to the chairmanship of the Flood Control Committee, which should have made him a major power in his home state. However, his opposition to Huey Long, to whom he had lost the governor's race in 1928, made him vulnerable politically. His sponsorship of the Flood Control Act of 1936 was the crowning achievement of his congressional career. Ironically, it was his last achievement, for Wilson was defeated by the Long machine in the 1936 Louisiana Democratic primary and was forced to retire from politics.¹⁴

Wilson lost no time in doing his duty as chairman of the Committee on Flood Control after Roosevelt took office. In the midst of the "hundred days" when the New Deal public works program was moving rapidly through Congress, Wilson urged the new President to make flood control an important part of the administration's unemployment relief program. Louis Howe, FDR's assistant, cautiously replied, "There is no doubt that flood control will be included, but it is impossible to say at this time just what projects will be considered." Howe urged Wilson to "keep in touch with the program as it develops, so we may have the benefit of your suggestions."¹⁵ Wilson was not alone in seeking public works funds for flood control. Increasing numbers of congressmen requested projects. Others espoused projects of even larger scope. Bills were being prepared to create authorities similar to the TVA to build whole systems of multipurpose reservoirs in other river basins. By the end of 1933, bills had been introduced for TVA-style projects on eight river basins.¹⁶

The author of one of these bills (for the Missouri basin) was Senator George W. Norris. The senator was a key figure in prodding the Roosevelt administration to support flood control and comprehensive river basin development. He was also the chief congressional link between the New Deal's water resources program and Francis Newlands' river development proposals of the Wilson era. Norris first grasped the possibilities of multipurpose river development during the debates over the Mississippi flood problem and the more general discussion of the old Inland Waterways Commission. Back in 1916 Norris had suggested that the Mississippi's floodwaters be contained by building dams on the tributaries, with costs shared by the farmers on the tributaries, who gained irrigation water, and those



Harold L. Ickes, Secretary of the Interior, 1933-1946.

on the lower Mississippi, who received flood protection. The theme of multipurpose development was refined by Norris during his long fight in the 1920s to develop the Tennessee Valley.¹⁷ In 1932 Norris left the Republican party to campaign for Roosevelt. The two became good friends and political allies throughout the New Deal, and Norris often served as an administration spokesman in Congress. In January 1933, a short time before his inauguration, Roosevelt announced his support for Norris's Tennessee Valley program. The TVA bill was

signed into law on 18 May 1933.¹⁸

With the establishment of the TVA assured, Norris turned his attention to the larger question of the Mississippi and Missouri valleys. By the time the second session of the 73d Congress opened in January 1934, he had developed an outline of a huge multipurpose river basin plan for the Missouri River Valley, which he introduced into Congress on 4 January.¹⁹ The day before, he sent a long letter to President Roosevelt, with a copy to Secretary Ickes, suggesting that some funds be allocated for "making a survey and study of the possibility of improvement of some of our interior streams" such as the Missouri, Arkansas, and other major rivers in the Mississippi Valley. The survey would examine particularly "the relationship between irrigation, flood control, navigation, power development, reclamation of marginal lands, [and] the reforestation of these lands." He said that much money had been wasted on piecemeal projects that failed to account for the interrelationship of these elements. He also thought the study should determine the manner in which federal and local costs should be divided and the proper apportionment of local costs, according to which population groups received the various benefits of reservoir projects.²⁰ He offered

this idea as a means to use more efficiently the emergency relief funds that had already been authorized and to avoid duplication of surveys, although he admitted he did not know how much survey work had been done. He made no mention of the Corps' 308 reports.

Ickes and Roosevelt were aware of the problems alluded to by Norris. FDR replied (in a letter probably drafted by Ickes) that a Mississippi Valley Committee (MVC) had recently been created "for the purpose of studying and correlating projects involving flood control, navigation, irrigation, power, reforestation and soil erosion in the Mississippi drainage area." Through the work of the MVC, he concluded, "much will be done to correlate the various independent studies that have hertofore been made."²¹ Roosevelt's letter to Norris did not address the question of the increasing number of river basin authority bills being drafted in Congress. On 26 December FDR asked Senator Clarence C. Dill (D-Washington) to talk with Norris and others interested in this river legislation. Dill replied that "we are likely to find ourselves overloaded with bills for the creation of these [river basin] authorities and Congress is likely to drop all of them" unless they could somehow be consolidated into a single piece of legislation.²²

In spite of the MVC's preliminary work, 1933 ended without any administration policy on flood control, any river basin development, or any clear direction in Congress. Roosevelt limited his mention of flood control in his annual message to Congress on 3 January 1934 to simply hinting that the creation of more projects like TVA was at least being considered.²³ At a press conference held later that day, the President talked about his river basin ideas, but gave few specifics. He said he hoped to get a "complete national picture" of the problems in the river basins of the country and to develop comprehensive plans to solve them. He thought that plans for nearly every major river basin could be fairly well developed by mid-1936. Then the federal government could begin "rebuilding the face of the country ... at a rather definite yearly rate."²⁴ Exactly how, he did not say.

Apparently, the President and Norris were thinking along the same lines, but the matter went no further than that. On 9 January 1934, Roosevelt asked Dill, Norris, and several other interested congressmen to discuss among themselves the river basin question, then come to the White House "and talk over the

possibility of one piece of legislation to cover the whole thing.”²⁵ The White House meeting was held on 31 January. There is no record of who actually attended, but, in addition to Norris, invitations went to Senators Hubert Stephens (D-Mississippi) and Alva Adams (D-Colorado) of the Senate Commerce Committee and to Senator Hiram Johnson (D-California). Congressmen included Riley Wilson, as chairman of the Flood Control Committee; Joseph J. Mansfield (D-Texas), chairman of the Rivers and Harbors Committee; William Driver (D-Arkansas); E.W. Marland (D-Oklahoma); Conrad Wallgren (D-Washington); Will Whittington (D-Mississippi); and several others -almost all from the South and West. The topic of the meeting was listed as “the discussion of flood control, irrigation, reclamation and waterways.”²⁶ Following this meeting, FDR told reporters that it was just a preliminary discussion of flood control and river basin development.

We talked about flood control from the point of view of national planning with the general thought that we would try to work out a national plan in the larger aspect that would list the various rivers and flood control projects in the order of their necessity; that is, on the order of damage done, human beings affected, property affected, et cetera. But that is as far as we got, discussing national planning for flood control and all the things that go with it, power, reclamation, submarginal lands and everything else.²⁷

Two days after this meeting, Senator Norris introduced a resolution before the Senate requesting the President to submit a report on “a comprehensive plan for the improvement and development of the rivers of the United States, with a view of giving the Congress information for the guidance of legislation which will provide for the maximum amount of flood control, navigation, irrigation, and development of hydroelectric power.” Congressman Riley Wilson introduced the same resolution in the House.²⁸

To draft this report, the President appointed a Committee on Water Flow composed of the Secretaries of Interior, War, Agriculture, and Labor. The actual study was done by six subcommittees, organized on a regional basis, with members from the Interior, Agriculture, and War Departments represented on each subcommittee. The War Department’s representatives were all **Corps** officers, who served as subcommittee chairmen. The subcommittees began work on 20 February and submitted their reports on 27 March. The Committee on Water Flow sent its

report to the President on 17 April, and FDR presented it to Congress on 4 June 1934. The President asked the committee to report in the manner directed by Congress but supplemented the resolution by asking that the committee include in its report recommendations for the development of ten specific river basins.²⁹

This report had five important aspects. First, the committee agreed that comprehensive, long-range basin planning had considerable advantages over less coordinated levels of effort. Second, information required for proper planning was still scattered and often inadequate. Third, any plan would require agreement on cost sharing between federal, state, and local governments. Fourth, agreement was needed on criteria for choosing and setting priorities for projects. Finally, there would have to be a rational division of responsibility among the federal agencies involved in river basin affairs.³⁰

The committee selected ten river basins for more detailed analysis. It did so, however, with major disclaimers regarding lack of information and the preliminary and tentative nature of the whole selection process.³¹ The first five basins were reasonable enough choices. They were the Tennessee, St. Lawrence-Great Lakes, main stem Mississippi, Missouri-Platte, and Sacramento-San Joaquin basins. The Delaware basin was the sixth choice, largely on the basis of projected use for water supply and power. It outranked both the Colorado and Columbia rivers. The Ohio Valley was ninth (just ahead of the Great Salt Lake basin), and the Susquehanna River basin failed to make it in at all. For those interested primarily in flood control, this was not an encouraging report.

The most significant item in the Water Flow Committee's report, however, was Secretary of War George H. Dern's supplementary letter, which took the entire report to task. First, he said that the attempt to select ten river basins for special study was premature and haphazard and would invite criticism that could be avoided with more study. It gave Congress no direction on how to implement a program and thus "might cause a reversion toward pork barrel and log rolling methods" of authorizing projects. Most important, it "ignores the fact that the data are available right now for the preparation of a comprehensive plan in full compliance with the request of Congress." He referred to the Corps' 308 reports, which had been in process for

the past seven years and which, at a cost of more than \$10 million, were now almost complete for every major river basin in the nation. He noted that the Norris-Wilson resolution "is substantially identical" to the 1927 congressional authorization for the 308 survey program. While the 308 reports were restricted to navigation, power, flood control, and irrigation, studies of "stream pollution, soil erosion, reforestation, recreation, and sociological plans .. can be superimposed upon the data already submitted without conflict." The implementation of programs in these areas, Dern maintained, could be done best by existing federal, state, or local agencies. He added that the overall planning had already been accomplished by the Corps of Engineers, which had "a familiarity with water-use problems that could not be acquired by any new group without years of intensive and continuous study."

Dern thought the existing 308 reports, collectively considered, were "sufficient in scope and form... as a comprehensive plan responsive to Senate Resolution 164 ." Congress could authorize these plans, designate an agency to determine construction priorities, and have them constructed by the Corps (except for irrigation projects, which would stay with the Department of the Interior). Funding for some local-federal cost-sharing plan similar to federally funded highways "would eliminate pork barrel legislation" and "keep river and harbor work out of politics." Placing all this in the War Department, he concluded, would "make it possible to work according to a carefully developed plan and would keep the work in the hands of a closely knit, efficient, and continuing agency of the government, namely the Corps of Engineers of the Army."³² Dern's view eventually carried the day in the Flood Control Act of 1936.³³ Ickes must have been upset with the Secretary of War, but there is no record of any official reply to Dern's challenge.

Insofar as the Ickes-Dern dispute was over jurisdiction as much as philosophy, it had its counterpart in the clash between the Rivers and Harbors and Flood Control Committees of the House of Representatives. Congressman Wilson appears to have ignited the clash with a major speech to the House on 13 April 1934 . He stated that the President's annual message in January, the Norris-Wilson resolutions, the work of the Committee on Water Flow and the Mississippi Valley Committee, and the numerous flood control bills pending before his Flood Control

Committee all clearly signaled “a Nation-wide call... for well planned and definite action for the protection of life and property and for the conservation and use of our natural resources.” Fortunately, he continued, the Corps of Engineers’ 308 surveys provided almost all the data needed to carry out a national program of flood control. The Corps could supply Congress with any additional information so that work could begin as soon as Congress gave its approval. He thought that the final selection of flood control projects should be left to the Committee on Flood Control just as navigation projects were left to the Rivers and Harbors Committee. This procedure was provided for in Section 3 of the Flood Control Act of 1917. He assured the House that there was “no conflict between the work of the Committee on Flood Control and the Rivers and Harbors Committee.”³⁴

Chairman Joseph Mansfield of the Rivers and Harbors Committee vigorously disagreed. He and others on his committee were already frustrated by the fact that there had been no rivers and harbors bill for the past four years. FDR, he said, was still opposed to any rivers and harbors legislation because of the cost and because the President also contemplated “a new program to be applied to inland waters.”³⁵ Equally aggravating was the expenditure of millions of dollars by the PWA without the approval of the Rivers and Harbors Committee, a situation characterized by Congressman James W. Mott (R-Oregon) as “a complete surrender ... [to] the discretionary jurisdiction of the Secretary of the Interior.”³⁶ Mansfield and several others criticized the Norris-Wilson resolution, claiming they had no knowledge of it before it was rushed through in February. It was, Mansfield said, a usurpation of power by the Flood Control Committee. When the Committee on Water Flow report comes in, he added, it should go to the Rivers and Harbors Committee rather than to the Flood Control Committee. Illinois Democratic Congressman Claude V. Parsons concluded that the entire report was redundant because the Corps’ 308 reports provided all the information needed for a comprehensive waterways program.³⁷

On 11 May, Mansfield rose again in the House to attack the Flood Control Committee. He reminded the House that, contrary to popular impressions, the Corps’ 308 reports, which were authorized under the Rivers and Harbors Act of 1927, came out of his committee, not the Flood Control Committee. It was the Corps and his committee that had, since the establishment of the

Board of Engineers for Rivers and Harbors in 1902, ended the pork barrel abuses of the previous century.³⁸ Mansfield, along with Congressman P. James Buchanan (D-Texas), anticipated that both the Rivers and Harbors Committee and the Corps' Board of Engineers for Rivers and Harbors were to be removed from most future river improvement work. This fear prompted a strong outpouring of support for both the committee and the Corps. Martin Dies, also a Texas Democrat, said that such an action was "inconceivable," and any attempt to relieve the Rivers and Harbors Committee of its jurisdiction was "going to prove unsuccessful." But he was reminded by Congressman Mott that under the current emergency relief and public works programs, extensive river improvement projects were being carried out by the PWA without the approval of either the Rivers and Harbors Committee or the Corps of Engineers.³⁹

Throughout the acrimonious debate in the House, President Roosevelt's statements on water resources development were mentioned only once, by Mansfield, but it seems certain that they caused much of the anxiety expressed by Mansfield and his allies. Probably most disturbing to them were the President's extended remarks to the press on 14 February 1934. When asked by reporters about the Committee on Water Flow, Roosevelt replied that year after year the rivers and harbors bills included projects funded for those congressmen "who could talk the loudest." He hoped to end this situation by issuing a report on waterways and drainage basins that would lead to the establishment of "a permanent planning commission," which would be "non-political, non-partisan" and could plan for 25 or 50 years into the future.⁴⁰ Each year, as the President envisioned it,

the National Government would plan to spend some more or less regular sum which, in a sense, would take the place of the public works money and would be used primarily to relieve unemployment which we will always have with us in one form or another... . Of course it would include a great many factors. It would include flood-control, soil erosion, the question of sub-marginal land, reforestation, agriculture and the use of crops, decentralization of industry and, finally, transportation... and water power.⁴¹

When asked where this plan would leave the Board of Engineers for Rivers and Harbors and the House Committee on Rivers and Harbors, the President replied, "Now you are talking about mechanics. I don't know how it would work out. Essentially the Committee is getting all the information from the Board of

Engineers of the Army.” Dismissing further questions on specifics, Roosevelt said his plan would convert waterways expenditures into “an orderly process” resulting in “the elimination of the old methods of the rivers and harbors bills.”⁴² He thought some different arrangement, centered in the Public Works Administration of the Department of the Interior, would do a superior job.⁴³ Clearly Roosevelt was talking about the establishment of what became, in June 1934, the National Resources Committee. In this amorphous stage, however, the idea must have seemed much more of a threat to established congressional interests than an opportunity from which those interested in waterways improvements could benefit.

The entire squabble between the Rivers and Harbors and Flood Control Committees focused on which congressional committee should oversee the development of the nation’s water resources. In this context, the sharp reaction of Mansfield and his supporters becomes understandable. Under the emergency relief program of 1933, rivers and harbors projects were being carried out by the executive branch without the approval of the Rivers and Harbors Committee. Now the Flood Control Committee was seeking a larger role, and the President seemed clearly to be contemplating removal of all river basin development planning to an executive agency or commission. It is possible that Mansfield thought Wilson and his Flood Control Committee were making a veiled bid to become the major multipurpose river development committee – possibly having come to an understanding with the President on this issue. While an interesting speculation, it seems quite unlikely. There is no evidence of any agreement or even much communication between Roosevelt and Wilson at this time or at any time prior to the passage of the Flood Control Act of 1936. One memorandum in the White House flood control files dated 16 February 1934 states that Speaker of the House Henry Rainey informed FDR about the committee rivalry and suggested that the President ask that a new special committee on rivers be created. Roosevelt replied that he was reluctant to get involved in the controversy, but might suggest such a committee when he finally was prepared to give Congress a special message on flood control.⁴⁴

Indeed, Roosevelt did not appear to be very concerned about the whole issue. There were far more important and pressing issues facing the administration at this time. For unknown reasons, he did hold onto the Committee on Water Flow report

for almost seven weeks after receiving it. The "Rainey Memo" of 16 February 1934 indicates that Roosevelt expected to be able to go to Congress with the committee report and to recommend a flood control or multipurpose river program, but this did not happen. When he finally did send the report to Congress on 4 June, his letter of transmittal said nothing about creating a special committee such as Speaker Rainey had suggested. Instead, it stressed the preliminary nature of the findings and asked that the study be developed further so that he could outline a comprehensive plan to the next Congress.⁴⁵ Roosevelt reiterated his strategy in a more general address to the Congress on 8 June 1934, in which he stated that he hoped to have ready for the next Congress "a carefully considered national plan, covering the development and human use of our natural resources of land and water over a long period of years."⁴⁶ The Water Flow Committee report solved nothing, but it did reveal the deep divisions between the Departments of War and Interior and the parallel cleavage between the Rivers and Harbors and Flood Control Committees. In the Senate, the report went to the Committee on Commerce, but the House dispute prevented the report from being assigned to any committee.⁴⁷ It was not a good beginning for the President's water resources development program.

For Riley Wilson and other congressmen from districts where flood control was a major issue, the delay in the administration's flood control program was disappointing—especially in view of the fact that the congressional elections of 1934 were looming ahead. A few days after the President had sent his land and water resources message to Congress, Wilson went to the White House to see if Roosevelt had a more concrete plan for flood control. Apparently, he spoke with one of Roosevelt's aides and was told that there was a program developing similar to that suggested by the Water Flow Committee report (or possibly by the Mississippi Valley Committee). While there would be nothing ready for congressional action for this session, congressmen "will be in a position, particularly those who need it, to go before the people and say 'Here is what we propose to do.'"⁴⁸

CHAPTER IV

The Floods of 1935 and H.R. 8455 Congress Takes the Initiative

During the remainder of 1934, Roosevelt moved ahead with his plans for a water and land planning commission. On 30 June 1934 he created by Executive Order 6777 the National Resources Board (NRB), which replaced the temporary National Planning Board. A year later the name was changed again to the National Resources Committee—the name it retained until 1939. The Mississippi Valley Committee became the Water Planning Committee of the NRC, but soon changed its name to the Water Resources Committee (WRC). In the order creating the new “permanent” agency, the President asked that it prepare for him by 1 December 1934 a comprehensive plan for developing the nation’s land and water resources.¹

Both the Mississippi Valley Committee and its successor, the NRC Water Planning Committee, were chaired by Morris L. Cooke, a wealthy engineer who had dedicated much of his life to progressive reform movements—particularly the effort to make low-cost electricity available to urban and rural Americans. He had fought the private utility companies in Pennsylvania and aided Governor Franklin D. Roosevelt in his struggle with the utilities in New York in the late 1920s. Cooke came to Washington in 1933 intent on developing a huge program of rural electrification through government-built hydroelectric dams and transmission lines. His interest in, and knowledge of, other aspects of water resources development was clearly secondary to his interest in rural electrification, but in 1935-1936 he took an enthusiastic and somewhat naive interest in watershed control—believing that it offered a better solution to flood control than large flood control dams. Cooke was an able and untiring political lobbyist for his causes, and he had considerable influence with many members of Congress and with President Roosevelt. Since Cooke’s fundamental interest in water resources lay in hydroelectric power and rural electrification, the report of the



Morris L. Cooke, Chairman, Mississippi Valley Committee of the Public Works Administration, 1933; Director, Water Resources Section, National Resources Board, and Chairman of the NRB Committee on Water Planning, 1934; Administrator, Rural Electrification Administration, 1935-1937.

Mississippi Valley Committee dealt primarily with this issue rather than flood control. The impact of this report, along with Cooke's intense lobbying, led Ickes and Roosevelt to establish a rural electrification program. The Rural Electrification Administration (REA) was created by an executive order in May 1935, and Cooke left the Water Resources Committee to become its first administrator.² The report of the Mississippi Valley Committee did present a great deal of information on the entire Mississippi basin and envisioned a program of multipurpose development, but it contained no specific legislative plan that the President could take to Congress.³

A much longer report was prepared by Cooke's committee for inclusion in the National Resources Committee report to be sent to the President on 1 December 1934, as provided in Executive Order 6777. But this committee report also failed to include a specific program for flood control or multipurpose projects that could be turned into legislation. The Water Resources Committee produced a third study that did attempt to develop an integrated program for basin-wide resource projects along with a set of priorities for their execution. This 540-page

report finally was given to the President in December 1936.⁴ Although there was a wealth of information that Congress could have worked with in the first two reports -both of which were in its hands by January 1935-the plans and recommendations were based on assumptions that many, and perhaps most, congressmen were unwilling to translate into legislation. The Water Resources Committee assumed that the National Resources Committee would do all the research planning and setting of priorities for water resources projects as part of an integrated nationwide program of natural resources development.



Major General Edward M. Markham, Chief of Engineers, 1933-1937.

This assumption was not shared by Major General Edward M. Markham, Chief of Engineers. At the WRC's first meeting on July 1935, Markham, representing the Corps on the committee, said he thought "the committee could do excellent work in developing long-range policies but that it could do little in connection with emergency expenditures; that the latter work would require continuous service." This continuous service, of course, could only be provided by the Corps since the membership of the WRC, scattered all across the nation, could only come together for periodic meetings. Abel Wolman, the distinguished water resources expert from Johns Hopkins University, was chairman of the WRC and had different ideas. Wolman, states the minutes, "emphasized the difference between prompt action and intelligent action," while Markham "emphasized the necessity for individual authority and confidence where immediate decision is imperative." The Chief of Engineers did say that if the WRC, acting as a consultant on the emergency water programs, objected to a specific project within that program, the Corps "would promptly accept the decision and pass on the the next

project on their list.” How much this concession to the WRC planning role meant is difficult to assess, but it is worth noting that Markham never again attended a WRC meeting, choosing instead to send Lieutenant Colonel Glen E. Edgerton as his representative.⁵

The President began his campaign to establish a permanent NRC in a message to Congress delivered 24 January 1935. His specific purpose was to transmit to Congress the water and land report of the NRC along with the earlier report of the Mississippi Valley Committee. More generally, however, he wanted to convince congressmen that the authors of these reports should become a permanent research and planning group for both the legislative and executive branches of the government.

A permanent National Resources [Committee]... would recommend yearly to the President and the Congress priority of projects in the national plan. This will give to the Congress, as is entirely proper, the final determination in relation to the projects and the appropriations involved.

Roosevelt also announced that a “substantial portion” of the \$4 billion he had recently asked from Congress for unemployment relief public works projects “will be used for objectives suggested in this report.”⁶

After long debate, Congress appropriated \$4.8 billion for public works projects for the unemployed in the Emergency Relief Act of 1935. The appropriation touched off a tremendous struggle in Congress and within the executive agencies for a share of these funds. Secretary Ickes and Harry L. Hopkins, the head of the Works Progress Administration (WPA), fought so hard over the money that Ickes almost resigned from his cabinet post.⁷ Congress was ready to spend \$4.8 billion, but showed little support for the National Resources Committee. A bill (S. 2825) was introduced by Senator Royal S. Copeland on 15 May to establish the NRC as a permanent federal agency, but it failed to pass. In the House, a similar bill (H.R. 10303) was tabled after a closed discussion in the Ways and Means Committee.⁸

Riley Wilson and other Flood Control Committee members were eager to have a large portion of the \$4.8 billion. They turned to the Corps of Engineers rather than to the Water Planning Committee of the NRC. Their preference for the Corps was partially dictated by the fact that no navigation or flood control projects could be undertaken except those adopted by Congress upon recommendation from the Chief of Engineers.⁹

Also, it was very natural to turn to the Corps. Ever since the establishment of the Flood Control Committee, the Corps had been the agency on which it relied for advice and direction -just as the Rivers and Harbors Committee had done for over half a century.

Apparently, no one from the NRC's Water Resources Committee advised the Flood Control Committee. Possibly no advice was solicited. It is just as likely that the Water Resources Committee (or probably Charles E. Merriam of the NRC itself) chose not to get involved with a congressional committee. Merriam had, as one author put it, "a conviction,

amounting almost to a phobia, that the board must deal only with the president, that it should avoid the Congress as far as it was possible to do so, and that its staff should likewise avoid Congress as far as possible."¹⁰ Gilbert F. White, who was secretary of the Water Resources Committee during this period, recalled that his committee was not encouraged to participate in congressional activities nor did the chiefs of the NRC attempt any lobbying. Consequently, the NRC "had no significant influence on the Hill beyond what the President could claim for them." Morris Cooke at this time was deeply involved in starting up the REA. His replacement on the Water Resources Committee, Abel Wolman, had none of Cooke's influence in Congress.¹¹ No member of the Water Resources Committee or the NRC ever appeared to testify before the House Flood Control Committee or the Senate Commerce Committee during the deliberations over the Flood Control Act of 1936, whereas the Corps of Engineers' testimony was extensive.

Wilson and the Flood Control Committee began working to secure flood control funds even before Roosevelt signed the \$4.8 billion emergency relief bill into law on April 1935. Three



Abel Wolman, Chairman, Water Resources Committee of the National Resources Committee, 1935-1939.

weeks earlier, on 18 March, Wilson had introduced H.R.6803, entitled "A Bill to Authorize Funds for the Prosecution of Works for Flood Control and Protection Against Flood Disasters." It authorized the expenditure of \$600 million from the public works funds to be disbursed "under the direction of the Secretary of War" and "under the supervision of the Chief of Engineers." The funds were to be spent on

projects for flood control and, in emergencies, for protection against floods on streams and watersheds thereof ... where human life and property are endangered and where such emergency work on plans now completed or in stage of completion will coordinate with a comprehensive plan for the improvement and control of such streams and watersheds thereof, for controlling floods, improvement of navigation purposes, the development of hydroelectric power, protection against erosion of soils, and the preservation and use of natural resources.¹²

Hearings on the bill were held before the Flood Control Committee on 22 and 23 March and 2 April 1934. They were relatively brief and revealed that the \$600 million package was determined by selecting projects from the Corps' 308 reports and other surveys and simply lumping them together into a single allotment. The Senate had already passed a resolution suggesting that \$350 million of the \$4.8 billion be used for "sanitation, prevention of soil erosion, reforestation and forestation, flood control, and miscellaneous projects," but Wilson thought that amount was insufficient.¹³

Wilson asked the Corps to give the Flood Control Committee a list of proposed flood control projects it had surveyed with the estimated costs and benefits of each project. The Corps had in fact prepared such a report. It was entitled, "Projects for the Development of Rivers and Harbors, Summarized From Reports by the Corps of Engineers to Congress." More commonly called the "Green Book," this document listed 1,600 projects, drawn primarily from the 308 reports, for flood control, navigation, irrigation, and hydroelectric power. The total cost was \$8 billion.¹⁴ The Flood Control Committee asked to see only the flood control projects, and this is what the Corps presented even though some of the dams, it was stated, had "incidental power features." General Markham later stated that the House committee looked over all the projects, selected those "that looked like the best ratios of cost and benefit, and incorporated it [*sic*] into the bill."¹⁵

Wilson also may have asked the Corps to place its projects in three priority categories. In any case, this is how they were presented to the Flood Control Committee when the hearings opened on H.R. 6803. Captain Lucius D. Clay told the committee that the Corps had selected 479 projects for examination. The total cost was \$604 million. The first of the three categories included top priority projects or those “that are particularly for the preservation of life and have a particularly high economic value.” In this category were 200 projects at a cost of \$244 million.¹⁶ In the second category were projects “that are primarily concerned with property values and which are of somewhat less economic merit than those included in group 1.” These projects would cost \$81 million. Projects in the third category had even lower economic merit and would cost \$277 million. Clay made it clear that the Corps still had some streams under study, and further surveys could change the list. He added that these were also only those flood control projects that could be begun immediately as part of the work relief program, even though detailed plans were still lacking. Workers could start at once to prepare the sites and, as the detailed plans developed, more people could be added—as was then being done by the Corps on the Fort Peck dam project, a very large multipurpose project on the Missouri River.¹⁷ The committee decided not to publish the list of the projects presented by the Corps (after an off-the-record discussion), but Congressman Driver accurately summarized their geographic scope when he said they would “blanket the country.”¹⁸

Two of the Republicans on the committee, Congressman Henry Kimball (Michigan) and Robert Rich (Pennsylvania), were concerned about partisan politics influencing the selection of projects. Congressman Rich asked whether “anyone who is not of the house of the faithful” could get the Corps or the President to recommend a specific project. Congressman Driver thought there would be no political favoritism since General Markham, “a very hard-boiled fellow,” would not tolerate such a thing. Moreover, Driver maintained that, of all federal departments, the War Department was the one that did not play politics.¹⁹ Nevertheless, Congressman Kimball was uneasy about the degree of authority the Flood Control Committee would be delegating first to the Chief of Engineers and then to the President. He also wondered aloud whether H.R. 6803 was not an exercise in futility

since it amounted to only a congressional suggestion to the President. He thought it particularly questionable to recommend so many flood control projects that the committee had not reviewed and about which it knew very little. Committee members did not yet even have copies of the report brought in by Captain Clay. Kimball then asked the chairman if he thought the committee would “have time to go over the whole United States?”²⁰ Optimistically, and perhaps not altogether sincerely, Wilson said he believed this could be done. Of course, the committee never did attempt to study in any detail the 479 flood control projects listed in the Green Book. Committee members questioned Clay on specific projects but made no attempt to understand the entire package. With the exception of Kimball and Rich, they all seemed satisfied to let Markham, Clay, Ickes, and Roosevelt decide what should be done. In practical terms, any attempt to go over each project might have taken a great deal of time, and by then the funds could well have been allocated for other activities. In addition, since the committee could not legally force the President to spend or withhold public works relief funds for any particular project, they might just as well have sent the entire package on to him. This was how Congressman Driver, who seemed to be the committeeman with the most information on the pending public works relief bill, summed up the situation.

Congressman Will Whittington questioned Captain Clay thoroughly about the Corps' attitude toward local contributions. The report that Clay brought to the committee recommended that for federal projects “local interests shall provide rights-of-way, assume responsibility for all damage, and shall agree to accept the completed works for operation and maintenance.” Clay explained that these three requirements were included in the Flood Control Act of 1917, and the Corps had recommended the same local contributions in subsequent flood control studies. The policy, he stated, had begun with levee construction but was now expanded to all types of flood control projects except some large reservoirs where the benefits “accrue over an extended area.” Later in the hearing, Clay was asked again about local contributions for reservoirs. He reiterated that even large reservoirs would require local contributions if “they provide the same sort of immediate protection to the immediately adjacent area as the levees.”²¹

HR 6803 was reported out of the Flood Control Committee on 26 March 1935 with no amendments and very little information²² It never came up for consideration in the House, probably because Wilson and his colleagues on the Flood Control Committee decided to alter their approach. This change may have resulted from discussions between Wilson and the White House in mid-April. On 15 April Wilson sent to the White House a copy of H.R. 6803 and the accompanying committee report and requested an appointment to discuss them.²³ It is not known with whom Wilson spoke at the White House, but the discussions must have led him to move closer to Congressman Rich's position. On 12 June Wilson introduced H.R. 8455, which listed 285 specific flood control projects to be authorized by Congress at a cost of \$370 million. Judging from the total cost and the number of projects, the bill must have been based on the projects presented by Captain Clay to the Flood Control Committee in March but with most of the third category of projects removed.

The bill was a traditional authorization, similar to those the Committee on Rivers and Harbors had advanced for navigation projects since the 19th century. However, the bill was exclusively for flood control. It contained no statement of national policy but simply a brief introduction as follows:

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, that the following works of improvement of rivers, harbors and other waterways for flood control purposes are hereby adopted and authorized, to be prosecuted unless herein otherwise provided under the direction of the Secretary of War and supervision of the Chief of Engineers, in accordance with the plans, in the respective reports and records hereinafter designated, that correspond to the costs given herein for each project: Provided, that the authorization for each project shall be the cost given herein for each project.*²⁴

Section 2 contained the now well-known "ABC" requirements for all projects, stipulating that prior to the beginning of construction, states or local interests must provide assurances to the Secretary of War that they would

(a) provide without cost to the United States all rights in land and other property necessary for the construction of the project; (b) hold and save the United States free from damages in connection with the construction works; (c) maintain and operate all the works after completion in accordance with regulations prescribed by the Secretary of War.

However, the Secretary of War, "upon the recommendation of

the Chief of Engineers,” could waive these requirements.²⁵ The most plausible explanation for this exception is that it would allow the Chief of Engineers to waive the local contributions for projects that had few if any local benefits compared to the benefits for larger areas downstream. However, nothing in the Flood Control Committee report on the bill discussed this question directly.²⁶

The committee report did suggest that the projects included in H.R. 8455, while of significant value to the areas where they would be constructed, “will be part of a planned network which will greatly reduce and possibly solve one of the most difficult of all flood control problems, that of the Mississippi River.”²⁷ This was somewhat of an overstatement because many projects were on rivers outside the Mississippi basin. However, most were indeed located within the Mississippi’s drainage area, which covers 41 percent of the continental United States. How materially these projects would affect the lower Mississippi was not discussed in the committee report.

The debate over the lower Mississippi had been separated from the general discussion of national flood control since June 1934. At that time Roosevelt told Wilson that when the restudy of the 1928 Lower Mississippi River Plan was completed (as requested by the Flood Control Committee back in January of 1932) he would send Congress “recommendations for such additional authorizations and legislative changes as may be necessary and to provide for a fair and equitable adjustment to the property owners and local interests affected by the execution of such a project”²⁸ The \$604 million flood control package put forward by Captain Clay did not include the \$181 million estimated by General Markham to be necessary to complete his revised plan for the lower Mississippi.²⁹ Clay’s \$181 million figure may have been in error because the Markham plan, submitted to the Flood Control Committee on 12 February 1935, called for an expenditure of \$272 million on the lower Mississippi project.³⁰ The history of this legislation is not within the scope of this study, but it is important to point out that from his first days in office the President supported new legislation on the lower Mississippi regardless of what happened with national water resources legislation – a position similar to the one he took in regard to the St. Lawrence Seaway project. In his February 1935 remarks regarding the incipient National Resources Committee, Roose-

velt had actually excluded both the lower Mississippi and the St. Lawrence from the planning activities of the new agency.³¹ Only when the Markham plan was translated into legislation by Democratic Senator John H. Overton of Louisiana (S. 3531) and reached the Senate floor in 1936 did it become, for a time, linked to the larger program in H.R. 8455.

H.R. 8455 provided for a wide variety of flood control projects distributed across much of the nation. The 285 flood control projects were located in 34 states from Vermont to California. These projects ranged from a \$10,000 floodway clearing project in Jackson, Mississippi, to the \$22 million Wildcat Shoals Reservoir on the White River in Arkansas. Projects included 48 large reservoirs (despite earlier Corps reservations about the effectiveness of such flood control projects) and more than a dozen smaller dams. The rest were levee or floodwall projects.³² All the proposed reservoirs contained substantial flood control benefits, but a number of them also contained large benefits from power development, consequently greatly improving their cost/benefit ratio.

The major difference between H.R. 6803 and H.R. 8455 was not in the projects proposed but in the means for getting them started. Unlike H.R. 6803, this new bill was a regular authorization similar to traditional rivers and harbors bills or the flood control legislation of 1917 and 1928. This meant that they could be carried out with funds from the \$4.8 billion Emergency Relief Act or, if Ickes and the President failed to use this authority, by congressional appropriation. Roosevelt would thus be unable to stop or alter these projects if Congress was determined to carry them out.

H.R. 8455 was an attempt by the Flood Control Committee to press on with a flood control program before the National Resources Committee and FDR had the opportunity to present their own flood control program as part of a larger plan for multipurpose river basin development. The bill did not, however, represent an explicit rejection of multipurpose or comprehensive river basin development. Instead, it attempted to ensure that whatever general development plans were subsequently adopted for the nation's rivers, Congress would possess the authority to carry out 285 specific flood control projects (unless subsequent legislation officially **deauthorized** any of them). It should also be noted that the statement in H.R. 6803 that flood control projects

would be coordinated with navigation, water power, and soil erosion was dropped from H.R. 8455.

Eventually the bill came to the attention of Acting Budget Director Daniel W. Bell, who wrote to the President on 20 July 1935 alerting him to possible dangers in the bill. First, he thought that, in view of the National Resources Committee's comprehensive river basin development study that was then in progress, H.R. 8455 was concerned almost exclusively with flood control and appeared premature.³³ Additionally, Bell noted that authorization of so many expensive projects "will undoubtedly lead to a substantial appropriation for the fiscal year 1937" and should be viewed "as not in accord with your financial program." Roosevelt replied quickly, asking Bell to take the matter up with House Speaker John O'Connor and Riley Wilson.³⁴

Bell obviously had no success with O'Connor or with Wilson. In fact, a delegation of 44 congressmen called on FDR to urge him to support the bill. No record of this meeting exists, but it is doubtful that Roosevelt gave them any encouragement. The President's attitude remained consistent from 1934 to the end of the New Deal. He could be counted on to support recommendations for comprehensive and multipurpose development of river basins. On the other hand, he never stated that he would definitely veto legislation providing for something less than comprehensive development.

Events on a number of the nation's rivers drew attention to the issue by the spring of 1935. In January, floods in the state of Washington killed four people and caused \$1.5 million in damages. Early in March, flooding began on the James River in Virginia and on the Kanawha River in West Virginia and soon after spread to rivers in Tennessee, Alabama, and Mississippi. Heavy flooding also occurred in Wisconsin and Missouri. On 30 and 31 May, 18 to 24 inches of rain fell in the Republican and Kansas river basins, resulting in the loss of 110 lives and \$18 million in property. The storm moved into Texas, where Austin, Houston, and a number of smaller towns were hit by floods of terrific force that swept away automobiles, houses, and anything else in their paths. During May and June, 23 rivers in Texas overflowed their banks. From 7 to 9 July, torrential rains fell over a wide area of upstate New York and all of the rivers in the area flooded — smashing homes and businesses and leaving a path of death and destruction along 16 rivers, each of which had large

populations living along them. The Ohio-River experienced the worst flooding since 1913 and did an estimated \$6 million in damage. The floods that year took 236 lives and caused almost \$130 million in property damage-the great majority of the property losses resulting from the New York State flood.³⁵

In New York all ten congressmen from the badly stricken upstate area (including staunch anti-New Dealer John Taber) pleaded for immediate federal aid, as did Governor Herbert Lehman.³⁶ In July Congressman Wilson, accompanied by members of the Flood Control Committee and New York State officials, toured the New York flood area. The group was deeply moved by the extent of the flood losses. At the small industrial town of Hornell, New York, the damage was, said Wilson, “really the worst condition we have seen yet.” Public and private property lost in the town amounted to \$3.4 million. At a meeting in Binghamton, New York, Wilson pledged that the investigating committee would seek help from the President on behalf of the flood victims. According to the *New York Times*, the longer term problem of flood control “would be placed wholly in the hands of the army engineers,” who were ready to begin an emergency survey of the flood region as soon as the President made funds available. To ensure action toward a permanent solution, leaders from the ten flooded counties in the upstate region announced the formation of a “flood control committee” to work for adequate flood protection. This organization, calling itself the Flood Control Council of Central-Southern New York, was soon affiliated with the National Rivers and Harbors Congress and became an effective and vocal flood control lobby in Washington.³⁷

Soon after the Wilson delegation returned to Washington, the President allocated \$3.5 million to the Reconstruction Finance Corporation for flood loans to New York, made \$200,000 available to the Corps of Engineers for an immediate flood control survey of the region, and provided for a large number of relief workers (as many as 12,000 people) to help rehabilitate the flood-ravaged areas. On 1 August he allotted \$1 million for additional workers.³⁸

The roaring waters of the nation’s river basins brought on another flood – an inundation of flood control bills in Congress. By the time Wilson and the Flood Control Committee were back in Washington, well over 100 flood-related bills had been introduced into the House or Senate.³⁹ Some were flood relief resolutions, others were flood survey requests, and others proposed

authorizations for specific projects. Coming from almost every region in the union, the bills testified to the fact that a nationwide federal flood control system was the clear will of Congress. Compared to the huge patchwork of flood legislation contained in these hundred-odd flood-related bills, Wilson's H.R. 8455 had the merit of consisting entirely of projects that the Corps of Engineers had investigated and that showed a favorable cost/benefit ratio.

The Flood Control Committee hoped that the Corps' excellent reputation would convince skeptical congressmen that H.R. 8455 was a sound and carefully considered piece of legislation and not a gigantic pork barrel bill. When the bill finally reached the floor of the House on 22 August 1934, one of the longest congressional sessions in the nation's history was drawing to a close. Congressmen, suffering through the sweltering Washington summer, were hot, tired, and eager to get home.⁴⁰ Congressman Driver opened the debate by asserting that "every project in this bill has received the attention of the Corps of Engineers of the United States Army, under the direction of the American Congress. . . . No one project in this bill is without that expert recommendation."⁴¹

The debate consisted mainly of an attack on the bill by members of the Republican minority in the House. Congressman Rich, the ranking Republican on the Flood Control Committee, condemned it as "the biggest 'pork barrel' that has come before Congress since I have been a Member." He claimed that 139 projects listed in the bill had in fact not been officially reported to Congress. Therefore, no conclusions could be drawn about the projects' merits. Finally, he noted that any funding of projects in the bill before fiscal year 1937 would require the authorization of the President, who controlled the emergency relief funds. He said that if Congress intended to fund these projects above the \$4.8 billion in relief funds, it would be courting financial disaster – "Where are we going to get the money?"⁴²

Defenders of the bill countered with a variety of arguments, including the Corps' project recommendations. Congressman Arthur H. Greenwood (D-Indiana) said that he approved of pork barrel bills such as this when they "carry proper projects.. all over the United States where the benefits can accrue not to one particular community, but to the various communities."⁴³ Congressman Dewey Short (R-Missouri), a vice president of the

National Rivers and Harbors Congress, disagreed with a number of his fellow Republicans, saying that perhaps only those congressmen who had actually seen turbulent rivers sweep away human beings, houses, livestock, and soil could “realize the importance and necessity of this legislation. It is not a local matter, but is national in its scope.”⁴⁴ Congressman Phil Ferguson (D-Oklahoma) went further, saying that the bill had so much merit that he would be willing to see the projects “paid for by future generations if it is not taken out of the work-relief fund.” A motion by New York Congressman Taber to limit H.R. 8455’s expenditures to work-relief projects was eventually voted down 88 to 85.⁴⁵ Clearly, the major fear of the Republicans (no Democrat spoke directly against the bill) was that the \$370 million was just the beginning of much larger expenditures, or, as Congressman Earl C. Michener (Michigan) said, it “is simply the nose of the camel getting in under the tent.” Congressman Wilson retorted that Congress could “make no better investment which will protect the lives and property of its citizens.” Michener said, “To carry out the policy of the gentleman it would seem to me he was going to canalize practically every stream throughout the United States.” Wilson replied, “That is what ought to be done.... It can be done.”⁴⁶

Unfortunately, a number of congressmen appeared to take Wilson at his word, for as soon as the bill was read, one after another began to add projects onto it. These projects started with a relatively small \$285,000 project in Tennessee and Kentucky, but then increased sharply when a \$26 million project for the St. Francis River in Arkansas and Missouri was added. Fearing they would be left out of a unique opportunity, congressmen from flood-prone districts lined up to place their projects with the Clerk of the House. Among them was Will Whittington, one of the most able men on the Flood Control Committee. He submitted his long-cherished Yazoo basin project, with a price tag of \$48 million—a figure that prompted John Taber to quip, “I should think while the getting was good the gentleman would get \$100,000,000.”⁴⁷ Other projects were added whose cost/benefit ratios had not yet been determined by the Corps or else had been determined to be unfavorable. Whittington, realizing that such amendments were threatening the bill’s chance for passage, began to challenge those projects that had not received favorable Corps reports. Sometimes he was

successful; most times he was not.

Wilson tried to block further amendments, but Taber, hoping to defeat the bill, opposed the move. Finally, John H. Hoepfel (D-California) proposed an amendment "to build a dam around the United States Treasury to protect the taxpayers."⁴⁸ When the bill came to a final vote, it passed by the narrow margin of 153 to 141, with 136 not voting. The amendments had caused serious problems for the flood control group. The first test of strength on the bill had resulted in a favorable vote of 239 to 112, with 78 not voting. The bill lost 86 supporters after the amendments were added; 29 switched over to vote against it, and the rest decided not to vote at all.⁴⁹

The House passed H.R. 8455 in the early evening of 22 August, and it arrived the next morning in the Senate, where it was referred to the Senate Commerce Committee under the chairmanship of Royal S. Copeland. The bill moved through the committee in record time, but not before half-a-dozen large flood control projects were added. The first amendment was a \$30 million series of flood control works in upstate New York, which Senator Copeland himself added. This would authorize the program then being developed from the Corps' emergency survey of the flood-damaged region. Copeland reportedly added the amendment partly to respond to claims by New York Republicans that the federal government was not providing adequate relief in the flood-stricken areas.⁵⁰ Subsequent amendments included the \$48 million Yazoo River project, a \$30 million Brazos River project, a \$27 million Atchafalaya floodway and control project, an allocation of \$23 million for two projects on the White River in Missouri and Arkansas, and a few smaller items for \$2 million to \$4 million. The cost of the amendments was slightly over \$129 million, bringing the total allocation for H.R. 8455 to approximately \$500 million.⁵¹

When debate began, the first person to gain the floor was Senator Arthur H. Vandenberg (Michigan), one of the leading Republicans in the Senate, who promptly denounced the bill.

I think it is an outrage that \$500,000,000 should be authorized in 10 minutes tonight, in the closing moments of this session, without any more consideration than has been given to it; and, so far as I am concerned, I wish to have the Senate know what it is doing.

In the first place, it is authorizing the expenditures of one-half billion dollars, which is twice the amount which the Senate is about, piously, to raise

with the new tax bill.

Secondly, the bill violates every precedent ever heretofore established in congressional practice in respect to flood control works and river and harbors works, because it makes the authorization without recommendations from the Board of Rivers and Harbors Engineers.⁵²

Senator Champ Clark admitted that these projects had not been considered by the Board of Engineers for Rivers and Harbors, but, since public works projects had been taken over by the Public Works Administration, the process for authorizing flood control and navigation projects had, de facto, been changed. Congressional authorization now resulted in adding projects to a pool from which the public works or unemployment relief agencies could draw for actual construction. In this regard, he thought flood control projects, such as those being considered in the bill, were excellent "so far as putting men to work is concerned ... because that means 90 percent labor." Senator Copeland added that the projects in H.R. 8455 were all sound ones because "the surveys have been made. On file in the office of the Chief of Engineers, they have the data."⁵³

Debate was interrupted by other business for a time, and when it resumed, Senator Millard E. Tydings (D-Maryland) rose and said,

Mr. President, there is no doubt in the world that many projects in this bill are meritorious, but before the year 1937, when we begin to pay for these things, there is going to be a different atmosphere prevailing in this Chamber from the one that prevails here tonight. ...

Do Senators think that the people of this country have lost their common sense, that each and every poor man does not know that he has to work to raise the money with which to pay this huge debt? I know there is "pork" in the bill. There is some Maryland "pork," and the project in Maryland is a good one, and I should like to see it go into the bill, and I should like to see the work done. But, gentlemen, we have not the money with which to indulge in this



Millard E. Tydings, Senator from Maryland, 1927-51.

business at this time. Men may throw money away, but oh, there will be a different story when the time comes to write a tax bill.⁵⁴

Thus began one of the most notable speeches of the Maryland senator's career. On and on it went. Tydings began listing the numerous projects, reading the obscure names of small rivers and noting how many millions were going to each. He paid particular attention to Louisiana, because he and Senator Long had clashed often during the session. "Bayou Bodcau, Louisiana Floodway ... the ridiculous sum of \$1,825,000; a mere bagatelle; just a drop in the bucket." After citing projects in several states and costing several hundred million dollars, he turned to his own state of Maryland—specifically the Susquehanna River towns of Havre de Grace and Port Deposit. They too flooded in the springtime, said Tydings. "Did those people ever come to Washington and ask for \$385,000? It would have been the last thing they ever thought of doing... They do not ask other people to help them. They stay and take it. ... They do not run to Washington every time they have a little disaster... They stand on their own feet."⁵⁵

For Tydings, this bill raised issues of broad significance. He admitted at the beginning of his speech that many individual projects in the bill were meritorious, but the fundamental philosophy behind the legislation deeply disturbed him. In fact, so deep ran his opposition to the philosophy that he opposed almost everything the New Deal did and stood for. Federal programs such as flood control protected lives and property, and this had an obvious value. That value, however, was greatly outweighed by the financial and moral damage done to the nation, burdening it with debts and sapping individual and local initiative.

The whole tendency today is not to be self-reliant. If a man gets into trouble he wants a bill passed. People want it paid out of the Public Treasury. Oh, it is all right while it is going out. Then everybody is for it. While the money is being handed out nobody must protest. But wait until pay day comes -and it will come, Senators -and we shall squirm here in our seats, not wanting to vote for this tax and that tax, saying that the poor cannot stand any more taxes.⁵⁶

Coming back finally to H.R. 8455 itself, Tydings said it was outrageous that a bill for half-a-billion dollars — a 53-page bill for authorizing hundreds of projects scattered across the entire nation, with huge amendments that had not yet even been printed so that senators could read them—should be pushed through in two or three hours.⁵⁷

Clearly, Tydings' long speech, a deft mixture of humor, irony, and serious purpose, deeply impressed a number of senators.⁵⁸ Senator Josiah W. Bailey (D-North Carolina) of the Commerce Committee confessed that he was going to vote to recommit the bill to his own committee. The Senate, he said, owed it to the country to take the time "to discuss and prepare a proper measure." He agreed that there was a great deal of merit in many of the flood control projects but stated that the Commerce Committee simply had not taken the opportunity to give it adequate consideration.⁵⁹

Copeland vainly attempted to save the bill, but it was too late. Tydings had succeeded in making many senators hesitate before appropriating millions of dollars through Congress in a matter of hours, when almost none of them, not even the committeemen who presented the bill, had closely examined it. It was also too late in a more literal sense; at almost midnight Senator Tydings appeared to be ready to talk the bill to death. A filibuster was not necessary. A motion to recommit the bill to the Commerce Committee came up for a vote and passed 29 to 20.⁶⁰ H.R. 8455 was dead so far as the first session of the 74th Congress was concerned.

A disappointed Riley Wilson went back to Louisiana to face a strong challenge from Senator Long's forces in the January 1936 primary. Senator Copeland faced the prospect of fighting once more for flood control legislation when the second session of Congress convened. However, in the next round he knew better what to expect — criticism from Tydings, Vandenberg, and possibly even the President. What the senator could not have guessed was that nature itself would provide him with his best argument.

CHAPTER V

The Floods of 1936 and the Copeland Flood Control Bill

On 9 March 1936, a little more than a week before the Senate Commerce Committee was scheduled to begin its hearings on H.R. 8455, rain began falling across a wide area of the Northeast. The first of several enormous storm systems moved from Maryland and West Virginia across eastern Ohio, Pennsylvania, upstate New York, and into New England. The result is best described in the laconic words of U.S. Geological Survey's Water Supply Paper 799.

During the period March 9-22, 1936 there occurred in close succession over the northeastern United States ... two extraordinarily heavy rainstorms. The depths of rainfall mark this period as one of the greatest concentrations of precipitation, in respect to time and magnitude of area covered, of which there is record in this country. At the time of the rain there were also accumulations of snow on the ground over much of the region that were large for the season. The comparatively warm temperatures associated with the storms melted the snow and added materially to the quantities of water to be disposed of by drainage into the waterways ... the total quantity that had to be disposed of ... ranged between 10 to 30 inches.¹

The rivers into which this phenomenal amount of water ran were already high from winter rains. Many were clogged with ice. From Maine to Maryland and west to Ohio hundreds of miles of rivers quickly spilled over their banks. Billions of tons of water poured into farmhouses, villages, towns, and large cities. The Connecticut River crested on 19 March at a level 8.5 feet higher than any flood recorded there since the city's settlement in 1639. New Hampshire suffered flood damage in 87 cities, towns, and villages. In Massachusetts, where scores of large cities and small towns were pounded by water and huge chunks of ice, 56,000 people sought Red Cross aid.² The upstate New York region again flooded. While not as serious as the year before, the flooding was more widespread, ranging from Buffalo to Rochester. In the region so badly hit in 1935, residents wondered if floods were



Sebago Lake flooding highway in southwestern Maine, March 1936.
Photo by Paul Carter

Johnstown, Pennsylvania, during the 1936 flood.





Duquesne Way and 9th Street, Pittsburgh, Pennsylvania, 18 March 1936.

Allegheny River at Pittsburgh, Pennsylvania, 18 March 1936, viewed from the thirty-eighth floor of the Gulf Building.





Allegheny River flood wreckage, Pittsburgh, Pennsylvania, 20 March 1936.

Flooded cofferdam at Emsworth Lock, Ohio River below Pittsburgh, 24 March 1936.



FLOODS OF 1936 AND COPELAND FLOOD CONTROL BILL 63

becoming an annual disaster.³

Pennsylvania was the hardest hit of all the northeastern states. Of the 107 people killed in the floods, 84 died in Pennsylvania. Across the state more than 82,000 buildings (including 38,000 houses) were destroyed or damaged. Altogether, 242,698 people received Red Cross aid. The coal-producing and industrial cities of eastern Pennsylvania were flooded, as were many of the mines. In Allegheny County (Pittsburgh and its suburbs), 46 people died, almost 3,000 buildings were damaged or destroyed, and Pittsburgh's Golden Triangle was for a time under 16 feet of water. On 18 and 19 March, Pittsburgh, one of the nation's great industrial centers, was paralyzed by the lack of water, electricity, or telephone service. Fire burned buildings to the waterline because fire equipment could not get through the flooded streets. The great Pittsburgh flood of 1907 looked modest by comparison. At Johnstown, citizens were terrified by repeated rumors that the large dam just above the city (and recently rebuilt) was about to break and repeat the tragedy of 1889. Many fled to higher ground. The dam held, but the city nevertheless was gradually covered by 12 to 14 feet of water. The Pennsylvania Emergency Council reported that damages in the state totaled \$212.5 million.⁴

Even the nation's capital was not spared by the floods. The Potomac rose rapidly on 17 March, and the next day crested at Cumberland at 47.6 feet before moving down toward Washington. Thousands of Civilian Conservation Corps (CCC) personnel worked frantically building sandbag levees around the Lincoln and Washington monuments and the Navy's administration building. At the National Headquarters of the American Red Cross, where the entire flood relief program was being administered, employees began moving files and equipment to upper floors as a precaution. By 19 March, when Senator Copeland opened the hearings on the flood control bill, he noted that "you don't have to go out of the city of Washington" to see the effects of the great floods of March 1936. Two days later, congressmen looked out of the Capitol Building windows and saw the Potomac standing at 19.8 feet above flood stage-with all of the city's beautiful riverfront parks covered by a mantle of dark brown water.⁵ The congressmen, as well as the entire population of the northeastern United States, finally saw what residents of the lower Mississippi had talked about for decades-a great flood



Engineer Lieutenant Colonel Francis C. Hawington (above, left center) with the Works Progress Administration, and Harry L. Hopkins (right center), Administrator of the WPA, watching workmen erect an emergency levee in rear of Munitions Building, Washington, DC, March 1936.

that could cripple an entire section of the nation.

Probably representing the editorial opinion of every newspaper in the Northeast, and perhaps in the nation, the *New York Times* on 22 March published a long editorial entitled "After the Deluge."

Heavy with moisture from the Gulf of Mexico, storm clouds swept along the Appalachian highlands, hovered over the Virginias and added their torrents to those that had inundated New England the week before ... Villages and towns built on flats were overwhelmed. Old benchmarks were reached and surpassed. ... It is the area affected that appalls. From New England to the Potomac scores of communities stand under water as their inhabitants row in boats past homes submerged to the eaves.

All this is no credit to a country which prides itself on its technical achievement. Here and there sections have been stirred to action. The Mississippi is under better control than it was before the catastrophe of 1927. There are fine works near Dayton, Pueblo, Dallas, Erie. But not yet have we envisaged the problem of curbing and utilizing our water resources as a whole from the Atlantic to the Pacific... . As of yet there are no adequate plans for the prevention of floods and for the associated utilization of excess water... If the floods have taught us anything, it is the need for something more than a dam here and a storage reservoir there. We must think of drainage areas embracing the whole country.⁶

The great northeastern floods of March 1936 virtually assured the passage of some sort of national flood control legislation during the second session of the 74th Congress. The March floods were remembered long afterward. The Ohio River did not finally return to its channel until 22 April and the next month, as H.R. 8455 was awaiting the President's signature or veto, severe flooding occurred on the Republican and Arkansas rivers, where more than 100 had died in 1935.⁷ Even as the Roosevelt administration was directing a force of 275,000 relief workers in the flooded states of the Northeast, congressmen gathered their forces to push through a gigantic flood control bill.⁸ On 23 March a group of representatives from the ten northeastern states met to discuss a permanent flood control program.⁹ A week later, an Associated Press report stated that "scores of aroused Senators and Representatives began to drive today to restore nearly \$500,000,000 worth of projects to the omnibus Flood Control bill hastily revamped because of the East's recent floods."¹⁰ At the beginning of April, *Business Week* reported that flood control legislation "has tremendous support in Congress." The explanation was that "the East, as the big taxpayer, usually opposes the Western drive for money to control



Swollen mountain stream threatening a valley home in West Virginia, March 1936.

Photo by Arthur Rothstein.

floods with; but now the East has been hard hit and so has joined in the drive."¹¹

One of the easterners who had objected to the flood control bill in 1935 – Senator Tydings of Maryland – was now very quiet. An article in the *Washington Evening Star* recalled how the senator had ridiculed the idea of flood control money being spent for places such as Williamsport, Sunbury, Lock Haven, and Harrisburg, Pennsylvania, where, he said, there was no real flood danger. The writer then gave statistics on how many feet of water had recently covered those places. The flood control bill, he concluded, “will have no opposition from the Senator.”¹² Tydings’ own state of Maryland suffered severely from the March floods, and Maryland’s T. Alan Goldsborough was one of the leading representatives calling for the 23 March flood control meeting.¹³ The question no longer seemed to be whether there

FLOODS OF 1936 AND COPELAND FLOOD CONTROL BILL 67

would be a flood control bill, but rather what sort of bill would it be and which projects would be included. This was the task facing Senator Copeland and his Commerce Committee in the latter days of March 1936.

In many respects, the flood control bill could not have been in more able hands than those of Royal S. Copeland, the senior senator from New York. He was intelligent (his opponents called him cunning) and hard working, a knowledgeable political strategist and a forceful speaker. A native of Michigan, Copeland received a medical degree there in 1889 and taught at the University of Michigan Medical School before moving to New York City in 1908. In New York, he switched from the Republican to the Democratic Party and in 1918 was appointed City Health Commissioner. A friend of William Randolph Hearst and a popular medical columnist for Hearst's newspapers, Copeland ran for the U.S. Senate in 1922. He was popular with the voters, not only in heavily Democratic New York City, but also in the more conservative upstate New York region where the Democrats had always been weak. He was a conservative Democrat, which explains much of his upstate appeal, but he was also deeply committed to national flood control.¹⁴ His strong support for flood control was consistent with his general interest in measures that protected the health and safety of the nation, and the large flood control lobby in upstate New York continually reminded Copeland of the grave problems in this region.

On two flood control issues, however, he remained a conservative. First, he favored local contributions for flood control projects as the only means of preventing undeserving projects from being slipped into authorization bills. Second, and far more significant, he specifically opposed federally constructed reservoirs that required hydroelectric power benefits in order to achieve a favorable cost/benefit ratio. Only if a reservoir could show a favorable cost/benefit ratio for flood control alone would he support it. His basic position was one of opposition to any major federal hydroelectric program. Federally constructed hydroelectric dams put the national government in competition with private interests in Copeland's eyes, and thus he objected to such projects. His fears of federal hydroelectric competition with private utility companies were first aroused during the Senate debate on the Tennessee Valley Authority bill. Copeland thought its provisions for electric power distribution were detrimental to



Royal S. Copeland, Senator from New York, 1923-1938.

the private power companies -many of whose stockholders lived in New York. Again, in the early stages of the Commerce Committee hearings in 1936, Copeland told the *New York Times* that he hoped to exclude all reservoirs that combined hydroelectric production with flood control from the flood control bill. He feared that these multipurpose reservoirs would not only drive the total cost of the program too high, but he "mistrusted putting the Federal Government any further into the business of generating and selling elec-

tricity." The TVA and Grand Coulee and Boulder (Hoover) dams had already caused the private utilities to suffer.

When H.R. 8455 was reported out of the Commerce Committee near the end of April 1936, Copeland explained to reporters that projects "which might have merit for preventing soil erosion or for the generation of hydroelectric power have been excluded . . . so they may be advanced in other measures to be judged by Congress on an independent basis."¹⁵ Actually, Copeland was willing to allow soil conservation programs into the bill, but he fought hard to keep hydroelectric projects out. His public position in 1936 was simply that H.R. 8455 should be strictly a flood control bill. He said that hydroelectric power production was incompatible with flood control from an engineering perspective; flood control reservoirs required relatively low water levels in order to accommodate flood waters, whereas hydroelectric dams needed higher water elevations for maximum efficiency. Also, Congress had not established a national policy on hydroelectric power, and to inject that issue into the current debate on an emergency flood control bill was wrong. The Corps of Engineers and a majority on the Commerce Committee shared these viewpoints.¹⁶ Copeland's more fundamental opposition to the

FLOODS OF 1936 AND COPELAND FLOOD CONTROL BILL 69

expanding role of the federal government in the area of water power became even clearer in 1937, when he strongly denounced efforts to expand the TVA concept into seven other river basins and to revise the 1936 Flood Control Act to make federal hydro-electric development equal to flood control as a national policy.¹⁷ The real objective of this policy, he believed, was “public ownership of electric utilities.”¹⁸

Copeland dominated the Commerce Committee not only because he was its chairman, but because he was a skillful political leader who grasped well the complex issues surrounding flood control. Other influential members of the committee included Senators Overton, Clark, Vandenberg, Joseph F. Guffey (D-Pennsylvania), Francis T. Maloney (D-Connecticut), and Charles L. McNary (R-Oregon). Of this group, Overton was most experienced in flood control matters. He sponsored the \$272 million revision of the lower Mississippi flood control plan of 1928, but his knowledge of flood control really did not extend past the alluvial plain of the Mississippi. He, like most of his colleagues, knew very little about flood problems elsewhere in the country. When the committee began trying to redraft H.R. 8455, they discovered how complex and difficult a job it was. The 14 Democrats and 6 Republicans on the committee often disagreed, and there was no consistent party position insofar as this legislation was concerned. Everyone agreed on the need for a national program of flood control to reduce damage such as had occurred in March 1936. However, questions such as how far the program should go beyond catastrophic flood control and how it should be carried out and financed were difficult and confusing for both Democrats and Republicans.

The committee relied entirely on the information provided by the Corps of Engineers. It also relied on the Corps to provide advice and suggestions on basic policy. As Senator Maloney said at the outset of the hearings, “I do not think the members of this committee or of the Flood Control Committee of the House are anywhere nearly in the position to determine the thing as is [sic] the War Department and General Markham’s engineers.”¹⁹ Consequently, the committee began its hearings by asking General Markham what should be done in response to these flood disasters. Markham replied that the committee should proceed to draw up a nationwide federal program of meritorious flood control projects based primarily on Corps recommendations

from its 308 reports. Flood control was a regional and national problem; thus, individual states and localities were unable to take effective action. He said the question of who should pay what proportion of the expense was a “matter of great difficulty,” but he believed that local interests should pay some part of the cost.²⁰

The committee agreed that some immediate action was required and asked Markham to draw up a revised flood control bill to present to the committee on 25 March. The main objective was to determine the actual cost to the federal government of providing some reasonable level of national flood protection. The committee was satisfied that the 308 reports, together with various Corps emergency studies (such as for New York State and New England), would form a list from which it could select those to be put in the final bill.

Exactly how many projects should be placed in the bill was a subject the committee debated intermittently throughout the hearings. Some committee members, led by Senator Vandenberg, wanted to keep the total costs as low as possible, while others thought the magnitude of the flood problem, in the Northeast as well as in many other sections of the nation, required a much larger, permanent, nationwide program. General Markham appears to have thought at first that the committee was interested only in some type of limited emergency program, but when it became clear that the committee was divided on the issue, he said the Corps had over a billion dollars worth of flood projects it could present for their consideration.²¹

When the committee met again on 25 March, the Corps was ready with what amounted to a completely new piece of legislation, since very little of H.R. 8455's language survived and the list of specific projects was substantially altered. The revised bill began with a long declaration stating that flood control was a national responsibility. Copeland read this statement to the Senate on 2 April 1936.

DECLARATION OF POLICY

Section 1. It is hereby recognized that destructive floods upon the rivers of the United States, upsetting orderly processes and causing loss of life and property, including the erosion of lands, constitute a menace to national welfare; that it is the sense of Congress that flood control is a proper activity of the Federal Government; that investigations and improvements of rivers and other waterways for flood-control purposes are in the interest of the general

FLOODS OF 1936 AND COPELAND FLOOD CONTROL BILL 71

welfare; that the Federal Government should improve or participate in the improvements of streams for flood-control purposes if the benefits to whomsoever they may accrue are in excess of the estimated costs, and if the lives and social security of people are otherwise adversely affected; and that the interests of the Federal Government are particularly involved in such flood-control improvements as may otherwise be impracticable of initiation or execution on account of complications of relationships between States, their political subdivisions, or local organizations. Section 2. That hereafter Federal investigations and improvements of rivers and other waterways for flood control and other purposes shall be under the jurisdiction of and shall be prosecuted by the War Department under the direction of the Secretary of War and supervision of the Chief of Engineers, except as otherwise specifically provided by act of Congress; and that in his reports upon examinations and surveys, which so far as possible shall be conducted equally throughout the United States, the Chief of Engineers shall be guided as to flood-control measures by the principles set forth in Section 1 in the determination of the Federal interests involved.²²

Copeland's purpose in placing this "declaration of policy" before the Senate was threefold. First, he wanted a general statement of the necessity for a national flood control program that would clearly authorize the Corps of Engineers to be the nationwide planning and construction agency. The Corps would henceforward be empowered, with the approval of Congress, to construct flood control works anywhere in the nation, and congressmen were assured that this huge public works program would be in the hands of a familiar and trusted agency--not some recent New Deal creation. Second, the bill required a constitutional basis. At this stage of the bill's evolution that basis was the General Welfare Clause, but the final version was to include a reference to the impact of floods on "obstructing navigation, highways, railroads and other channels of commerce between the states" in order to root the legislation in the Commerce Clause as well. Third, and perhaps most important for Copeland, he wanted the senators to know that this bill was exclusively for sound projects of flood control (and nothing else) approved by the Chief of Engineers under the direction of the Flood Control and Commerce Committees of the Congress. Copeland said he assumed that every senator agreeing to this declaration of policy "will help make this bill what it should be, a constructive bill for the conservation of natural resources, and not in any sense a bill to make votes."²³ At the core of the bill was a list of specific flood control projects drawn from Corps reports and surveys, but now substantially altered from those

contained in the original version of H.R. 8455.

Brigadier General George B. Pillsbury, Assistant Chief of Engineers (Markham's representative on this day), told the committee that the Corps began selecting the new list of projects by first considering all of its flood control projects with favorable cost/benefit ratios. The total cost for these projects was \$1.3 billion. The Corps then eliminated "all projects which do not appear to us to be necessary to prevent disaster," which, incidentally, included all those requiring hydroelectric power benefits to reach a favorable cost/benefit ratio. Finally, they added new projects in the northeastern part of the nation because of the flood problem of the previous two weeks. The total cost of these projects came to approximately \$500 million. A further assessment by the Corps, probably at Copeland's suggestion, reduced the package of projects to approximately \$310 million in direct construction costs, with an additional \$85 million in land and damage costs.²⁴

The most innovative aspect of this flood control program was that, while the great majority of projects in the bill were for levee construction and stream improvements, the Corps recommended that almost two-thirds of the total expenditures be for reservoir construction, primarily in New England, upstate New York, the drainage basin around Pittsburgh, the Arkansas River basin, and southern California. Exhibiting a belief in reservoirs that the Corps had not shown in previous decades, Pillsbury maintained that a good reservoir system was unquestionably "the best way to provide flood control." The only drawback, he said, was the high construction costs. This seeming departure from previous Corps policy on dams versus levees stemmed mainly from the shift of focus from the lower Mississippi to rivers where flood control dams were far more feasible from both the engineering and economic standpoint. As Markham told the Commerce Committee, the lower Mississippi had too vast a watershed to be controlled exclusively by dams. Building over a hundred huge reservoirs for the lower Mississippi would flood as much land upstream as it would protect downstream. It would, he said, "trade cornlands for cottonlands." Protecting the more narrow and valuable flood plains of Ohio, Pennsylvania, New York, and New England was an entirely different question.²⁵

The elimination of all reservoirs with significant power benefits was opposed by a number of congressmen from districts

FLOODS OF 1936 AND COPELAND FLOOD CONTROL BILL 73

where this benefit was required to give projects a favorable cost/benefit ratio. Thirty-nine multipurpose flood control/power reservoirs included in the House version of H.R. 8455 were dropped by the Senate committee. Copeland, Guffey, and the Corps agreed that the flood control bill should ensure that every dollar spent under its authority be for flood control alone. Powerful senators such as Burton K. Wheeler (D-Montana) were angry at Copeland and the Corps for rejecting their pet multipurpose projects, but the committee held fast and eventually voted 8 to 5 to exclude all multipurpose reservoirs that could not show a favorable cost/benefit ratio on flood control alone.

The committee made two small concessions to hydroelectric power development. The first was to allow construction of penstocks in flood control dams having hydroelectric potential, but only if approved by the Secretary of War. Copeland said he was concerned over the expense of even this small step in the direction of multipurpose development, but when General Markham told the committee it would add "very little" to construction costs, penstocks were allowed into the bill. Markham also emphasized that very few reservoirs were involved and that most reservoirs, to be used effectively for maximum flood control, would be too empty to generate much electric power. The second concession was the authorization in Section 7 of the flood control act for the continuation of surveys, studies, and reports on ten reservoir projects that had future possibilities for hydroelectric development in addition to their already established flood control benefits. As of spring 1936, the flood control benefits were insufficient to warrant inclusion in the bill, and there was yet no market for their hydroelectric potential. Two of these dams were in Montana and seem to have been put in to satisfy Senator Wheeler, but Senator Bailey was the committee member most interested in this section and was responsible for its final wording. Three of the ten dam sites were in Bailey's home state of North Carolina.²⁶

The federal construction of penstocks was certainly not intended by the Commerce Committee to indicate an endorsement of federal power development at flood control reservoirs. In fact, the Federal Power Commission could not have developed hydroelectric projects at any of the reservoirs authorized under the 1936 Flood Control Act since the projects remained in state and local ownership. The ABC requirements were similar to

those the Corps had used on flood control projects as far back as the 1917 Flood Control Act. They called for state and local interests to “provide” land and easements for the projects, but not to “convey” the title to the federal government. Aside from one brief allusion to land title and power production by General Pillsbury, the issue never arose during Commerce Committee hearings. Copeland may very well have understood that this provision prohibited federal hydroelectric development at the reservoir sites, but never brought it to the committee’s attention even though it appears that some committee members believed the federal government was to begin “acquiring land” under the act. General Markham undoubtedly understood the connection between federal ownership and hydroelectric power, but never mentioned it, assuming perhaps that the committee knew what it was doing in the area. The War Department never kept it a secret that the 1936 Flood Control Act prohibited federal hydroelectric development at all dams constructed under its authority. Oswald Ryan, the general counsel to the Federal Power Commission (FPC), brought the problem to the attention of the White House. FDR asked Attorney General Homer Cummings for his view. Cummings said it did not seem clear to his office exactly who would have title to the dams. The FPC believed the federal government held title, but the War Department held that ownership rested with the state and local interests. In the face of this dilemma, the Attorney General thought it would be unsafe for the federal government to undertake any hydroelectric projects at these dams until clarifying legislation had been passed. The 1938 Flood Control Act corrected this “oversight,” much to Copeland’s disgust, by excluding reservoirs from the ABC requirements.²⁷

Another major question was who would pay the costs. It took the committee weeks to resolve this problem, and no one was happy with the solution. General Markham believed local interests should pay the land and damage costs and operate the projects when they were completed, but had no idea what percentage each party should pay. These ABC requirements had been placed in H.R. 8455 by the House Flood Control Committee, and the Corps wanted them included in the Senate revision. When several committee members objected to the requirements, the Corps suggested some possible solutions. It proposed that in areas where the land and damage costs were low com-

FLOODS OF 1936 AND COPELAND FLOOD CONTROL BILL

pared to the benefits, such as in the West and in remote rural areas, local interests should pay some part of the construction costs. Conversely, in areas such as the Pittsburgh region or New England, where the land and damage costs would sometimes exceed the construction costs, the federal government should pay a portion.²⁸ The Corps gave the committee a variety of formulas and proposals, but each seemed too complex or inequitable to one area of the country or another. Both the Corps and the committee failed to resolve the question of who actually receives the benefits from large reservoirs on a tributary of a major river basin. Senator Guffey, fearful that the huge land and damage costs for Pittsburgh flood control projects would put too heavy a financial burden on the Pennsylvania taxpayers or make them reluctant to build the reservoirs, moved that the bill be amended to provide that the federal government would pay the total cost of the flood control projects—lands, damages, and construction. By a 9 to 4 vote, the amendment passed. Copeland, Vandenberg, Wallace H. White (R-Maine), and Vic Donahey (D-Ohio) voted against it.²⁹

The vote was taken at the end of the 15 April hearing. The next day Senator Overton and several other members expressed reservations about their votes. Copeland told the committee that he had heard a rumor that the President would veto the bill if the federal government was required to pay all the costs. He also reminded the committee that its action conflicted with the recommendation of Generals Markham and Pillsbury. As a result, the committee voted 9 to 6 to put the ABC requirements back into the bill.³⁰

The restoration of local contributions forced the committee to struggle again with the cost-sharing issue. Eventually, a series of complex provisions were agreed upon and are found in Sections 3(c) and 4 of the act. The situation in the Pittsburgh area convinced the committee that local interests should not be expected to pay all land_ and damage costs in every instance. In cases where the land and damage costs exceeded the total construction costs, the federal government would pay 50 percent of the costs beyond that point. In addition, the act provided that, whenever more than 75 percent of the estimated benefits of a project lay outside the state in which a project was located, the federal government would operate the project, and the state would be required to pay only 50 percent of the cost of land and

damages. The committee thought this was to apply largely to the Pittsburgh area. These percentages were not debated by the committee. It simply accepted the Corps' suggestions, which General Markham told them were "perfectly arbitrary and only for your consideration."³¹ In order to allow further adjustments in cost sharing, the committee drafted a provision authorizing interstate compacts to apportion nonfederal costs. Several committee members were very skeptical that voluntary interstate compacts would actually work, but the committee at least voted to provide the opportunity. This provision became Section 5 of the act and was similar, but not identical, to House Joint Resolution 377 introduced by Representative William M. Citron (D-Connecticut), which became law on 8 June 1936. For a variety of reasons having to do more with the Roosevelt administration's slowly evolving hydroelectric power policies than with flood control, the interstate compact drawn up by the New England states never received federal approval. The necessity for interstate compacts and other cost-sharing devices for flood control reservoirs was finally obviated by the Flood Control Act of 1938, which authorized the federal government to pay all land, damage, construction, and maintenance costs for flood control reservoirs and channel improvements.³²

The confusion over local contributions and the disagreements regarding the total number of projects that should be authorized made it difficult for General Markham to present an appropriate package of projects to the committee. When he included expensive projects for the Northeast while removing a number of combined flood control/power reservoirs, committee members from the West questioned the elimination of many of their dams simply because they required additional water power benefits to obtain a favorable cost/benefit ratio. Until the land and damage costs issue was resolved, the Corps did not know whether the government would be asked to pay \$310 million or \$395 million for the same group of projects.

Senator Vandenberg suggested several times that the whole question was too complex to be settled by the committee at this time. He recommended that they authorize only a few flood control projects for the Northeast, which was the most threatened area. The broader issues could be discussed at the next congressional session as part of the comprehensive development plan for all aspects of river development. The senator seems to

FLOODS OF 1936 AND COPELAND FLOOD CONTROL BILL 77

have had in mind the work of the National Resources Committee, because earlier in the hearings he asked Senator Joseph T. Robinson, the Senate majority leader, if he knew what the NRC might be able to contribute to the committee's deliberations. Robinson said, "I cannot give a reliable answer to that. I do not know what work the National Resources [Committee] would be expected to perform, but I gather that the President's idea is that the subject of flood control is inseparably associated with reforestation and with soil conservation." Copeland, who strongly supported the NRC, said nothing at all about it in committee. The brief reference by Vandenberg and Robinson was the only mention of the NRC during the entire hearings.³³

Markham was patient throughout the hearings, but it became increasingly obvious that the committee really wanted the Chief of Engineers to come up with an agreeable flood control bill. Whenever he had a new idea, the committee divided its opinions a different way. At one point Markham said,

It seems to me that the Corps of Engineers cannot recommend anything here very intelligently until the committee itself, or the Congress itself, tells us what line to pursue. Other than that, and up until this minute, we have simply been working mechanically to assist the committee on our understanding of what the committee desired in the way of devising a measure for this particular year. ... It is difficult for us to recommend what ought to be done in a given instance, because we have no compass, Mr. Chairman.³⁴

The chief difficulty was the committee's attempt to push through a bill in an "emergency" atmosphere, while at the same time devising a basic long-range national policy for a complex and controversial subject. Senator Guffey recognized that the committee's vacillating from a total package of \$300 million to \$400 or \$500 million and back to \$300 million made it impossible for the Corps to give good advice. "I do not think we are being fair to the engineering department," said Guffey, "unless we establish some limitation." Markham heartily agreed, saying that if the committee could concur on how much they wanted to spend and how much the federal government would have to spend, he could provide the committee with a specific package of projects in 48 hours, "but we must have some **directive**."³⁵

Because the committee was so divided and so many members failed to understand all the issues involved, little direction was ever given to Markham except that the federal appropriation should stay around \$300 million. Furthermore, multipurpose

projects should be kept out, and local interests should pay the ABC costs except in those cases provided for in Section 3(c). On 24 April Copeland told the committee to stop debating and take some action. "We have to do something very soon ... if we expect to pass a bill we have got to get it on the floor."³⁶

Near the very end of the hearings, the question of soil erosion projects and their relationship to flood control arose. The committee, or at least Copeland, was aware of Secretary of Agriculture Henry A. Wallace's interest in including a soil erosion program in the flood control bill. In addition, Senator Robinson had told the committee that the President wished to tie soil erosion and reforestation to any flood control program. Secretary Wallace and General Markham had discussed the matter briefly in the early days of the hearings, but Markham said he had seen no specific bill or amendment. When Copeland had asked Markham if he intended to bring a soil conservation proposal to the committee to make a "composite bill," the general replied, "right now I am sticking really with our own views in pursuing this matter."³⁷ Neither Copeland nor anyone else on the committee pursued the matter until 24 April, the next to the last day to get the bill finalized and out to the Senate. A project on the Gila River in Arizona came up, one that had been planned by the Soil Conservation Service of the Agriculture Department for both flood control and soil conservation. There was no discussion of it, and Copeland summarily deleted it from the bill.³⁸ The following day Senator Carl Hayden tried to save his project but was unsuccessful because, as Copeland told him, "I am unwilling to have included in the bill any project which has not been given the endorsement of the Army Engineers."³⁹

Finally finished with debate over multipurpose reservoirs, cost sharing, and the list of specific projects to be authorized, the committee on its last day attempted to address all remaining issues. Even at this late date, Senator Vandenberg continued to worry over the breadth of federal responsibility assumed under the bill. He asked Copeland if the declaration of policy in Section 1 could be altered to limit federal flood control activities to navigable streams and their tributaries. This would, he hoped, relieve the government of responsibility for controlling floods on "all the creeks in Michigan." Copeland said he had no objection and the words "on navigable streams and their tributaries" were inserted in Section 1. Whether this actually limited the scope of

FLOODS OF 1936 AND COPELAND FLOOD CONTROL BILL 79

the bill is debatable, since General Markham had stated earlier in the hearings that almost any stream on which something of commercial value can be floated for any distance is “susceptible of navigation” in legal terms.⁴⁰ This whole discussion, coming in the final hours of the hearings, reflected the tentative and hasty process that marked the drafting of the flood control act.

The best defense that can be made for the committee’s actions was that it worked under difficult circumstances. It was charged with redrafting a very imperfect flood control bill in a limited amount of time with the entire northeastern United States demanding immediate and sweeping action. Flood control was, and is, an extremely complex technical and financial issue, and framing a nationwide policy challenged the experienced senators from the lower Mississippi region. President Roosevelt had not yet offered any national flood control program or river basin development plan, and his National Resources Committee, for whatever reasons, chose not to advise the Commerce Committee. This left only the Corps of Engineers to aid the senators. The Corps believed it could execute an effective flood control program immediately, so long as they were not required to integrate that program with other water resource uses. That was a far more complex issue and would obviously have required more time than seemed politically realistic. This narrow approach appeared to suit the committee, especially Copeland. The immediate crisis could be attacked, while other aspects (like hydroelectric power) could be put off and debated openly on their own merits later.

As the Commerce Committee struggled with H.R. 8455 in late April to report a completely revised flood control bill out to the Senate floor, many other people became active behind the scenes. Word of the committee’s success moved quickly in official circles. The bill’s progress was widely covered in the press, because the March floods, and thus flood control, were now front page news. While the Commerce Committee hearings were closed, newspapers reported the latest news, basing their stories mainly on Senator Copeland’s regular series of public statements.

The two federal agencies that responded most actively to the resurrection of the flood control bill were the newly created Soil Conservation Service of the Agriculture Department and the National Resources Committee. Both agencies sought President

Roosevelt's aid in influencing the bill. Secretary Wallace and Morris L. Cooke contacted the President, who was spending the last week of March and first week of April fishing in the Caribbean, to state that they had just read Senator Copeland's policy statement declaring flood control a national responsibility and giving agency authority exclusively to the Army Engineers. They "urgently" suggested broadening the statement to declare that the nation was threatened not only by floods, but by "land misuse, erosion and accelerated run off of rain water in the drainage basins." They asked Roosevelt to consider allowing the Soil Conservation Service to make surveys and approve projects in upstream areas just as the Corps of Engineers was authorized to do under the Copeland bill.⁴¹ The President radioed back the next day that flood control was only one phase of a much larger subject, and the Copeland declaration of policy "should include all forms of land misuse covering erosion, reforestation, afforestation, water storage, irrigation and drainage." He suggested that the Corps and the Department of Agriculture make such studies jointly and that the National Resources Committee, the Resettlement Administration, and the Rural Electrification Administration be called in to cooperate.⁴²

The NRC's Water Resources Committee quickly took issue with Roosevelt's message. The committee passed a resolution requesting that the President designate it as having "primary responsibility" for flood control and all related basin-wide programs. Charles W. Eliot, one of the three leading officials on the National Resources Committee, relayed this information to the President on 28 March.⁴³ Arriving the same day was a radiogram from one of Roosevelt's chief White House aides, Stephen Early, telling the President that there was growing sentiment in Congress to pass a flood control bill at this session in response to the recent floods in the Northeast. He also told FDR that Secretary of War Dern thought the President should give the Copeland bill careful consideration.⁴⁴ Apparently Dern, Ickes, and Wallace then decided the whole flood issue was too difficult to resolve until the President returned to Washington. The matter rested until 10 April.⁴⁵

The Water Resources Committee, encouraged by the President's apparent approval of its role as the primary agency in flood control studies, immediately began drafting a memorandum indicating the improvements needed in flood control studies and the

manner in which the committee, as a component of the NRC, would distribute flood investigation funds among the various relevant agencies, such as the Corps of Engineers, Soil Conservation Service, Geological Survey, and the Weather Bureau. This memorandum, dated 2 April 1936, clearly implied that current flood studies were too fragmentary and imprecise to serve as a basis for a sound flood control program. To begin with, they asserted that the data were quite incomplete on the relationship between forest and grass cover, soil erosion, and flooding. Therefore, it would be very difficult to decide how large a role reforestation and soil erosion control should play in a flood control program. Second, the whole area of costs and benefits from flood control projects was poorly understood. Finally, the recent floods "may warrant numerous changes in estimates, plans, and specifications included in such previous reports as have been made. The Corps of Engineers' '308 Reports' are the chief sources of flood control programs and they should be kept up to date." The document was signed by the WRC's executive committee, composed of Abel Wolman, Chairman; John C. Page, Bureau of Reclamation; Thorndike Saville, Associate Dean of Engineering, New York University; and Colonel Edgerton, Corps of Engineers.⁴⁶ Edgerton's signature on the memorandum may reflect some internal disagreement within the Corps, for both Markham and Pillsbury agreed that the 308 reports were perfectly adequate for an immediate program of flood control. They also thought that forest and soil programs were not significant enough to warrant inclusion in the Commerce Committee's flood control bill, and the cost/benefit question could be adequately resolved without further study. While such matters were of concern to Markham, they were not worrisome enough to cause him to recommend to the Commerce Committee that the flood control program await their resolution.

The National Resources Committee met on 11 April to discuss the WRC memo of 2 April and recommend to the President that it serve "as a clearing house for information on flood studies" and that the WRC receive an allocation of \$500,000 for further flood studies, which it would spend itself or would reallocate to other federal or state agencies.⁴⁷ By this time, Markham and Secretary of War Dern had become aware of the 2 April memo, and Secretary Dern opposed the whole idea. In his view, the flood situation "from an investigation standpoint would

appear to be well in hand.” The expenditure of another \$500,000, he said, would “represent almost entirely a duplication of both effort and funds.”⁴⁸ Dern was the lone dissenter on the NRC. Secretary Ickes reported the NRC decision to the President, who sent it to Acting Director of the Budget Bell. Bell thought the use of the NRC as a clearinghouse for flood information was useful and suggested issuing a budget circular to this effect. Following Roosevelt’s approval, Bell’s recommendation was implemented with the issuance of Budget Circular 338 on 14 May 1936. The proposal to conduct further flood control studies under the direction of the Water Resources Committee of the NRC seemed unnecessary to Bell, and no funds were allocated to the NRC for this purpose.⁴⁹

The NRC’s attempt to play a larger part in flood control did not improve its visibility or its popularity in Congress. Public and congressional attention focused on Senator Copeland, the Commerce Committee, and the “Copeland flood control bill,” as it had come to be called. The nation’s newspapers carried long articles on the flood problem and the Copeland bill. It was reported at various times in late March and early April that a bill involving the expenditure of \$300 million, \$500 million, or \$800 million was about to be reported out of the committee. Occasionally, the papers briefly noted that the National Resources Committee would have a comprehensive river basin development plan, including flood control, ready for the President by 1 December 1936.⁵⁰ In the flood emergency atmosphere of April 1936, this announcement appeared to impress no one except, possibly, the President.

The President’s first public statement on flood control legislation after his return to Washington was at his 15 April press conference. He said that he knew nothing yet about the Copeland bill but would probably support flood control projects of some sort, especially if “they put people to work right away.” He reiterated that linking flood control to multipurpose river basin development was the administration’s goal.⁵¹ When asked how he felt about local interests paying the costs of land and damages for projects, Roosevelt replied, “I don’t know. I haven’t given that any consideration.”⁵² It appears, therefore, that FDR was inclined toward approval of a flood control bill but was not ready to commit himself publicly until the cost-sharing issue had been resolved. His denial of giving any consideration to cost sharing

FLOODS OF 1936 AND COPELAND FLOOD CONTROL BILL 83

could be true, but the question seems too important for him to have totally ignored it. This was not the first (or last) time FDR feigned ignorance of a subject he did not wish to discuss.

The President clearly wanted multipurpose river basin development but did not rule out a separate flood control bill. His chief concerns at the time seemed to be the escalating costs of the flood control program, the lack of a soil erosion component, and the absence of any role for the National Resources Committee. Roosevelt, as well as many Republicans, seemed to think the National Resources Committee would provide an effective brake on congressional public works projects. On 20 April, Roosevelt sent a note to Senator Robinson asking if he could get a bill to establish a permanent National Resources Committee through the Senate “in order to stop wild raids for Public Works at the next session.”⁵³ During the debate on the Overton bill, which revised the 1928 lower Mississippi flood control program, Senator Vandenberg and other Republicans vainly urged delay on the measure until the National Resources Committee could present a more comprehensive national flood control plan.⁵⁴

In the course of these arguments, Louis Howe, Roosevelt’s lifelong friend and chief advisor, died. The President went to Massachusetts on 22 April for the funeral and stayed away until 28 April, by which time the Copeland bill had reached the floor of the Senate. On the same day, hundreds of members of the Rivers and Harbors Congress descended on the capital to plead for flood control funds — urging passage of both the Overton and Copeland bills. At his 28 April press conference, Roosevelt was again asked about the Copeland bill. The President said the flood problem could not be solved by “Army engineering only,” that is, by large reservoirs and levees. Soil erosion and reforestation were needed also. Asked specifically about his role in developing the bill, he said, “No, I have not been consulted on it at all. All I know is what I read in the paper.”⁵⁵ On the same day Senator Copeland was telling the Senate that he had “a good, broad hint” that unless the land and damage costs were to be paid by local interests, the President would veto the bill.⁵⁶

The President finally gave some study to the Copeland bill on 1 May. He was prompted by a memo from his uncle, Frederic A. Delano, chairman of the National Resources Committee, who passed to him a scathing denunciation of the bill by three members of the NRC’s Water Resources Committee. Chairman

Wolman, along with WRC members from the Forest Service and the Soil Conservation Service, denounced the bill as “thoroughly rotten.” Specifically, the WRC group claimed that the bill, without sufficient study, would establish a basic philosophy for the distribution of project costs that might prove impractical or cause unforeseen problems in the future. Moreover, the bill included a number of “pork barrel” projects that were still being studied by various federal agencies and might turn out to be unsound. The three members also complained about the draft legislation specifying the need to have interstate compacts approved by the Secretary of War. This “intrusion of the War Department into the picture seems likely to set a dangerous precedent for other types of interstate cooperation.”⁵⁷

Accompanying the WRC communication was a memorandum from Charles Eliot to Delano setting forth his views of the situation. He said it was essential to get the National Resources Committee established on a permanent basis by Congress, but he was frustrated. “Here is Copeland,” he said, “who sponsored our bill [to establish the NRC], also sponsoring the new flood control bill.” Eliot thought that “a word from the President to Vice President Garner or Senator Robinson” would clarify the situation and get the NRC bill passed. If the NRC could gain permanence through congressional approval, “there would be no question of our right, even with the present wording of the flood control bill, to go ahead with coordination of flood control studies”⁵⁸ However in anticipation that congressional approval might not be forthcoming, Eliot was working with people from the Department of Agriculture and the Water Resources Committee to draft amendments to the Copeland bill. These amendments would provide for participation of all appropriate federal agencies in flood studies and would tie reforestation, soil erosion control, grazing controls, and other land programs into flood control. The key amendment was a substitute for Section 1, the major policy statement, in the Copeland bill. The amendment contained the following passage:

... that the flood problem of any area should be handled in the relationship to any associated problems in the use of land and water, not as an isolated problem; that investigation looking to the prevention or control of floods and to corollary benefits from the conservation of land and water resources constitute a proper activity of the federal government; and that such investigations should involve the joint activities of all federal agencies concerned with the various types of problems in question, in cooperation with appropriate

state and local agencies.⁵⁹

All the chief land and soil conservation people who opposed the Copeland bill were not agreed that a series of amendments to the bill was really necessary or feasible. Hugh Bennett, head of the Soil Conservation Service, told Eliot and the others drafting the amendments that another way of approaching the problem was “to let the Copeland bill go,” hoping it would be killed or vetoed, and to push for a concurrent resolution of the two houses to appropriate \$5 million for a large interdepartmental flood study to resolve the whole issue of water and land program coordination.⁶⁰



Hugh Bennett, Director, Soil Conservation Service, 1935-1951.

The whole packet of memos from Delano, Eliot, and the WRC, along with the amendments and Hugh Bennett’s joint resolutions, was sent to the White House by Ickes on 30 April. The next day, Roosevelt notified Senate Majority Leader Robinson that he found the Copeland bill to be “thoroughly unsound” and supported his view with long passages from the WRC communication. He suggested to Robinson that the bill not be allowed to go through and in its place Congress should pass a joint resolution to undertake a \$5 million interdepartmental study of the whole flood control subject and have the report back to him by January 1937. He made no mention of the NRC and its efforts to gain congressional recognition.⁶¹

Roosevelt’s letter had no major effect on the Senate. Robinson introduced no resolution to recommit or table the bill. On the other hand, when news of the letter reached upstate New York, people there reacted quickly. The mayor of Binghamton sent a telegram telling the President “our people fully expect, based on communications from you and from our senators and congressmen, that the federal program of flood control will be passed at this congress. Another flood would be disastrous to our business and industrial structures and to a large

number of home owners.”⁶² Roosevelt told reporters on 5 May that he was not in favor of the bill in its original form, but did not know what form it was in at present. He understood that some amendments were to be made and said that Senator Hayden had seen him that day with some amendments. The President commented no further on the bill.⁶³ Hayden, it appears, had met with members of the Department of Agriculture and possibly also Morris Cooke. The result of this meeting was an amendment, dated 1 May 1936, that added the soil conservation work of the department to the bill and expanded the statement of policy in Section 1 to include soil erosion control along with flood control as the goal of the bill. An earlier version of the amendment had included reforestation and made the Forest Service a third agency involved in flood control; however, this was dropped from the printed amendment that Hayden sent to the White House on 1 May.

Hayden’s accompanying letter, written to FDR’s assistant, Marvin M. McIntyre, states that the amendments should bring the bill into conformity “with the President’s message on Little Waters.”⁶⁴ This passing reference may offer a partial key to Roosevelt’s increasingly positive attitude toward the Copeland bill. *Little Waters* was a short polemic written by H.S. Person, E. Johnston Coil, and Robert T. Beall in the fall of 1935. It emphasized the values of controlling runoff in small headwater streams as a supplement or alternative to large dams for flood control, hydroelectric power development, navigation, and irrigation. Ickes sent a copy to the President on 19 December 1935, but it does not appear that FDR gave it any attention at this time.⁶⁵ Hugh Bennett and Morris Cooke were particularly struck with the implications of the report, and Cooke sent another copy to Roosevelt on 22 January along with an enthusiastic endorsement. The President now read the report, was delighted with it, and asked Cooke for additional copies “for personal distribution.” Always on the lookout for ways to expand federal hydroelectric power production, Cooke began to lobby for the ideas embodied in *Little Waters*, coining his own term for the program—“upstream engineering.” FDR immediately liked the term and said he would try to use it in some speeches. The Water Resources Committee was quite skeptical of many of the ideas in *Little Waters* but Cooke was convinced of its soundness and wrote to Roosevelt on 5 May 1936 to keep upstream engineering

in mind “as you scrutinize legislation,” assuring the President that it would not only win “half the battle” against flood control, but would also “stabilize the flow for a hydroelectric power plant downstream.” The following day Cooke again sent a note to FDR saying he had just heard that an interagency agreement had been reached on the flood control bill. “In the opportunity it affords Agriculture (Soil Erosion and Forestry) to experiment ‘upstream’ it looks like a considerable step forward.” He added that “Senator Norris thinks it is okay.”⁶⁶

By 12 May the President appeared to be on the verge of endorsing the Copeland bill. When asked if he expected a flood control bill at that session, he said, “I suppose there will be some kind of flood legislation. I do not know what kind.” He added, “Of course I believe we should have some flood legislation and, especially, to start work this coming year on the most urgent cases,” but he also reiterated his support for comprehensive basin development.⁶⁷ The *New York Times* ran the remarks under the headline “President Favors Flood Legislation.”⁶⁸

Even more significant was Senator Robinson’s statement that flood control legislation was one of the “must” bills for the remaining days of the session.⁶⁹ Obviously, Robinson ignored Roosevelt’s suggestion of 1 May about waiting for another study. Furthermore, there is no record that the President ever again communicated his original suggestion, which may indicate that the addition of upstream engineering by the Soil Conservation Service may have changed his mind. When the flood bill came up for full debate on 20 May, Copeland added the Hayden amendment to it which gave the Department of Agriculture (actually the Soil Conservation Service) the right to plan projects for watershed flood control in upstream areas.⁷⁰ Another amendment, also introduced by Copeland, was probably part of a compromise with the White House. It sought to establish the National Resources Committee as an official advisor to the President on all river basin and watershed matters as well as other areas related to natural resources. This amendment was to be taken up, however, only after the rest of the bill had been voted upon -- a clear indication that Copeland expected it to lose and did not want it to jeopardize the main bill.⁷¹

The Senate debate, while lengthy, was anticlimactic. Opponents of the bill, who had been swayed by Senator Tydings the year before, were not very vocal, and Tydings himself took no

part in the debate. The chief controversy centered around the attempts of a group of senators from the lower Mississippi Valley (plus Pennsylvania's two senators) to delete the section that required local interests to pay for land and damages. There was considerable public support for this position. As debate on the bill opened, more than 500 people from 22 states, calling themselves the United States Flood Control Association, arrived in Washington wearing badges saying "Flood Control Now" and doing everything they could to promote the Copeland bill. The federation had an effective leader in Tom R. Hutton, who was editor of the *Binghamton Press*. Many members of the federation favored 100 percent federal financing of flood control projects—particularly those from the Northeast, where costs for land and damages would be high compared to other parts of the nation. Copeland told the federation, though, that eliminating local contributions might kill the bill. "We must get a bill signed as well as passed."⁷²

The first attempt to eliminate the land and damages payments came in an amendment by Senator Theodore G. Bilbo (D-Mississippi), which was strongly supported by Senator Guffey. Guffey believed that the excessive costs to Pennsylvania would prevent any effort to construct the series of reservoirs to protect Pittsburgh. However, when the vote came, the Bilbo amendment lost 55 to 15. Guffey tried next to eliminate local payment of damages because, again, in Pennsylvania costs would be high due to the numerous railroad tracks that would need to be moved. This amendment was defeated 52 to 11.⁷³

Attempts to load up the bill with projects that had not been recommended by the Chief of Engineers were also defeated easily. One reason was that the majority of new projects in the bill were for the populous Northeast and the majority of those eliminated were large reservoirs chiefly for the Arkansas and White river basins, an area which did not have enough senators to form a significant bloc. Senator Robinson as majority leader was the most powerful senator from this area, but he was satisfied with assurances from Copeland that the studies authorized in Section 6 of the bill would ultimately result in the authorization of the reservoir projects.⁷⁴ Therefore, the bill moved along without a major problem. On 21 May, it passed by a voice vote.⁷⁵ Only after the bill had passed did Copeland attempt to add the National Resources Committee to the act (as Title II).

He spoke at some length on the virtues of comprehensive planning, but when it became clear, as he undoubtedly thought it would, that the proposal had no real support, he withdrew it.⁷⁶

The bill then went back to the House. There it received some rough treatment from congressmen in Missouri, Oklahoma, Arkansas, and Louisiana, where flood control reservoirs offering primarily water power benefits had been eliminated. But basically there was little opposition. On the final vote the House endorsed Copeland's revised H.R. 8455 by a vote of 297 to 51.⁷⁷ It was engrossed and sent to the President on 15 June.⁷⁸

By this time all the available information indicates that Roosevelt had decided to sign the bill. In fact, it appears that the decision may have been made in late May just after it passed the Senate. Three pieces of evidence lead to this conclusion. The first is an exchange of letters between FDR and New York's Governor Lehman. Lehman had written the President on 8 May urging him once again to press Congress for passage of the bill. FDR did not reply until the twenty-third, two days after the Senate passed the amended bill. He apologized to Lehman for the delay in his response, explaining that he had been "waiting a bit on developments on the Hill with respect to the flood control measure." Now he could reply to the governor that he was "very hopeful that adequate steps will be taken before the Congress adjourns."⁷⁹

Second, on 27 May the White House approved a request from General Markham to increase the number of Army officers in the Corps of Engineers in order to administer the expanded rivers and harbors work, as well as to plan the vast program contemplated in the Copeland flood control bill.⁸⁰ It seems doubtful that this expansion would have been approved by the President if he had planned to veto the bill.

Third, and most telling, Roosevelt sent a note to Budget Director Daniel W. Bell on 2 June. FDR attached a memo he had received from Morris L. Cooke expressing fears that the final version of the Copeland bill (which had to go back to the House and was at this time under debate there) might leave out the soil conservation amendments and endanger the future of *Little Waters*. The President asked Bell to "do the best you can" to assure that soil conservation remained in the bill.⁸¹

As soon as the President received the engrossed bill from Congress, he asked White House Staff Director Rudolph Foster

to find out the last day he could sign the flood control bill in order to get funds for it into the final deficiency bill for emergency relief expenditures. Budget Director Bell told him it was 24 June, and FDR told Foster to have all the flood control papers ready on the twenty-second. In addition, he wanted to meet with Markham, Henry Wallace, Cooke, Hugh Bennett, Frederic Delano, and Abel Wolman to discuss which projects to undertake.⁸²

If the President had any remaining thoughts of vetoing the bill, he may have been persuaded otherwise by a well-organized barrage of telegrams from the city councils, chambers of commerce, and citizens of almost every flood-stricken region of upstate New York.⁸³ Such last-minute pressure was probably unnecessary. Congress had declared itself ready to take action on flood control, and it made little political sense to deny the decision. The bill had passed by overwhelming majorities in both houses -far more than the two-thirds that would have been required to pass it over a veto. For the President to have vetoed a measure so earnestly desired by both flood victims and the unemployed on the eve of a national presidential election would have been very out of character for FDR.

On 22 June the President signed H.R. 8455 without any public ceremony. Two days later he received a letter from the Flood Control Committee of the Binghamton Chamber of Commerce congratulating him on signing the bill. "With one stroke of your pen, you have eased the minds of thousands of farmers, industrialists and home owners."⁸⁴ A national program of flood control had become, finally, the official policy of the federal government.

CHAPTER VI

Conclusion

The Flood Control Act of 1936 established an enormous commitment by the federal government to protect people and property on approximately 100 million acres. The only limitations on federal flood control projects were that the economic benefits had to exceed the costs, and local interests had to meet the ABC requirements for local projects. Since 1936, Congress has authorized the Corps of Engineers to construct hundreds of miles of levees, flood walls, and channel improvements and approximately 375 major reservoirs. These remarkable engineering projects today comprise one of the largest single additions to the nation's physical plant -rivalled only by the highway system. They have saved billions of dollars in property damage and protected hundreds of thousands of people from anxiety, injury, and death. They stand today as one of the more significant marks of our technical skill and humane spirit.

It was that faith in technology and intensity of humanitarian spirit, exhibited especially during the catastrophic floods of 1936, that explains congressional willingness to adopt such sweeping legislation without examining its implications more thoroughly. Hundreds of determined citizens came to Washington in the spring of 1936 demanding "Flood Control Now." Congress and the President gave them what they wanted, hoping that in the future all the intertwined elements of America's river basins could be tied together in some acceptable fashion. President Roosevelt thought this could be accomplished in a year or two through the National Resources Committee. But in Congress the rivers-harbors flood control bloc, as it came to be called, hesitated to turn such politically sensitive questions over to a new and relatively unknown agency steadfastly linked to the President and distant from the legislative branch. The NRC's recommendation that Roosevelt veto the Wilson-Copeland flood control bill was certainly justified on administrative and technological grounds, but it was poor political advice. Frederic A. Delano and



One result of the 1936 Flood Control Act: a concrete flood control channel to help prevent the Los Angeles River from flooding metropolitan Los Angeles. The city hall is in the background at the left. This picture was taken in 1941.

Charles E. Merriam were men of vision and intelligence who should have accepted the fact that pork barrel legislation was a factor in the American democratic political process — especially in a presidential election year. President Roosevelt's public statements about using the NRC to scrutinize the pork barrel projects on rivers, harbors, and (after 1936) flood control legislation only stiffened congressional resistance to the agency. By the end of the 1930s, even the Republicans had abandoned the NRC, seeing it more as an example of presidential authority than as a deterrent to irresponsible spending. Its elimination by Congress in 1943 was part of a general reaction against the whole concept of centralized federal planning in which the rivers-harbors-flood control bloc was only one factor.¹

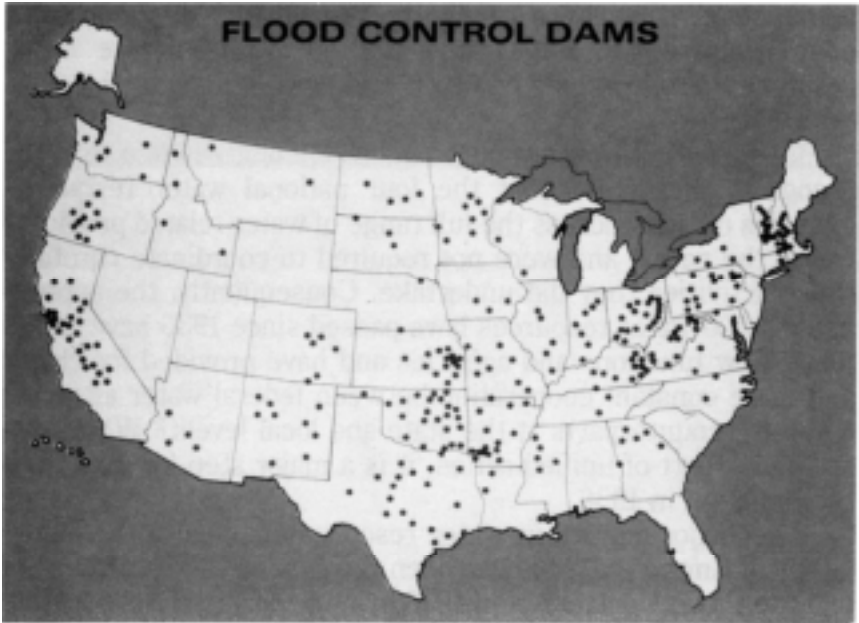
The long struggle between Roosevelt and Congress over the National Resources Committee had very unfortunate consequences for the development of the nation's water resources. It left this complex task in the hands of four independent federal agencies: the Corps of Engineers, the Federal Power Commission, the Reclamation Bureau, and the Soil Conservation Service. For two decades or more, there was relatively little coordination between these agencies except for establishing

administrative boundaries. Only the Tennessee Valley Authority could claim it was engaged in unified multi-purpose water resources development; however, this was limited to the Tennessee River basin.

Fortunately, an increasing number of congressmen came to recognize after 1936 that the four national water resources agencies did not address the full range of water-related problems facing the nation and were not required to coordinate carefully those activities they did undertake. Consequently, the approximately 100 water resources laws passed since 1936 have added many new functions and agencies and have provided for closer and more constant cooperation between federal water agencies and their counterparts at the state and local levels.² While this still falls short of unified action, it is a major step forward from the situation in 1936.

The major agency in water resources is clearly the Army Corps of Engineers. This had been the case in the 19th century, and the Flood Control Act of 1936 assured that its role would be greatly enlarged during the balance of the 20th century. The 1936 Flood Control Act was also an important turning point in the scope of the Corps' water resources activities. From 1824 to 1936 the civil works program of the Corps consisted almost exclusively of navigation improvements. Even the vast lower Mississippi program of the 1879-1936 era contained a large navigation component. In the years after 1936, however, the Corps steadily widened its array of water resources activities. Much of this has resulted from legislation that has modified and enlarged the huge program of flood control reservoir construction. For example, one consequence of the 1936 Flood Control Act, which removed the ABC requirements from reservoirs, was that the federal government remained the operator as well as builder of flood control dams. While this was a welcome relief to local interests faced with financing, operation, and maintenance under the 1936 Flood Control Act, it also purposely allowed the federal government to develop hydroelectric power at reservoir sites. The Flood Control Act of 1944 provided for the establishment of park and recreation areas at Corps reservoirs and authorized the sale of "surplus" water for domestic and industrial use. Two years later, fish and wildlife protection in connection with flood control projects was authorized.

Water resources program coordination between the Corps of



Subsequent to passage of the 1936 Flood Control Act, hundreds of flood control dams were built throughout the United States.

Engineers and other relevant federal, state, and local governments has slowly evolved. Beginning with the Flood Control Act of 1944, coordination and consultation between the Corps and other federal agencies and affected states and localities have been mandated for the development and planning of projects. However, the final decision making still rests with Congress. The Water Resources Council (WRC), authorized in the Water Resources Planning Act of 1965, was as close as Congress ever came to creating the type of water resources coordination agency envisioned by the National Resources Committee, but the powers and activities of the WRC were far more modest than the old NRC or Franklin Roosevelt would have wished.³ President Reagan transferred the council's activities and personnel to other parts of the Executive Branch in 1982. In today's Corps of Engineers, water resources planning and coordination proceeds under the authority of approximately 100 pieces of federal legislation, 22 executive orders, over 50 interagency agreements, and more than 60 Office of Management and Budget circulars.⁴ Such a jerry-built legislative and administrative structure is a clear improvement over the previous tradition of uncoordinated action,

but it still falls short of a fully integrated water resources administrative framework.

Within the broad area of water resources development, the Corps' flood control program has changed dramatically over the past 50 years. A significant manifestation of this is the changing definition of the term "flood control" as contemplated in the 1936 act. This term has been enlarged to encompass the concepts of "flood damage reduction" and "optimum flood plain management." This conceptual change has been accompanied by a 'noticeable shift away from the almost exclusive use of large, expensive, and environmentally intrusive physical structures toward smaller ones and/or a wide range of nonstructural programs such as flood warning systems, flood insurance, flood plain information programs, and procedures to discourage new building development on flood plains. Neither Congress nor the Corps paid much attention to these alternative approaches until the 1950s and 1960s, when the TVA undertook a very successful flood plain management program, and the reports of water resources experts such as Gilbert White (who had begun his career in the 1930s with the National Resources Committee) gradually convinced Congress and the Corps that this was an important alternative to traditional structural solutions.⁵

It is unfortunate that the research on floods and flood control carried out mainly since World War II by both government and academic investigators was not available in 1936. If so, millions of taxpayers' dollars might have been more effectively spent. On the other hand, it is not at all certain that Congress, in its haste to respond to an emergency, would have listened carefully to the full range of expert testimony even then available or that the exigencies of the pork barrel legislative process would have been overcome by rational inquiry. As a result, the flood control act that emerged in 1936 largely ignored multipurpose development and nonstructural alternatives. It sought to solve flood problems through vast construction projects that have in a number of cases been questioned by water resources experts. Nevertheless, the decisive step toward a remarkably sophisticated and imaginative flood plain management program was taken with the Flood Control Act of 1936, though few who supported it could possibly have foreseen where it would eventually lead. It speaks well of our political process that this emergency-born and single-minded flood control act has been gradually merged with rivers and

harbors legislation to form the basis of a very successful multi-purpose water resources program. In terms of flood control alone, the present system provides a far more rational and equitable way of designing projects than the act provided in 1936. The fact that it took almost half a century to achieve is part of the price we pay for a free democratic society. On balance, it seems a price well worth paying.

Appendix A

EXCERPTS From THE FLOOD CONTROL ACT OF 1936

The following excerpts are taken from *Laws of the United States Relating To the Improvement of Riveys and Harbors From August 11, 1790 To January 2, 1939*, 3 vols. (Washington, DC: Government Printing Office, 1940), 3:2404-07, and 2438-39. The only excerpted portions of Sections 1-4 are those dealing with the establishment of policy, and Sections 8 and 9 are copied in their entirety. The first paragraph of Section 5 is reproduced because it authorizes the Secretary of War to approve the installation of penstocks "or other similar facilities" to allow for future possible hydroelectric power generation. The parts of the act authorizing specific projects and studies are omitted.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

DECLARATION OF POLICY

SECTION 1. It is hereby recognized that destructive floods upon the rivers of the United States, upsetting orderly processes and causing loss of life and property, including the erosion of lands, and impairing and obstructing navigation, highways, railroads, and other channels of commerce between the States, constitute a menace to national welfare; that it is the sense of Congress that flood control on navigable waters or their tributaries is a proper activity of the Federal Government in cooperation with States, their political subdivisions, and localities thereof; that investigations and improvements of rivers and other waterways, including watersheds thereof, for flood-control purposes are in the interest of the general welfare; that the Federal Government should improve or participate in the improvement of navigable waters or their tributaries, including watersheds thereof, for flood-control purposes if the benefits to whomsoever they may accrue are in excess of the estimated costs, and if the lives and social security of people are otherwise adversely affected.

SEC. 2. That, hereafter, Federal investigations and improvements of rivers and other waterways for flood control and allied purposes shall be under the jurisdiction of and shall be prosecuted by the War Department under the

direction of the Secretary of War and supervision of the Chief of Engineers, and Federal investigations of watersheds and measures for run-off and waterflow retardation and soil erosion prevention on watersheds shall be under the jurisdiction of and shall be prosecuted by the Department of Agriculture under the direction of the Secretary of Agriculture, except as otherwise provided by Act of Congress; and that in their reports upon examinations and surveys, the Secretary of War and the Secretary of Agriculture shall be guided as to flood-control measures by the principles set forth in Section 1 in the determination of the Federal interests involved: *Provided*, That the foregoing grants of authority shall not interfere with investigations and river improvements incident to reclamation projects that may now be in progress or may be hereafter undertaken by the Bureau of Reclamation of the Interior Department pursuant to any general or specific authorization of law.

SEC. 3. That hereafter no money appropriated under authority of this Act shall be expended on the construction of any project until States, political subdivisions thereof, or other responsible local agencies have given assurances satisfactory to the Secretary of War that they will (a) provide without cost to the United States all lands, easements, and rights-of-way necessary for the construction of the project, except as otherwise provided herein; (b) hold and save the United States free from damages due to the construction works; (c) maintain and operate all the works after completion in accordance with regulations prescribed by the Secretary of War: *Provided*, That the construction of any dam authorized herein may be undertaken without delay when the dam site has been acquired and the assurances prescribed herein have been furnished without awaiting the acquisition of the easements and rights-of-way required for the reservoir area: *And provided further*, That whenever expenditures for lands, easements, and rights-of-way by States, political subdivisions thereof, or responsible local agencies for any individual project or useful part thereof shall have exceeded the present estimated construction cost therefor, the local agency concerned may be reimbursed one-half of its excess expenditures over said estimated construction cost: *And provided further*, That when benefits of any project or useful part thereof accrue to lands and property outside of the State in which said project or part thereof is located, the Secretary of War with the consent of the State wherein the same are located may acquire the necessary lands, easements, and rights-of-way for said project or part thereof after he has received from the States, political subdivisions thereof, or responsible local agencies benefited the present estimated cost of said lands, easements, and rights-of-way, less one-half the amount by which the estimated cost of these lands, easements, and rights-of-way exceeds the estimated construction cost corresponding thereto: *And provided further*, That the Secretary of War shall determine the proportion of the present estimated cost of said lands, easements, and rights-of-way that each State, political subdivision thereof, or responsible local agency should contribute in consideration for the benefits to

be received by such agencies: *And provided further*, That whenever not less than 75 per centum of the benefits as estimated by the Secretary of War of any project or useful part thereof accrue to lands and property outside the State in which said project or part thereof is located provision (c) of this section shall not apply thereto; nothing herein shall impair or abridge the powers now existing in the Department of War with respect to navigable streams: *And provided further*, That nothing herein shall be construed to interfere with the completion of any reservoir or flood control work authorized by the Congress and now under way.

SEC. 4. The consent of Congress is hereby given to any two or more States to enter into compacts or agreements in connection with any project or operation authorized by this Act for flood control or the prevention of damage to life or property by reason of floods upon any stream or streams and their tributaries which lie in two or more such States, for the purpose of providing, in such manner and such proportion as may be agreed upon by such States and approved by the Secretary of War, funds for construction and maintenance, for the payment of damages, and for the purchase of rights-of-way, lands, and easements in connection with such project or operation. No such compact or agreement shall become effective without the further consent or ratification of Congress, except a compact or agreement which provides that all money to be expended pursuant thereto and all work to be performed thereunder shall be expended and performed by the Department of War, with the exception of such reasonable sums as may be reserved by the States entering into the compact or agreement for the purpose of collecting taxes and maintaining the necessary State organizations for carrying out the compact or agreement.

FLOOD CONTROL ACT OF 1936

SEC. 5. That pursuant to the policy outlined in Sections 1 and 3, the following works of improvement, for the benefit of navigation and the control of destructive flood waters and other purposes, are hereby adopted and authorized to be prosecuted, in order of their emergency as may be designated by the President, under the direction of the Secretary of War and supervision of the Chief of Engineers in accordance with the plans in the respective reports and records hereinafter designated: *Provided*, That penstocks or other similar facilities, adapted to possible future use in the development of adequate electric power may be installed in any dam herein authorized when approved by the Secretary of War upon the recommendation of the Chief of Engineers

SEC. 8. Nothing in this Act shall be construed as repealing or amending any provision of the Act entitled "An Act for the control of floods on the Mississippi River and its tributaries, and for other purposes," approved May 15, 1928, or any provision of any law amendatory thereof. The authority conferred by this Act and any funds appropriated pursuant thereto for

100 THE EVOLUTION OF THE 1936 FLOOD CONTROL ACT

expenditure are supplemental to all other authority and appropriations relating to the departments or agencies concerned, and nothing in this Act shall be construed to limit or retard any department or agency in carrying out similar and related activities heretofore or hereafter authorized, or to limit the exercise of powers conferred on any department or agency by other provisions of law* carrying out similar and related activities.

SEC. 9. The sum of \$310,000,000 is authorized to be appropriated for carrying out the improvements herein and the sum of \$10,000,000 is authorized to be appropriated and expended in equal amounts by the Departments of War and Agriculture for carrying out any examinations and surveys provided for in the Act and other Acts of Congress*Provided*, That not more than \$50,000,000 of such sum shall be expended during the fiscal year ending June 30, 1937: *Provided further*, That for the relief of unemployment, in addition to the regular appropriation, persons may be employed on such works of improvement and the compensation of said persons when so employed shall be paid from the funds available to the Works Progress Administration for the continuance of relief and work relief on useful projects.

*So in original.

Notes

Author's Note

1. Flood Control Act of 1936, 22 June 1936, in *U.S. Statutes at Large*, vol. 49, p. 1570 (hereafter cited as 49 Stat. 1570).

2. Robert de Roos and Arthur A. Maass, "The Lobby That Can't Be Licked," *Harpers* 199 (August 1949): 23; William E. Leuchtenburg, *Flood Control Politics: The Connecticut River Valley Problem, 1927-1950* (Cambridge: Harvard University Press, 1953), pp. 96-105.

Chapter I

1. The *Gibbons v. Ogden* case and the whole issue of internal improvements are discussed in George Dangerfield, *The Awakening of American Nationalism, 1815-1828* (New York: Harper & Row, 1965), pp. 6-7, 16-20, 196-200. The role of the Corps of Engineers in these activities is described in W. Stull Holt, *Office of the Chief of Engineers of the Army: Its Non-Military History, Activities, and Organization* (Baltimore: Johns Hopkins University Press, 1923); and Edward L. Pross, "A History of Rivers and Harbors Appropriations Bills, 1866-1933," Ph.D. dissertation, Ohio State University, 1938.

2. See the statement of Royal Copeland in U.S., Congress, *Congressional Record* (hereafter cited as *Cong. Rec.*), 74th Cong., 2d sess., 28 April 1936, p. 6290.

3. Frank J. Trelease, "Water Law," in Ven T. Chow, ed., *Handbook of Applied Hydrology: A Compendium of Water-Resources Technology* (New York: McGraw-Hill Book Co., 1983), sect. 27, p. 22.

4. The most extensive discussion of these acts is found in Robert W. Harrison, *Alluvial Empire: A Study of State and Local Efforts Toward Land Development in the Alluvial Valley of the Lower Mississippi River* (Little Rock, AR: Delta Fund in cooperation with Economic Research Service of U.S. Department of Agriculture, distributed by Pioneer Press, 1961), pp. 67-70.

5. *Ibid.*, p. 59; Richard K. Cralle, ed., *Reports and Public Letters of John C. Calhoun* (New York: Russell & Russell, 1968 [1856]), pp. 273-283; Clyde N. Wilson, ed., *The Papers of John C. Calhoun*, 18 vols. (Columbia, SC: University of South Carolina Press and South Carolina Department of Archives and History, 1983), 15: 444.

6. Martin Reuss, "Andrew A. Humphreys and the Development of Hydraulic Engineering: Politics and Technology in the Army Corps of Engineers, 1850-1950," *Technology and Culture* 26 (January 1985): 1-33.

7. William G. Hoyt and Walter B. Langbein, *Floods* (Princeton, NJ: Princeton University Press, 1955), pp. 228-230; Pittsburgh Flood Control Commission, *Report of the Flood Control Commission of Pittsburgh, Pennsylvania* (hereafter cited as *Report*) (Pittsburgh: The Commission, 1912), pp. 6-15.

8. Arthur D. Frank, *The Development of the Federal Program of Flood Control on the Mississippi River* (hereafter cited as *Flood Control on the Mississippi*) (New York: Columbia University Press, 1930), pp. 45-74.

9. *Ibid.*, pp. 28-44.

10. *Ibid.*, pp. 140-141, 143.

11. *Ibid.*, p. 143.

12. U.S., Congress, *Cong. Rec.*, 64th Cong., 1st sess., 10 May 1916, p. 7764.

13. *Ibid.*, p. 7768.

14. Frank, *Flood Control on the Mississippi*, pp. 147-153; Harrison, *Alluvial Empire*, pp. 129-131.

Chapter II

1. Pittsburgh Flood Control Commission, *Report*, pp. 11-13; Maurice Knowles, "Flood: Pittsburgh's Problem and Its National Significance," *The Survey* 27 (3 February 1912): 1699-1705.

2. Hoyt and Langbein, *Floods*, pp. 359-360; Leland R. Johnson, *The Headwaters District: A History of the Pittsburgh District, U.S. Army Corps of Engineers* (Pittsburgh: U.S. Army Engineer District, 1979), pp. 187-196.

3. Samuel P. Hays, *Conservation and the Gospel of Efficiency: The Progressive Conservation Movement, 1890-1920* (Cambridge: Harvard University Press, 1959), pp. 91-121.

4. *Ibid.*, pp. 105-108.

5. *Ibid.*, pp. 109-114, 203-205.

6. U.S., Congress, *Cong. Rec.*, 64th Cong., 1st sess., 3 February 1916, pp. 2068-90.

7. *Ibid.*, p. 2073.

8. *Ibid.*, p. 2090.

9. *Ibid.*, 10 May 1916, p. 7779.

10. Congress regarded the Sacramento River problem as another special case, and in 1893 the California Debris Commission was created to provide federal aid. See Joseph L. Hagwood, *The California Debris Commission* (Washington, DC: U.S. Army Corps of Engineers, 1981), pp. 28-30.

11. Martin Reuss and Paul K. Walker, *Financing Water Resources Development: A Brief History* (Washington, DC: U.S. Army Corps of Engineers, 1983), pp. 14-15; Hays, *Conservation and the Gospel of Efficiency*, pp. 92-94.

12. U.S., *An Act to Provide for the Control of the Floods of the Mississippi River and of the Sacramento River, California, and for Other Purposes*, 39 Stat. 948, 1 March 1917; Harrison, *Alluvial Empire*, pp. 132-133.

13. U.S., *An Act to Provide for the Control of Floods on the Mississippi River*, 39 Stat. 950.

14. Donald B. Johnson and Kirk H. Porter, eds., *National Party Platforms, 1840-1972* (Urbana: University of Illinois Press, 1973), pp. 149, 160, 171, 181, 186, 200.

15. Hays, *Conservation and the Gospel of Efficiency*, pp. 81, 239-240; Beatrice H. Holmes, *A History of Federal Water Resources Programs, 1800-1960*, Miscellaneous Pubs no. 1233 (Washington, DC: U.S. Department of Agriculture Economic Research Service, June 1972), pp. 8-9, 11.

16. U.S., Congress, *Cong. Rec.*, 68th Cong., 2d sess., 27 February 1925, pp. 4803-09.

17. U.S., Congress, House, *Estimate of Cost of Examinations, Etc., of Streams Where Water Power Appears Feasible*, House Doc. 308, 69th Cong., 1st sess., 1926, pp. 3-4. The report was authorized by Section 3 of the Rivers and Harbors Act of 3 March 1925, 43 *Stat.* 1186.

18. U.S., Army, Corps of Engineers, *Annual Report of the Chief of Engineers, Fiscal Year 1927* (Washington, DC: Government Printing Office, 1927), part 1, p. 6.

19. Leuchtenburg, *Flood Control Politics*, p. 31.

20. U.S., Army, Corps of Engineers, *Annual Report of the Chief of Engineers, Fiscal Year 1929* (Washington, DC: Government Printing Office, 1929), part 1, p. 1885.

21. Major F.S. Besson, "Maximum Flood Control Prediction," *The Military Engineer* 25 (September-October 1933): 423-426.

22. U.S., Congress, House, *Tennessee River and Tributaries, North Carolina, Tennessee, Alabama, and Kentucky*, House Doc. 328, 71st Cong., 2d sess., 1930; Preston J. Hubbard, *Origins of the TVA: The Muscle Shoals Controversy, 1920-1932* (Nashville: Vanderbilt University Press, 1961), pp. 173-174, 251-252, 275-276, 291-295; Herman Pritchett, *The Tennessee Valley Authority* (Chapel Hill: University of North Carolina Press, 1943), pp. 11-29.

23. Frank, *Flood Control on the Mississippi*, p. 192.

24. Pete Daniel, *Deep'n as It Come: The 1927 Mississippi River Flood* (New York: Oxford University Press, 1977); American Red Cross, *The Mississippi Valley Flood Disaster of 1927* (Washington, DC: American Red Cross, 1928), pp. 1-21; Frederic A. Delano, "The Report of the Committee on Mississippi Flood Control Appointed by the United States Chamber of Commerce," *Annals of the American Academy of Political and Social Science* 135 (January 1928): 25-33.

25. Leuchtenburg, *Flood Control Politics*, pp. 27-29; Hoyt and Langbein, *Floods*, pp. 327-373.

26. *New York Times*, 7 November 1927, p. 1.

27. *Baltimore Sun*, 7 November 1927.

28. Leuchtenburg, *Flood Control Politics*, pp. 30-32.

29. Section 2, Flood Control Protection Act of 1928, 15 May 1928, 45 *Stat.* 534; Frank, *Flood Control on the Mississippi*, pp. 206-243.

30. Johnson and Porter, *National Party Platforms*, pp. 274-275, 287.

31. Frank, *Flood Control on the Mississippi*, pp. 180-181.

32. Herbert Hoover, *The Memoirs of Herbert Hoover: The Cabinet and the*

Presidency, 1920-1933 (New York: Macmillan, 1952), pp. 226-234; Edgar E. Robinson and Vaughn D. Bornet, *Herbert Hoover: President of the United States* (Stanford, CA: Hoover Institution Press, 1975), pp. 59-63; Richard Lowitt, *George W. Norris: The Persistence of a Progressive* (Urbana: University of Illinois Press, 1971), p. 458.

Chapter III

1. William E. Leuchtenburg, *Franklin D. Roosevelt and the New Deal* (New York: Harper & Row, 1963), pp. 11-12, 164-165, 339-340; James M. Burns, *Roosevelt: The Lion and the Fox* (New York: Harcourt, Brace and World, 1956), pp. 142-143, 171-185, 242-246.

2. The two best works on Roosevelt's attitudes toward natural resources and conservation are A.L. Riesch Owen, *Conservation Under FDR* (New York: Praeger Publishers, 1983); and Edgar B. Nixon, ed., *Franklin D. Roosevelt and Conservation*, 2 vols. (Hyde Park, NY: Franklin D. Roosevelt Library, 1957).

3. Owen, *Conservation Under FDR*, pp. 5-12, 15-16, 106-112, 128-135.

4. Franklin D. Roosevelt, *Looking Forward* (New York: John Day Co., 1933), p. 64.

5. Reforestation projects could be started quickly and were thus better suited to the temporary nature of the New Deal's early work relief program.

6. Franklin D. Roosevelt, *The Complete Presidential Press Conferences of Franklin D. Roosevelt* (hereafter cited as *Presidential Press Conferences*), 16 vols. (New York: DeCapo Press, 1972).

7. Nixon, *FDR and Conservation*, 1: 32-33.

8. Frank Freidel, *Franklin D. Roosevelt: The Ordeal* (Boston: Little, Brown & Co., 1953), pp. 225-226.

9. Nixon, *FDR and Conservation*, 2: 132-133; Lowitt, *George W. Norris*, pp. 567-568.

10. Samuel Rosenman, ed., *The Public Papers and Addresses of Franklin D. Roosevelt*, 13 vols. (New York: Random House, 1938-1945), 2: 80, 122, 297.

11. In 1933, 1934, and 1935 the federal government spent \$111.3 million on flood control and \$39.0 million on the TVA, compared to \$261.2 million on rivers and harbors navigation. The Departments of Interior and Agriculture spent \$192.9 million on conservation programs during this same three-year period, and \$1.1 billion was spent on roads and highways. Figures from Owen, *Conservation Under FDR*, tables B-1a, B-1b, and B-3, pp. 242-247.

12. Marion Clawson, *New Deal Planning: The National Resources Planning Board* (Baltimore: Johns Hopkins University Press, 1981), pp. 42-43.

13. See, for example, the correspondence between the White House and the congressmen from the Wabash River basin in Indiana, in Official File (OF) 132, Franklin D. Roosevelt Papers, Franklin D. Roosevelt Library, Hyde Park, NY (hereafter cited as FDR Papers).

14. There is no book or scholarly article on Wilson. T. Harry Williams' discussion of him focuses only on the 1928 election. His obituary in the *New York Times* never mentioned the 1936 Flood Control Act, and the *New Orleans*

Times-Picayune said only that “he was an advocate of flood control and drainage measures.” T. Harry Williams, *Huey Long* (New York: Alfred A. Knopf, 1969), pp. 248-250, 275-278; *New York Times*, 25 February 1947, p. 25; *New Orleans Times-Picayune*, 24 February 1947.

15. Louis M. Howe to Honorable Riley J. Wilson, 23 May 1933, OF 132, FDR Papers.

16. Colonel Marvin McIntyre to President, 12 Dec. 1933, OF 132, FDR Papers.

17. Lowitt, *George W. Norris*, pp. 34-35, 190-216, 260-271, 396-397.

18. Tennessee Valley Authority Act of 1933, 18 May 1933, 48 *Stat.* 58.

19. U.S., Congress, *Cong. Rec.*, 73d Cong., 2d sess., 4 January 1934, p. 56; Richard Lowitt, *George W. Norris: The Triumph of a Progressive, 1933-1944* (Urbana: University of Illinois Press, 1978), pp. 44-45, 48-49.

20. Nixon, *FDR and Conservation*, 1: 238-239.

21. *Ibid.*, pp. 240-241.

22. Senator Clarence Dill to President Franklin D. Roosevelt, 29 Dec. 1933, OF 132, FDR Papers; Nixon, *FDR and Conservation*, 1: 234-235.

23. Rosenman, *Public Papers of FDR*, 3: 11.

24. Nixon, *FDR and Conservation*, 1: 237.

25. Franklin D. Roosevelt to Senator Clarence Dill, 9 Jan. 1934, in *ibid.*, p. 240.

26. H.M. Kannee to Colonel McIntyre, 26 Jan. 1934, OF 132, FDR Papers.

27. Roosevelt, *Presidential Press Conferences*, 3: 120.

28. U.S., Congress, *Cong. Rec.*, 73d Cong., 1st sess., 1 February 1934, p. 1737, and 2 Feb. 1934, p. 1854.

29. U.S., Congress, House, *Development of Rivers in the United States: Preliminary Report of the President's Committee on Water Flow*, House Doc. 395, 73d Cong., 2d sess., 1934.

30. *Ibid.*, p. 9.

31. *Ibid.*

32. *Ibid.*, pp. 10-13.

33. For a somewhat different and more critical perspective on Dern's letter, see Arthur Maass, *Muddy Waters: The Army Engineers and the Nation's Rivers* (Cambridge: Harvard University Press, 1951), pp. 72-74.

34. U.S., Congress, *Cong. Rec.*, 73d Cong., 1st sess., 13 April 1934, p. 6603.

35. *Ibid.*, 17 April 1934, p. 6741.

36. *Ibid.*, p. 6743.

37. *Ibid.*, p. 6747.

38. *Ibid.*, 11 May 1934, p. 8611.

39. *Ibid.*, p. 8612.

40. Roosevelt, *Presidential Press Conferences*, 3: 150-151.

41. *Ibid.*, p. 151.

42. *Ibid.*, pp. 151-152.

43. *Ibid.*, pp. 152-154.

44. Memo for the President, 16 Feb. 1934, subj.: Representative Henry T. Rainey, Speaker of the House, OF 132, FDR Papers.

45. Nixon, *FDR and Conservation*, 1: 286-287.
46. *Ibid.*, p. 287.
47. Maass, *Muddy Waters*, pp. 76-77; Nixon, *FDR and Conservation*, 1: 287n.
48. Memo for the President, 11 June 1934, OF 132, FDR Papers.

Chapter IV

1. Executive Order 6777, 30 June 1934, in Rosenman, *Public Papers of FDR*, 3: 335-336.
2. Jean Christie, *Morris Llewellyn Cooke: Progressive Engineer* (New York: Garland Publishing, 1983), pp. 141-180. On Cooke's plan for rural electrification, see Morris L. Cooke to Secretary Harold L. Ickes, 12 Dec. 1933, Ickes File, Box 263, Morris L. Cooke Papers, Franklin D. Roosevelt Library. Arthur M. Schlesinger, Jr., *The Age of Roosevelt: The Politics of Upheaval* (Boston: Houghton Mifflin Co., 1960), pp. 380-383; Clawson, *New Deal Planning*, p. 115; Interview, Martin Reuss with Gilbert F. White, University of Colorado, 25 June 1985, Oral History Archives, Office of History, U.S. Army Corps of Engineers, Fort Belvoir, VA (hereafter cited as White interview), p. 13.
3. U.S., Public Works Administration, *Report of the Mississippi Valley Committee of the Public Works Administration* (Washington, DC: Government Printing Office, 1934); Christie, *Morris Llewellyn Cooke*, pp. 145-160.
4. U.S., National Resources Committee, *Drainage Basin Problems and Programs* (Washington, DC: Government Printing Office, 1937).
5. U.S., National Resources Board, *A Report on National Planning and Public Works in Relation to Natural Resources and Including Land Use and Water Resources With Findings and Recommendations* (Washington, DC: Government Printing Office, 1934), pp. 2-5; Minutes of First Meeting of the Water Resources Committee, 24 July 1935, pp. 4-6, Records of the National Resources Planning Board, Frederic A. Delano Files, Box 3, Record Group (RG) 187, National Archives and Records Administration (NARA), Washington, DC.
6. Rosenman, *Public Papers of FDR*, 4: 61.
7. Leuchtenburg, *FDR and the New Deal*, pp. 124-125; Schlesinger, *The Politics of Upheaval*, pp. 343-351.
8. U.S., Congress, *Cong. Rec.*, 74th Cong., 1st sess., 22 August 1934, pp. 14086-87. The House action particularly galled the NRC's Charles W. Eliot, who said that only two Ways and Means Committee members voted for the NRC. He later received letters from six members, each one assuring him that they were one of the two supporters. Charles W. Eliot to Joseph P. Harris, 25 June 1936, Records of the National Resources Planning Board, Frederic A. Delano Files, Box 1, RG 187, NARA.
9. National Industrial Recovery Act of 1933, 48 *Stat.* 200, Title II, sect. 202.
10. Clawson, *New Deal Planning*, p. 6; Barry D. Karl, *Charles E. Merriam*

and the Study of Politics (Chicago: University of Chicago Press, 1971), pp. 241, 252-253.

11. White interview, pp. 19, 23.

12. U.S., Congress, House, *Report on H.R. 6803, Funds for the Prosecution of Works for Flood Control and Protection Against Flood Disasters*, House Doc. 486, 74th Cong., 1st sess., 1935, p. 1.

13. U.S., Congress, House, Committee on Flood Control, *Hearings Before the Committee on Flood Control on H.R. 6803: A Bill to Authorize Funds for the Prosecution of Works for Flood Control and Protection Against Flood Disasters, March 22 and 23, and April 2, 1935* (Washington, DC: Government Printing Office, 1935), p. 1.

14. The Corps report contained a map of the United States showing the location of all 1,600 projects, which so impressed Senator Huey Long (D-Louisiana) that he had it reprinted in the *Congressional Record*. See U.S., Congress, *Cong. Rec.*, 74th Cong., 1st sess., 4 April 1934, p. 5016.

15. U.S., Congress, House, Committee on Flood Control, *Hearings Before the Committee on Flood Control on H.R. 6803*, p. 27.

16. *Ibid.*, pp. 14-15. The priority group 1-3 figures add up to only \$602 million, but the figure used by Congressman West in the hearings was \$604 million.

17. *Ibid.*, pp. 16, 18.

18. *Ibid.*, p. 5.

19. *Ibid.*, pp. 5, 18.

20. *Ibid.*, p. 9.

21. *Ibid.*, pp. 19, 24.

22. U.S., Congress, House, *Report on H.R. 6803*, House Doc. 486, pp. 1-2.

23. Riley J. Wilson to Honorable Franklin D. Roosevelt, 15 Apr. 1935, OF 132, FDR Papers.

24. U.S., Congress, House, *H.R. 8455, A Bill Authorizing the Construction of Public Works on Rivers and Harbors for Flood Control and for Other Purposes*, 74th Cong., 1st sess., 1935, p. 2, sect. 2.

25. *Ibid.*

26. U.S., Congress, House, Committee on Flood Control, *Report on H.R. 8455, Construction of Certain Public Works on Rivers and Harbors for Flood Control*, House Doc. 1223, 74th Cong., 1st sess., 1935.

27. *Ibid.*, p. 2.

28. Franklin D. Roosevelt to Honorable Riley J. Wilson, Chairman, Committee on Flood Control, 16 June 1934, OF 132-A, FDR Papers.

29. U.S., Congress, House, Committee on Flood Control, *Hearings Before the Committee on Flood Control on H.R. 6803*, p. 21.

30. U.S., Congress, Senate, Committee on Commerce, *Report on S. 3531, To Amend the Flood Control Act of May 15, 1928*, S.R. 1662, 74th Cong., 2d sess., 1936, pp. 3-4.

31. Roosevelt, *Presidential Press Conferences*, 3: 150-151.

32. A complete list of the projects appears in U.S., Congress, *Cong. Rec.*, 22 August 1935, pp. 14181-86.

33. Under Executive Order 7065 (7 June 1935), the National Resources Board was reconstituted as the National Resources Committee and the Water Planning Committee was renamed the Water Resources Committee. See Clawson, *New Deal Planning*, pp. 46-47.

34. Memorandum, Daniel W. Bell, Acting Director, Bureau of the Budget, to the President, 20 July 1935; and attached Memorandum, FDR to Acting Director of the Bureau of the Budget, 22 July 1935. Both in OF 132, FDR Papers.

35. Hoyt and Langbein, *Floods*, pp. 379-382. The *New York Times* ran approximately 200 articles between January and August 1935 describing floods in Arkansas, Colorado, Connecticut, Illinois, Iowa, Kansas, Kentucky, Louisiana, Maryland, Mississippi, Missouri, Nebraska, New Jersey, New Mexico, New York (71 articles), Ohio, Pennsylvania, Texas, Vermont, Virginia, West Virginia, and Wisconsin. See *New York Times Index for Year 1935* (New York: New York Times Co., 1936), pp. 988-989.

36. Congressman James B. Duffy et al., to the President, 9 July 1935, New York Flood File, OF 83, FDR Papers.

37. *New York Times*, 20 July 1935, p. 14; 22 July 1935, p. 6; 23 July 1935, p. 3; and 29 April 1936, p. 4.

38. Harry Hopkins to the President, 13 August 1935, OF 83, FDR Papers; *New York Times*, 27 July 1935, p. 14, and 2 August 1935, p. 15.

39. All the bills are listed in the U.S., Congress, *Cong. Rec., Index*, 74th Cong., 1st sess., pp. 225-226.

40. Schlesinger, *The Politics of Upheaval*, pp. 291-336; Leuchtenburg, *FDR and the New Deal*, pp. 143-162; *New York Times*, 28 August 1934, p. 1; *Washington Post*, 27 and 28 August 1934.

41. U.S., Congress, *Cong. Rec.*, 74th Cong., 1st sess., 22 August 1934, p. 14151.

42. *Ibid.*, pp. 14152-54, 14179.

43. *Ibid.*, p. 14154.

44. *Ibid.*, p. 14177-78. Congressman Short's reference to rag doll makers and toe dancers probably refers to some of the unemployment relief projects carried out by the Roosevelt administration and Harry Hopkins' WPA theater project.

45. *Ibid.*, pp. 14178-93.

46. *Ibid.*, pp. 14175-76.

47. *Ibid.*, pp. 14186-87.

48. *Ibid.*, pp. 14188-94.

49. *Ibid.*, pp. 14155, 14198-99.

50. *New York Times*, 24 August 1934, p. 2.

51. U.S., Congress, *Cong. Rec.*, 74th Cong., 1st sess., 22 August 1934, p. 14287.

52. *Ibid.*, p. 14288.

53. *Ibid.*, p. 14290.

54. *Ibid.*, p. 14291.

55. *Ibid.*, p. 14296.

56. *Ibid.*

57. *Ibid.*, p. 14303.

58. *Ibid.* According to the *New York Times*, many of Tydings' colleagues later said the speech "attained the topmost heights of congressional humor" and by the end of the three-hour address "senators whose claims were being ridiculed made humorous interruptions and sped Mr. Tydings along." *New York Times*, 26 August 1934, p. 2.

59. U.S., Congress, *Cong. Rec.*, 74th Cong., 1st sess., 22 August 1934, p. 14303.

60. *Ibid.*, 23 August 1934, p. 14305.

Chapter V

1. U.S., Department of the Interior, Geological Survey, *The Floods of March 1936: Water Supply Paper 799* (Washington, DC: Government Printing Office, 1937), p. 1.

2. American National Red Cross, *Spring Floods and Tornadoes, 1936* (Washington, DC: American Red Cross, 1938), pp. 11-15.

3. *New York Times*, 12 March 1936, p. 5; 13 March 1936, p. 3; 19 March 1936, pp. 14-15; 20 March 1936, p. 15; 26 March 1936, p. 12; 27 March 1936, p. 8; 28 March 1936, p. 6; and 29 March 1936, p. 7.

4. American National Red Cross, *Spring Floods and Tornadoes, 1936*, pp. 17-21; *New York Times*, 18 March 1936, pp. 1-2; 19 March 1936, p. 1; 20 March 1936, p. 1; 21 March 1936, p. 1; 25 March 1936, p. 8; and 28 March 1936, p. 12.

5. American National Red Cross, *Spring Floods and Tornadoes, 1936*, pp. 20-27, 162; U.S., Congress, Senate, Committee on Commerce, *Confidential Hearings on Flood Control Act of 1936, H.R. 8455, March 19 and 25, 1936* (Washington, DC: Government Printing Office, 1936), p. 11; *Washington Post*, 18 March 1936, p. 1; 19 March 1936, p. 1; 20 March 1936, p. 1; and 21 March 1936, p. 1; *Washington Sunday Star*, 29 March 1936, Gravure sect. pp. 1-2.

6. *New York Times*, 22 March 1936, sect. IV, p. 8.

7. *Washington Evening Star*, 23 April and 31 May 1936.

8. *New York Times*, 30 March 1936, p. 8.

9. *Ibid.*, 24 March 1936, p. 13.

10. *Ibid.*, 30 March 1936, p. 8.

11. "Mopping Up the Flood," *Business Week*, 4 April 1936, p. 20.

12. *Washington Evening Star*, 24 April 1936, p. A2.

13. *Washington Evening Star*, 23 March 1936, p. A1.

14. No biography was written about Copeland. For a detailed obituary, see *New York Times*, 18 June 1938, p. 1.

15. An unflattering portrait of Copeland as a "cunning" servant of "the vested interests in business and politics" appears in Max Lerner, "Tammany's Last Stand," *The Nation* 199 (11 September 1937): 255-257. U.S., Congress, *Cong. Rec.*, 73d Cong., 1st sess., 2 May 1933, p. 2679; *New York Times*, 26 April 1936, p. 12.

16. *New York Times*, 26 April 1936, p. 30; U.S., Congress, Senate, Committee on Commerce, *Confidential Hearings on Flood Control Act of 1936*, pp. 86-87, 210-211, 304-305.

17. Leuchtenburg, *Flood Control Politics*, pp. 67, 94-95, 97.

18. U.S., Congress, *Cong. Rec.*, 75th Cong., 3d sess., 9 June 1938, p. 8619. For a discussion of the New Deal era electric power controversy, see Philip J. Funigiello, *Toward a National Power Policy: The New Deal and the Electric Utility Industry, 1933-1941* (Pittsburgh: University of Pittsburgh Press, 1973).

19. U.S., Congress, Senate, Committee on Commerce, *Confidential Hearings on Flood Control Act of 1936*, p. 6.

20. *Ibid.*, pp. 7-10.

21. *Ibid.*, pp. 11, 22, 34, 54, 62, 195-198.

22. U.S., Congress, *Cong. Rec.*, 74th Cong., 2d sess., 2 April 1936, p. 4780.

23. *Ibid.*

24. U.S., Congress, Senate, Committee on Commerce, *Confidential Hearings on Flood Control Act of 1936*, pp. 22-23, 35, 62, 87-88, 90-91.

25. *Ibid.*, pp. 27, 200.

26. *Ibid.*, pp. 22, 27, 122-126, 210-211, 237, 240, 242, 304-305, 336. The provision for penstocks appears in Section 5 of the act.

27. U.S., Congress, Senate, Committee on Commerce, *Confidential Hearings on Flood Control Act of 1936*, pp. 40, 230-231; Leuchtenburg, *Flood Control Politics*, pp. 54, 92-94, 98-99; Homer Cummings, Attorney General, to FDR, 2 Aug. 1937, with attached memo and report from Oswald Ryan, 30 July 1937, OF 132, FDR Papers.

28. U.S., Congress, Senate, Committee on Commerce, *Confidential Hearings on Flood Control Act of 1936*, pp. 11, 25, 44, 83-86, 100, 119, 209.

29. *Ibid.*, pp. 231-234.

30. *Ibid.*, pp. 264-265, 276-277.

31. See Section 3(c) of the 1936 Flood Control Act. U.S., Congress, Senate, Committee on Commerce, *Confidential Hearings on Flood Control Act of 1936*, pp. 28-29, 38, 84-85, 323.

32. U.S., Congress, Senate, Committee on Commerce, *Confidential Hearings on Flood Control Act of 1936*, pp. 333-334; Leuchtenburg, *Flood Control Politics*, pp. 49-50, 82-109.

33. U.S., Congress, Senate, Committee on Commerce, *Confidential Hearings on Flood Control Act of 1936*, pp. 60-61.

34. *Ibid.*, pp. 196-197.

35. *Ibid.*, p. 201.

36. *Ibid.*, p. 298.

37. *Ibid.*, pp. 55-57, 89.

38. *Ibid.*, p. 312.

39. *Ibid.*, p. 321.

40. *Ibid.*, pp. 8, 334.

41. Telegram, H.A. Wallace and M.L. Cooke to the President (through White House), 25 Mar. 1936, OF 132, FDR Papers.

42. Radio Message (from USS *Dickerson*), Roosevelt to White House, 26 Mar. 1936, OF 132, FDR Papers.

43. Radiogram, Eliot to Frederic A. Delano (c/o USS *Potomac*), 28 Mar. 1936; and Radiogram, Roosevelt to Secretaries of War, Interior, and Agriculture, 29 Mar. 1936. Both in OF 132, FDR Papers.

44. Telegram, Early to the President, 28 Mar. 1936, OF 132, FDR Papers.

45. Naval Message, George H. Dern, Harold L. Ickes, and Henry A. Wallace to the President, 31 Mar. 1936, OF 132, FDR Papers.

46. Water Resources Committee to Mr. Delano, 2 Apr. 1936, OF 132, FDR Papers.

47. Charles W. Eliot to the President, 13 Apr. 1936, OF 132, FDR Papers.

48. Secretary of War to Chairman, National Resources Committee, quoted in Maass, *Muddy Waters*, p. 83.

49. Nixon, *Roosevelt and Conservation*, 1: 516-517.

50. *New York Times*, 26 March 1936, p. 12; 27 March 1936, p. 11; 29 March 1936, part IV, p. 7; 31 March 1936, p. 1; 1 April 1936, p. 18; 2 April 1936, p. 12; and 3 April 1936, p. 1.

51. Roosevelt, *Presidential Press Conferences*, 7: 215-217.

52. *Ibid.*, p. 216.

53. U.S., Congress, *Cong. Rec.*, 74th Cong., 1st sess., 26 March 1935, p. 4389; Memorandum, FDR for Senator Robinson, 20 Apr. 1936, OF 1092, FDR Papers.

54. U.S., Congress, *Cong. Rec.*, 74th Cong., 2d sess., 12 April 1936, p. 7051; *ibid.*, 21 April 1936, pp. 5774, 5776; and 21 May 1936, pp. 7732-35.

55. Roosevelt, *Presidential Press Conferences*, 7: 228.

56. U.S., Congress, *Cong. Rec.*, 74th Cong., 2d sess., 28 April 1936, p. 6290.

57. Abel Wolman to Mr. Delano, 29 Apr. 1936, OF 132, FDR Papers.

58. Memorandum, Charles W. Eliot for Mr. Delano, 29 Apr. 1936, OF 132, FDR Papers.

59. Draft Amendments—H.R. 8455 attached to Memorandum, Eliot to Delano, 29 Apr. 1936, OF 132, FDR Papers.

60. Memorandum, Eliot for Delano, 29 Apr. 1936.

61. Memorandum, Frederic A. Delano for Secretary Ickes, 30 Apr. 1936, with accompanying memos and draft amendments (President's copy), OF 1092; and FDR to Senator Robinson, 1 May 1936, OF 132. Both in FDR Papers.

62. Mayor of Binghamton to Franklin D. Roosevelt, 5 May 1936, OF 132, FDR Papers.

63. Roosevelt, *Presidential Press Conferences*, 7: 236-237.

64. Carl Hayden to Marvin H. McIntyre, 1 May 1936; and M.H. McIntyre to Sen. Carl Hayden, 11 May 1936. Both in Little Waters File, OF 2450, FDR Papers.

65. Ickes letter to FDR, which accompanied a copy of *Little Waters*, appears in Nixon, *Roosevelt and Conservation*, 1: 460-461. This publication appeared as *Little Waters: A Study of Headwater Streams and Other Little Waters, Their Use and Relations to the Land*, U.S., Congress, Senate, 74th

Cong., 2d sess., Sen. Doc. 198. On Cooke's interest in *Little Waters*, see Morris L. Cooke to the President, 16 Jan. 1936, and Henry Kannee to Cooke, 10 Feb. 1936, both in Little Waters File, OF 2450, FDR Papers.

66. Morris L. Cooke to the President, 5 May 1936; FDR to Cooke, 6 May 1936; and Cooke to the President, 6 May 1936. All in Rural Electrification-1936, OF 1570, FDR Papers.

67. Roosevelt, *Presidential Press Conferences*, 7: 250-251.

68. *New York Times*, 13 May 1936, p. 5.

69. *New York Times*, 16 May 1936, p. 1.

70. U.S., Congress, *Cong. Rec.*, 74th Cong., 2d sess., 20 May 1936, p. 7574.

71. *Ibid.*, pp. 7575, 7577-78.

72. *New York Times*, 19 May 1936, p. 19.

73. U.S., Congress, *Cong. Rec.*, 74th Cong., 2d sess., 21 May 1936, pp. 7696, 7703.

74. *Ibid.*, pp. 7680-81.

75. *Ibid.*, p. 7705.

76. *Ibid.*, pp. 7706-10.

77. *Ibid.*, 3 June 1936, pp. 8851-60, 8862-63.

78. *Ibid.*, 15 June 1936, p. 9443.

79. Herbert H. Lehman to the President, 8 May 1936; and FDR to Hon. Herbert H. Lehman, 23 May 1936. Both in OF 132, FDR Papers.

80. Gen. E.M. Markham to M.H. McIntyre, 27 May 1936; and M.H.M., Memo for the Files, 27 May 1936. Both in War Department Files, OF 25n, FDR Papers.

81. FDR to Director of the Budget, 2 June 1936, Little Waters File, OF 2450, FDR Papers.

82. FDR to R.F. [Rudolph Foster], 16 June 1936, with undated attachments, OF 132, FDR Papers.

83. Telegrams, dtd 19-22 June 1936, OF 132, FDR Papers.

84. F.H. Truitt, Chairman, Flood Control Committee, Binghamton Chamber of Commerce, to Honorable Franklin D. Roosevelt, 23 June 1936, OF 132, FDR Papers.

Chapter VI

1. Clawson, *New Deal Planning*, pp. 203-204, 225-226, 237-242.

2. The most current summary compendium of water resources legislation and policies is U.S. Army Corps of Engineers, *Digest of Water Resources and Authorities* (Washington, DC: U.S. Army Corps of Engineers, 1983).

3. The most comprehensive discussion of water resources legislation and programs since 1936 can be found in Holmes, *A History of Federal Water Resources Programs, 1800-1960*, pp. 13-43; and her companion volume, *History of Federal Water Resources Programs and Policies, 1961-70*, Miscellaneous Pubs no. 1379 (Washington, DC: USDA, Economics, Statistics, and Cooperatives Service, Government Printing Office, 1979).

4. John R. Mather, *Water Resources: Distribution, Use, and Management*

(New York: John Wiley and Sons, 1984), pp. 301-302.

5. See for example, Commission on Organization of the Executive Branch of the Government, *Task Force Report on Water Resources Projects* (Washington, DC: Government Printing Office, 1949), pp. 10-20; and President's Water Resources Policy Commission, *A Water Policy for the American People*, vol. 1, *General Report* (Washington, DC: Government Printing Office, 1950), p. 147.

Select Bibliography

Archival and Manuscript Collections

Fort Belvoir, VA. U.S. Army Corps of Engineers, Office of History. Oral History Archives.

Hyde Park, NY. Franklin D. Roosevelt Library, Franklin D. Roosevelt Papers.

_____. Morris L. Cooke Papers.

Washington, DC. National Archives and Records Administration. Record Group 187.

Corps of Engineers Publications

Hagwood, Joseph L. *The California Debris Commission*. Washington, DC: U.S. Army Corps of Engineers, 1981.

Johnson, Leland R. *The Headwaters District: A History of the Pittsburgh District, U.S. Army Corps of Engineers*. Pittsburgh: U.S. Army Engineer District, 1979.

Reuss, Martin and Walker, Paul K. *Financing Water Resources Development: A Brief History*. Washington, DC: U.S. Army Corps of Engineers, 1983.

U.S. Army Corps of Engineers. *Annual Report of the Chief of Engineers, Fiscal Year 1927*. Washington, DC: Government Printing Office, 1927.

_____. *Annual Report of the Chief of Engineers, Fiscal Year 1929*. Washington, DC: Government Printing Office, 1929.

_____. *Digest of Water Resources and Authorities*. Washington, DC: U.S. Army Corps of Engineers, 1983.

Congressional Publications

U.S. Congress. *Congressional Record*.

U.S. Congress. House of Representatives. *Estimate of Cost of Examinations, Etc., of Streams Where Water Power Appears Feasible*. H. Doc. 308, 69th Cong., 1st sess., 1926.

_____. *Tennessee River and Tributaries, North Carolina, Tennessee, Alabama, and Kentucky*. H. Doc. 328, 71st Cong., 2d sess., 1930.

_____. *Development of Rivers in the United States: Preliminary*

Report of the President's Committee on Water Flow. H. Doc. 395, 73rd Cong., 2nd sess., 1934.

_____. *H.R. 8455, A Bill Authorizing the Construction of Public Works and Rivers and Harbors for Flood Control and for Other Purposes.* 74th Cong., 1st sess., 1935.

_____. *Report on H.R. 6803, Funds for the Prosecution of Works for Flood Control and Protection Against Flood Disasters.* H. Doc. 486, 74th Cong., 1st sess., 1935.

_____. Committee on Flood Control. *Hearings Before the Committee on Flood Control on H.R. 6803: A Bill To Authorize Funds for the Prosecution of Works for Flood Control and Protection Against Flood Disasters, March 22 and 23, and April 2, 1935.* Washington, DC: Government Printing Office, 1935.

_____. *Report on H.R. 8455, Construction of Certain Public Works on Rivers and Harbors for Flood Control.* H. Doc. 1223, 74th Cong., 1st sess., 1935.

U.S. Congress. Senate. Committee on Commerce. *Confidential Hearings on Flood Control Act of 1936, H.R. 8455, March 19 and 25, 1936.* Washington, DC: Government Printing Office, 1936.

_____. *Report on S. 3531, To Amend the Flood Control Act of May 15, 1928.* S.R. 1662, 74th Cong., 2d sess., 1936.

U.S. Statutes at Large. vols. 39, 43, 45, 48, 49.

Other Government Publications

Commission on Organization of the Executive Branch of the Government. *Task Force Report on Water Resources Projects.* Washington, DC: Government Printing Office, 1949.

President's Water Resources Policy Commission. *A Water Policy for the American People.* 3 vols. Washington, DC: Government Printing Office, 1950.

U.S. Department of the Interior. Geological Survey. *The Floods of March 1936: Water Supply Paper 799.* Washington, DC: Government Printing Office, 1937.

U.S. National Resources Board. *A Report on National Planning and Public Works in Relation to Natural Resources and Including Land Use and Water Resources With Findings and Recommendations.* Washington, DC: Government Printing Office, 1934.

U.S. National Resources Committee. *Drainage Basin Problems*

and Programs. Washington, DC: Government Printing Office, 1937.

U.S. Public Works Administration. *Report of the Mississippi Valley Committee of the Public Works Administration*. Washington, DC: Government Printing Office, 1934.

Secondary Materials

American National Red Cross. *The Mississippi Valley Flood Disaster of 1927*. Washington, DC: American National Red Cross, 1928.

———. *Spring Floods and Tornadoes, 1936*. Washington, DC: American National Red Cross, 1938.

Besson, Major F.S. "Maximum Flood Control Prediction." *The Military Engineer* 25 (September-October 1933): 423-426.

Burns, James M. *Roosevelt: The Lion and the Fox*. New York: Harcourt, Brace and World, 1956.

Chow, Van T., ed. *Handbook of Applied Hydrology: A Compendium of Water-Resources Technology*. New York: McGraw-Hill Book Co., 1983.

Christie, Jean. *Morris Llewellyn Cooke: Progressive Engineer*. New York: Garland Publishing, 1983.

Clawson, Marion. *New Deal Planning: The National Resources Planning Board*. Baltimore: Johns Hopkins University Press, 1981.

Cralle, Richard K., ed. *Reports and Public Letters of John C. Calhoun*. New York: Russell & Russell, 1968 [1858].

Dangerfield, George. *The Awakening of American Nationalism, 1815-1828*. New York: Harper & Row, 1965.

Daniel, Pete. *Deep'n as It Come: The 1927 Mississippi River Flood*. New York: Oxford University Press, 1977.

Delano, Frederic A. "The Report of the Committee on Mississippi Flood Control Appointed by the United States Chamber of Commerce." *Annals of the American Academy of Political and Social Science* 135 (January 1928): 25-33.

de Roos, Robert and Maass, Arthur A. "The Lobby That Can't Be Licked." *Harpers* 199 (August 1949): 23.

Frank, Arthur D. *The Development of the Federal Program of Flood Control on the Mississippi River*. New York: Columbia University Press, 1930.

Freidel, Frank. *Franklin D. Roosevelt: The Ordeal*. Boston: Little,

Brown & Co., 1953.

Funigiello, Philip J. *Toward a National Power Policy: The New Deal and the Electric Utility Industry, 1933-1941*. Pittsburgh: University of Pittsburgh, 1973.

Harrison, Robert W. *Alluvial Empire: A Study of State and Local Efforts Toward Land Development in the Alluvial Valley of the Lower Mississippi River*. Little Rock, AR: Delta Fund in cooperation with Economic Research Service of U.S. Department of Agriculture, distributed by Pioneer Press, 1961.

Hays, Samuel P. *Conservation and the Gospel of Efficiency: The Progressive Conservation Movement, 1890-1920*. Cambridge: Harvard University Press, 1959.

Holmes, Beatrice H. *A History of Federal Water Resources Programs, 1800-1960*. Miscellaneous Pubs no. 1233. Washington, DC: U.S. Department of Agriculture Economic Research Service, June 1972.

———. *History of Federal Water Resources Programs and Policies, 1961-70*. Miscellaneous Pubs no. 1379. Washington, DC: USDA Economics, Statistics, and Cooperatives Service, Government Printing Office, 1979.

Holt, W. Stull. *Office of the Chief of Engineers of the Army: Its Non-Military History, Activities, and Organization*. Baltimore: Johns Hopkins University Press, 1923.

Hoover, Herbert. *The Memoirs of Herbert Hoover: The Cabinet and the Presidency, 1920-1933*. New York: Macmillan, 1952.

Hoyt, William G. and Langbein, Walter B. *Floods*. Princeton, NJ: Princeton University Press, 1955.

Hubbard, Preston J. *Origins of the TVA: The Muscle Shoals Controversy, 1920-1932*. Nashville: Vanderbilt University Press, 1961.

Johnson, Donald B. and Porter, Kirk H., eds. *National Party Platforms, 1840-1972*. Urbana: University of Illinois Press, 1973.

Karl, Barry D. *Charles E. Merriam and the Study of Politics*. Chicago: University of Chicago, 1971.

Knowles, Maurice. "Flood: Pittsburgh's Problem and Its National Significance." *The Survey* 27 (3 February 1912): 1699-1705.

Lerner, Max. "Tammany's Last Stand." *The Nation* 199 (11 September 1937): 255-257.

Leuchtenburg, William E. *Flood Control Politics: The Connecticut*

- River Valley Problem, 1927-1950. Cambridge: Harvard University Press, 1953.
- _____. *Franklin D. Roosevelt and the New Deal*. New York: Harper & Row, 1963.
- Lowitt, Richard. *George W. Norris: The Persistence of a Progressive*. Urbana: University of Illinois Press, 1971.
- _____. *George W. Norris: The Triumph of a Progressive, 1933-1944*. Urbana: University of Illinois Press, 1978.
- Maass, Arthur. *Muddy Waters: The Army Engineers and the Nation's Rivers*. Cambridge: Harvard University Press, 1951.
- New York Times Index for Year 1935*. New York: New York Times Co., 1936.
- Nixon, Edgar B., ed. *Franklin D. Roosevelt and Conservation*. 2 vols. Hyde Park, NY: Franklin D. Roosevelt Library, 1957.
- Owen, A.L. Riesch. *Conservation Under FDR*. New York: Praeger Publishers, 1983.
- Pittsburgh Flood Control Commission. *Report of the Flood Control Commission of Pittsburgh, Pennsylvania*. Pittsburgh: The Commission, 1912.
- Pritchett, Herman. *The Tennessee Valley Authority*. Chapel Hill: University of North Carolina Press, 1943.
- Reuss, Martin. "Andrew A. Humphreys and the Development of Hydraulic Engineering: Politics and Technology in the Army Corps of Engineers, 1850-1950." *Technology and Culture* 26 (January 1985): 1-33.
- Robinson, Edgar E. and Borner, Vaughn D. *Herbert Hoover: President of the United States*. Stanford: Hoover Institution Press, 1975.
- Roosevelt, Franklin D. *The Complete Presidential Press Conferences of Franklin D. Roosevelt*. 16 vols. New York: DeCapo Press, 1972.
- _____. *Looking Forward*. New York: John Day Co., 1933.
- Rosenman, Samuel, ed. *The Public Papers and Addresses of Franklin D. Roosevelt*. 13 vols. New York: Random House, 1938-1945.
- Schlesinger, Arthur M., Jr. *The Age of Roosevelt: The Politics of Upheaval*. Boston: Houghton Mifflin Co., 1960.
- Williams, T. Harry. *Huey Long*. New York: Alfred A. Knopf, 1969.
- Wilson, Clyde N., ed. *The Papers of John C. Calhoun*. 18 vols. Columbia, SC: University of South Carolina Press and South Carolina Department of Archives and History, 1983.

Newspapers and Weekly Magazines

Baltimore Sun. 1927.

Business Week. 4 April 1936.

New Orleans Times-Picayune. 1947.

New York Times. 1927, 1934-1936, 1938, 1947.

Washington Evening Star. 1936.

Washington Post. 1934, 1936.

Washington Sunday Star. 1936.

Unpublished Materials

Pross, Edward L. "A History of Rivers and Harbors Appropriations Bills, 1866-1933." Ph.D. dissertation. Ohio State University Press, 1938.

Index

- Abbot, Lt. H.L.: 6-7, 8
Agriculture, Department of: 23, 78
Appropriations (flood control): 6, 8, 14, 21, 42
Associated Press: 65
- Bailey, Josiah W.: 57, 73
Baltimore Sun: 20
Bell, Daniel W.: 50, 82, 89, 90
Bennett, Hugh: 85, 86, 90
Bilbo, Theodore G.: 88
Binghamton Chamber of Commerce: 90
Binghamton Press: 88
Brown, Maj. Gen. Lytle: 22
Buchanan, P. James: 36
Budget Circular 338: 82
Burton, Theodore: 14
Business Week: 65-66
- Calhoun, John C.: 4, 6
Caraway, Thaddeus H.: 13
Citron, William M.: 76
Civilian Conservation Corps: 26, 63
Clark, James B. "Champ": 13, 55, 69
Clay, Henry: 4
Clay, Capt. Lucius D.: 45, 46-47, 48
Coast and Geodetic Survey: 8
Congressional Record: 8
Connecticut River: 59
Cooke, Morris L.: 27, 39-40, 43, 80, 86, 87, 89, 90
Coolidge, Calvin: 20, 21
Copeland, Royal S.: 42, 54, 55, 57, 63, 67-75, 77-80, 82, 83-85, 87, 88, 89
Copeland Flood Control Bill: 59-90
Cummings, Homer: 74
- Dams: 7, 22, 49
Delano, Frederic A.: 27, 83-84, 85, 90, 91-92
Dern, George H.: 33-34, 80, 82
Dies, Martin: 36
- Dill, Clarence C.: 31
Donahey, Vic: 75
Driver, William: 32, 45, 46, 52
- Early, Stephen: 80
Edgerton, Lt. Col. Glen E.: 42, 81
Eliot, Charles W.: 80, 84, 85
Ellet, Charles, Jr.: 6-7
Emergency Relief Act of 1935: 42, 49
Engineers, U.S. Army Corps of. *See* U.S. Army Corps of Engineers.
Executive Order 6777: 39, 40
- Federal Power Commission: 16, 74, 92
Ferguson, Phil: 53
Flood control
 cost sharing: 14-15, 20-21, 30-31, 34, 46, 47-48, 67-68, 70, 74-77, 78, 82-83, 88
 "levees only" policy: 7, 8, 19
 studies: 7, 8, 11, 15, 34, 40-41, 81, 84
Flood Control Act of 1917: 3, 5, 13-15, 46, 74
Flood Control Act of 1928: 21
Flood Control Act of 1938: 74, 76
Flood Control Act of 1944: 93, 94
Flood Control Council of Central-Southern New York: 51
Foster, Rudolph: 89-90
- General Dam Acts: 16
Gibbons v. Ogden: 4
Goldsborough, T. Alan: 66
Green Book: 44, 46
Greenwood, Arthur H.: 52-53
Guffey, Joseph F.: 69, 73, 75, 77, 88
- Hayden, Carl: 78, 86, 87
Hearst, William Randolph: 67
Hoeppel, John H.: 54
Hoover, Herbert: 17, 18, 21-22
Hopkins, Harry L.: 42
House Document 308: 16

- House Joint Resolution 377: 76
House Resolution 8455: 39, 47-59, 65, 68, 69, 70, 72, 73, 74, 79, 89, 90
House Resolution 6803: 44, 45-47, 49-50
Howe, Louis: 29, 83
Humphreys, Capt. A.A.: 6-7, 8
Hutton, Tom R.: 88
Hydroelectric power: 16, 17, 22, 39-40, 50, 67-69, 72-74, 76, 79, 86-87, 93
- Ickes, Harold L.: 27, 30, 31, 34, 40, 42, 46, 49, 80, 82, 85, 86
Inland Waterways Commission: 5, 12, 29
- Jadwin, Maj. Gen. Edgar: 19, 20, 21
Johnson, Andrew: 7
- Kimball, Henry: 45-46
- Lehman, Herbert: 51, 89
Leuchtenburg, William: 16-17
Levees: 6, 7, 8, 49, 83
Little Waters, by H.S. Person, E. Johnston Coil, and Robert T. Beall: 86, 89
- McIntyre, Marvin M.: 86
McNary, Charles L.: 69
Maloney, Francis T.: 69
Mansfield, Joseph J.: 32, 35, 36, 37
Markham, Maj. Gen. Edward M.: 41-42, 44-45, 46, 48, 49, 69-70, 72, 73, 74, 75, 76, 77, 78, 79, 81, 89, 90
Merriam, Charles E.: 43, 92
Miami Valley Conservancy District: 7
Michener, Earl C.: 53
Mississippi River basin: 7, 22, 26, 27, 30, 48, 49, 69, 72
 floods: 3, 6, 8, 9, 11, 12, 18
 levees: 5, 6, 8, 14-15, 18-19
Mississippi River Commission: 3, 8, 14, 19
Mississippi Valley Committee: 27, 31, 34, 38, 39, 40, 42
Missouri River: 30
- Mott, James W.: 35, 36
Multipurpose river development: 11-22, 24-28, 29-30, 32, 40-41, 49, 50, 78-79, 82-84, 93, 95-96
- National Industrial Recovery Act: 26, 27
National Resources Board: 39
 See also Mississippi Valley Committee.
National Resources Committee: 23, 24-25, 26, 27, 37, 39, 40, 41-42, 48, 50, 77, 79, 80, 81-82, 83, 84, 85, 87, 88, 91, 92, 94. *See also* Water Resources Committee.
National Rivers and Harbors Congress: 51, 53, 83
Navigation: 4, 5, 7, 8, 15, 16, 50, 93
New Deal: 23-38, 71
New York: 50-51, 59, 90
New York Times: 51, 65, 68, 87
Newlands, Francis G.: 11-13, 15, 29
Norris, George W.: 17, 22, 29-31, 32, 34, 35, 87
- O'Connor, John: 50
Ohio: 11
Overton, John H.: 49, 69, 75, 83
- Page, John C.: 81
Parsons, Claude V.: 35
Pennsylvania Emergency Council: 63
Penstocks: 73-74
Pillsbury, Brig. Gen. George B.: 72, 74, 75, 81
Pittsburgh, PA: 11, 63, 75, 88
Pittsburgh Flood Commission: 7, 11
Public Works Administration: 26-27, 35, 36, 37, 55
- Rainey, Henry: 37, 38
Reagan, Ronald: 94
Reclamation, Bureau of: 26-27, 92
Reclamations Act of 1902: 11
Reconstruction Finance Corporation: 51
Reforestation: 25-26, 27, 78, 81, 83, 84, 86, 87
Reid, Frank R.: 19-20

- Reservoirs: 7, 22, 49, 67-68, 72, 73, 83, 88, 89, 91, 93
- Resettlement Administration: 80
- Rich, Robert: 45, 46, 47, 52
- Rivers and Harbors Act of 1917: 15
- Rivers and Harbors Act of 1927: 16, 35
- Robinson, Joseph T.: 77, 78, 83, 84, 85, 87, 88
- Roosevelt, Franklin D.: 17, 24-26, 29, 30-33, 35-38, 39, 40, 42, 43, 46, 48, 49, 50, 51, 65, 76, 79, 80, 81, 82-84, 85, 86, 87, 89, 90, 91, 92, 94
- Roosevelt, Theodore: 12
- Rural Electrification Administration: 39-40, 80
- Ryan, Oswald: 74
- Saville, Thorndike: 81
- Short, Dewey: 52
- Soil conservation: 25, 27, 50, 68, 78, 81, 83, 84, 85, 86, 89
- Soil Conservation Service: 78, 80, 87, 92
- Stanton, Edwin: 7
- Swamp Land Acts: 3, 5-6
- Taber, John: 51, 53, 54
- Taylor, Maj. Gen. Harry: 16
- Tennessee Valley Authority: 17, 22, 26, 30, 67-68, 69, 93, 95
- Tydings, Millard E.: 55-57, 66, 87
- U.S. Army Corps of Engineers: 4, 7, 8, 12-13, 15, 16, 17, 22, 23, 34, 35-36, 41, 42-43, 44-48, 51-54, 69-72, 73, 75, 76-78, 79, 80, 81, 83, 88, 89, 91, 92, 93, 94, 95
- Board of Engineers for Rivers and Harbors: 13, 15, 36, 55
- 308 reports: 17, 34, 35, 44, 70, 81
- U.S. Army Corps of Topographical Engineers: 6-7
- U.S. Constitution: 5
- Commerce Clause: 4, 5
- United States Flood Control Association: 88
- U.S. Geological Survey
- Water Supply Paper 799: 59
- U.S. House of Representatives
- Committee on Flood Control: 3, 13, 15-16, 19-20, 23, 28-29, 34-36, 37, 38, 42-57, 71, 74
- Committee on Rivers and Harbors: 12, 13, 14, 16, 34, 35-36, 37, 38
- U.S. Senate
- Commerce Committee: 23, 38, 43, 54, 59-90
- Vandenberg, Arthur H.: 54-55, 57, 69, 70, 75, 76-77, 78-79, 83
- Wallace, Henry A.: 78, 80, 90
- Wallgren, Conrad: 32
- Washington Evening Star*: 66
- Water Flow, Committee on: 32-33, 34-36, 38
- Water Planning Committee: 39, 42
- Water Power Act of 1920: 16
- Water Resources Committee: 39, 40, 41-42, 43, 80, 81-82, 84, 85, 86, 94
- Water Resources Planning Act of 1965: 94
- Wheeler, Burton K.: 73
- White, Gilbert F.: 43, 95
- White, Wallace H.: 75
- Whittington, Will: 32, 46, 53
- Wilson, Riley J.: 13, 28-29, 32, 34, 35, 37, 38, 42, 43-44, 45, 46, 47, 48, 50, 51, 52, 53, 57
- Wilson, Woodrow: 15
- Wolman, Abel: 41, 43, 81, 84, 90
- Works Progress Administration: 23, 42

EP 870-1-29
JULY 1988



US Army Corps
of Engineers