66th CONGRESS, 1st Session. } HOUSE OF REPRESENTATIVES. { DOCUMENT No. 298.

BRAZOS RIVER, TEX., OLD WASHINGTON TO WACO.

LETTER

FROM

THE SECRETARY OF WAR,

TRANSMITTING,

WITH A LETTER FROM THE ACTING CHIEF OF ENGINEERS, REPORT ON REEXAMINATION OF BRAZOS RIVER, TEX., FROM OLD WASHINGTON TO WACO.

NOVEMBER 14, 1919.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, November 13, 1919.

THE SPEAKER OF THE HOUSE OF REPRESENTATIVES.

SIR: I have the honor to transmit herewith, a letter from the Acting Chief of Engineers, United States Army, of 11th instant, together with report of Col. C. S. Riché, Corps of Engineers, dated April 6, 1917, on a reexamination of Brazos River, Tex., from Old Washington to Waco, authorized by the river and harbor act approved March 4, 1915; also report of the Board of Engineers for Rivers and Harbors on the subject dated June 10, 1919.

Very respectfully,

NEWTON D. BAKER,
Secretary of War.

WAR DEPARTMENT,
OFFICE OF THE CHIEF OF ENGINEERS,
Washington, November 11, 1919.

From: The Acting Chief of Engineers.
To: The Secretary of War.
Subject: Reexamination of Brazos River, Tex., Old Washington to Waco.

1. There is submitted herewith, for transmission to Congress, report, dated April 6, 1917, by Col. C. S. Riché, Corps of Engineers,

authorized by section 14 of the river and harbor act approved March 4, 1915, on reexamination of the project for improvement of Brazos River, Tex., from Old Washington to Waco, "with a view to obtaining reports whether the adopted projects shall be modified or the improvement abandoned."

2. The Brazos River rises in the plains of western Texas and eastern New Mexico, flows in a southeasterly direction through the east central portion of Texas, a distance of over 1,200 miles, and empties into the Gulf of Mexico, 50 miles southwest of Galveston. Old Washington is 254 miles above the mouth, and Waco 429 miles above the mouth. The present project for this section of river is based upon an item contained in the river and harbor act approved March 3, 1905, and contemplates securing a navigable depth of 4 feet at ordinary stage of low water for four months, and 3½ feet for six months of the year, by constructing eight locks and dams and 103 miles of open channel work, at a total estimated cost of $2,915,000. (Estimate made in 1905.) The project was not adopted as a whole, but Lock and Dam No. 1, at Hidalgo Falls, was authorized by the river and harbor act approved March 2, 1907; Lock and Dam No. 8, by the act approved June 25, 1910; and Locks and Dams Nos. 3 and 6 by the act approved July 25, 1912. Locks and Dams Nos. 1 and 8 are completed, No. 3 is partially constructed, and No. 6 not yet fairly begun. The total expenditures on the present project to June 30, 1918, amounted to $1,397,858.07. Navigation is impracticable except in the pools above the two completed dams. The section of river below Old Washington has been improved to some extent under a project which provides for the removal of snags and overhanging trees, and for narrowing the river at its shoals by training walls and spur dikes, but there is no commerce or navigation except for a few miles above the mouth. The district engineer is of opinion that the improvement of Brazos River, Tex., from Old Washington to Waco, is worthy of being continued, at least to the extent of making a survey which he recommends. The division engineer is of opinion that, except for the completion and maintenance of the structures already undertaken, the improvements should be held in abeyance for the present and that no survey should be made.

3. This report has been referred, as required by law, to the Board of Engineers for Rivers and Harbors, and attention is invited to its report herewith, dated June 10, 1919. The board states that while no recent estimate has been made there are sufficient data in hand to show that probably 8 locks and dams in addition to the eight contemplated under the existing plan would be required to completely slackwater the river between Old Washington and Waco, and that to canalize the section below Old Washington, which would be necessary in order to insure even fairly reliable navigation, would require approximately 12 locks and dams. It calls attention to the fact that the locks and dams already constructed have cost about $500,000 each. Even if such a project were carried out continuous navigation would not be provided, as the low-water flow is not sufficient to fill the pools. The chief object sought by those advocating this improvement is lower railroad rates, but the board is of opinion that this result would not follow the improvement owing to the indifferent character of the navigation that would be afforded. The board regards the improvement of the Brazos River as not economically feasible, as it would not

afford useful navigation or control freight rates. It is of opinion that further expenditures on the river between Old Washington and Waco are not justified and recommends that the project be entirely abandoned even to the extent of maintaining existing locks and dams, and if for sanitary or other reasons local interests care to take over and maintain the locks already constructed, it recommends that they be authorized to do so.

4. After due consideration of the above-mentioned reports, I concur in the views of the Board of Engineers for Rivers and Harbors, and therefore recommend legislation authorizing the abandonment of the project for the improvement of the Brazos River, Tex., Old Washington to Waco, including the maintenance, care, and operation of the locks and dams already completed.

FREDERIC V. ABBOT,
Colonel, Corps of Engineers.

REPORT OF THE BOARD OF ENGINEERS FOR RIVERS AND HARBORS.

[Third indorsement.]

BOARD OF ENGINEERS FOR RIVERS AND HARBORS,
June 10, 1919.

To the CHIEF OF ENGINEERS, UNITED STATES ARMY.

1. The following is in review of the district engineer's report submitted under authority of section 14 of the river and harbor act of March 4, 1915, on reexamination of Brazos River, Tex., Old Washington to Waco.

2. The Brazos River flows in a southeasterly direction through the State of Texas and empties into the Gulf of Mexico at a point 50 miles southwest of Galveston. From the mouth to Waco in an air line the distance is 207 miles and by water 429 miles. Old Washington is 254 miles above the mouth, and the distance from Old Washington to Waco is 175 miles. Below Waco the river flows through a fertile bottom land from 2 to 8 miles wide, much of which is subject to periodical overflow to a depth of from 1 to 10 feet. The bed and the banks are generally composed of unstable material and the channel is subject to frequent changes in location. The height of the banks varies from 25 to 45 feet, and the stage of the river varies about 39½ feet at Waco and 52 feet at Old Washington. The stream is very flashy, ranging in discharge from about 3 second-feet at low water to 132,000 second-feet or more at flood stage. Navigation is impossible at low stages and there are no regular periods of high water.

3. The existing project for the section Old Washington to Waco contemplates securing a navigable depth of 4 feet at ordinary stage of water for 4 months and 3½ feet for 6 months of the year by constructing 8 locks and dams and 103 miles of open channel work on the intermediate sections, at a total estimated cost of $2,915,000. The project was not adopted as a whole, but Locks and Dams Nos. 1, 8, 3, and 6 have been authorized by river and harbor acts of March 2, 1907, June 25, 1910, and July 25, 1912. Locks and Dams

Nos. 1 and 8 have been completed; No. 3 is under construction, and No. 6 not yet fairly commenced. To December 31, 1916, there had been expended on this project, exclusive of operation and care, $1,161,416.95. There is no navigation on this section and in fact there has been practically none on the river above Columbia, 34 miles above the mouth, since the Civil War. It is thought that the completion of the project would provide practically the same facilities for navigation as can be secured between Old Washington and the mouth without the use of locks and dams. The project for the latter reach provides for the removal of snags and overhanging trees and for narrowing the river at its shoals by training walls and spur dikes. On this and previous projects there has been expended about $430,000, resulting in the periodical removal of snags from the river and timber from the banks. No increase in depth has been obtained and no commerce or navigation has resulted.

4. The tonnage to be affected by the improvement between Old Washington and Waco is stated by local interests to amount to about 11,000,000 tons, and it is estimated that the saving on freight rates, had the river been improved, would have amounted to $6,837,783. This estimate is based upon the belief that the improvement would affect rail rates throughout a zone extending 75 miles on either side of the river up to a point 75 miles above Waco. This is the theoretical maximum that could be expected to result from the improvement if the rate on every article of freight from and to this section were reduced to meet the rates that might result from actual and effective navigation. As the improvement would not provide such navigation, as will be shown later on, the estimate is of little or no value. The amount of commerce that would actually be handled by water can not be determined and has not been estimated. The district engineer regards the improvement as worthy of being continued and he recommends a thorough survey. For reasons given at some length the division engineer is of opinion that beyond the completion and maintenance of the structures already undertaken, work should be held in abeyance for the present and that no survey should be made.

5. From the information presented, the board was not convinced of the advisability of continuing the improvement of the Brazos River from Old Washington to Waco, and interested parties were so informed and given an opportunity of presenting their views. A hearing was held at this office on December 3, 1918, which was attended by Hon. Morris Sheppard, United States Senator, Hon. Tom Connally, and Hon. J. J. Mansfield, Members of Congress, and a delegation of citizens from the locality.

6. Senator Sheppard cited as examples of what may be expected from the improved Brazos River a number of rivers and canals in France and Germany that have been successfully improved and which carry a large commerce. The navigable depths that he gave for these rivers, 1.3 feet and up, are not the depths ordinarily available, but the minimum low-water depths that obtain for short periods only. The standard depth adopted in 1879 for most of the waterway improvements in France is 6.6 feet. In the upper reaches of some of the rivers this depth, of course, can not be obtained. The standard boats in France are of 300 tons capacity, 126 feet long, 16-foot beam, and 5.9 feet draft. The dimensions of the waterways

and the size of boats in Germany are generally somewhat larger. The country traversed by the European waterways is densely populated, 300 to 400 inhabitants to the square mile; the banks are occupied every few miles by villages, towns, or large cities; in most instances the rivers and canals are connected at both ends with other navigable waterways and frequently form important international transportation routes; the principal articles composing the waterborne commerce are coal, ores, building materials, and manufactured products; the actual cost of transportation, equipment, upkeep, and operation is low and labor plentiful; none of the improved streams have as small a low-water discharge as the Brazos. In the case of the Brazos the country is sparsely settled, about 25 inhabitants to the square mile; there are few towns on the river and comparatively few within easy hauling distance; there is no connection with other waterways except at the mouth; the principal commodity to be transported is agricultural produce, which forms but a small part of the commerce of successful waterways even in Europe; the cost of equipment, upkeep, and operation is high and labor scarce. The former conditions tend toward low cost of transportation, the latter toward high cost. In connection with the study of European waterways, it is worthy of note that general systems of connecting water routes had been undertaken and were well advanced before the era of railroads, and the principal work done since has been the completion, extension, and maintenance of these systems. It is quite probable that some of the smaller waterways would not have been improved had conditions been the same then as now. Moreover, the advent of modern rail transportation threatened the existence of these small water routes to such an extent that measures for their protection became necessary. With the methods permitted in this country, the small waterways of Europe could not have survived.

7. Ex-Congressman Henry stated that there are two fundamental reasons for the improvement of the Brazos River—one, that it would cause better freight rates; the other, that it would give another facility for moving commerce. While it seems to be generally believed that any improvement of a waterway will result in lower railroad rates, this is not necessarily so, as explained later on. With reference to the additional facility for moving commerce, it will be shown that the contemplated improvement would be of such an indifferent character as to be of small value and effect. Mr. Henry admitted that there must be more than eight locks and dams in order to give practical navigation, and that the cost would be much higher than estimated. While no recent estimate has been made, there are sufficient data in hand to show that probably eight locks and dams in addition to the eight contemplated under the existing plan of improvement would be required to slack water the river between Old Washington and Waco, and in this connection it may be stated that the locks and dams already built have cost about $500,000 each, from which, without going to the expense of a survey, a very good idea of the probable minimum cost of the work may be formed. To canalize the section below Old Washington, which would be necessary in order to insure even fairly reliable navigation, would require approximately 12 locks and dams at about the same unit cost. Even if such a project were carried out, continuous navigation would not be

provided, as the low-water flow is not sufficient to fill the pools. It was further stated that no navigation can be expected until all the locks and dams are built, and that development would then follow the improvement of the river as it does the building of a railroad. In this connection it should be stated that it has not been the policy of the United States to construct waterways into undeveloped country as a pioneer proposition, as is done in the case of railroads. It was also stated that if the river were improved, cotton could be put on trucks and hauled 75 miles to the river and floated down. An examination of the map discloses that the entire lower Brazos up to Old Washington (254 miles) falls within a radius of 60 miles from Houston, and the lower 100 miles falls within a similar radius from Galveston, so that a 75-mile truck haul would take all the cotton from the section below Old Washington Houston or Galveston without transfer to the river. One of the arguments advanced was that large lignite deposits exist in the Brazos Valley and that with cheap transportation these could be developed and shipped by water. Although lignite is known to exist in quantity in numerous localities accessible to rail or water transportation in this country, it has not as yet become a general commercial commodity and its future is still problematical. This should not be given weight in the present consideration. There are no coal or iron mines to create a large tonnage such as is carried on many of the European waterways, and on the canalized streams in this country, where improvements have been commercially successful. In the case of the Brazos, agricultural products must be relied upon for justification for the improvement, and so far as the board is informed, there is no instance, at least in this country, where sufficient tonnage of this character is available for water shipment to justify an expensive slack-water improvement.

8. The chief object sought by those advocating this improvement is lower transportation rates and they believe such rates would result from completion of the improvement. The district engineer also entertains this belief. The board is not in accord with this view. To bring about a reduction in rail rates a waterway must be capable of and have practical navigation to an extent sufficient to divert the business from the railroads and induce them to apply for lower rates. Neither the Interstate Commerce Commission nor the State railroad commission orders the lowering of rates because of the existence of actual or potential navigation. The initiative is with the carrier. The commissions can authorize but do not direct lower rates. This being the case the question arises as to what extent the proposed improvement would provide actual navigation and to what extent the railroads would consider the waterway a competitor. If completed, the improvement would result in a navigable depth of 4 feet for four months and 3½ feet for six months of the year at irregular and uncertain periods. In years of extreme drought it is very doubtful if even these results would be obtained. It will be observed from the hydrographs that high stages occur at very irregular intervals and are of short duration, and that between them there are long periods of low water when navigation through the open channel reaches aggregating 103 miles above Old Washington would be exceedingly difficult, if not impossible. The economic use of the river under these adverse conditions is extremely doubtful. Boats would have

to be available practically all the year round in order to get in four or six months' navigation. These boats would necessarily be of small dimensions and capable only of carrying small cargoes. The distance from Waco to Galveston via the river and the coastal canal is 465 miles. The average speed of boats on canalized rivers in France is 3.1 miles per hour. At this rate of speed on the Brazos, not allowing for any loss of time due to grounding, which loss is inevitable, it would require 12½ days for a boat to travel from Waco to Galveston, assuming a daylight run of 12 hours or 25 days for the round trip, not counting the time in port. It will be seen, therefore, that a boat would probably make four to six trips a year and be idle about one-half the year. Owing to sharp bends and shallow depths it would be impracticable to carry large tows on this river. A single boat or one barge in tow would probably be the method adopted. At an average of 200 tons of cotton per load downstream and a half cargo for return, one boat would carry annually 1,200 to 1,800 tons of freight. It is obvious that a boat line could not live under these conditions. The distance by rail from Navasota, near the lower end of the upper section, to Houston is 71 miles, and by water to Galveston 290 miles. The round trip by boat would require about 15 days. It could be made by motor truck in 2 days, and this method of transportation would be available every day in the year. In this connection it may be stated that motor trucks are being used in many places in competition with the railroads, and that in such cases the railroad commissions may grant lower rates as in the case of water competition. A complete system of motor truck roads would cost less than the improvement of the river and give a more reliable means of transportation. Comparing truck and river service on the basis of six months' navigation and continuous truck service, three trucks would haul during the course of a year about the same amount of freight as a 200-ton boat. In the former case the distance to be traveled is about 75 miles, in the latter 290 miles. This great difference in distance will always be in favor of land transportation and a handicap against the water route.

9. Experience on other streams in this country affording 3½ to 4 feet navigation for much longer periods each year than can be expected here indicates that boats could not operate successfully on the Brazos. The Red River, La. and Ark., might be cited as an example. In its natural condition this river affords about the same navigation facilities up to Shreveport as the Brazos would afford, if improved; that is, 3 to 4 feet for six to eight months of the year. In the early days before the advent of the railroads this river carried a commerce of considerable extent and value. With the multiplication of rail facilities, however, commerce declined and except on the lower part of the river there has been practically no navigation for many years, notwithstanding the fact that the river has been in better condition during recent years than it was when most extensively navigated. It is quite evident that under existing conditions it is more economical to ship cotton from Shreveport by rail than it is by water, otherwise it would not be done. If the facilities afforded by the Red River do not encourage navigation it must be concluded that the Brazos would not be navigated even if improved at a cost of many millions. It has been repeatedly stated

to the board by persons seeking the improvement of rivers having depths of 3 to 4 feet for the greater part of the year that such depths are insufficient for useful and effective navigation, and this view is confirmed by the experience on such rivers. Railroad officials are generally well informed regarding the potential value of a waterway as a competitor, and in the present case it is not believed that they would deem it necessary to lower the rates in order to retain control of the freight movement.

10. In the opinion of the board the improvement of the Brazos River is not economically feasible, as it would not afford useful navigation or control freight rates. As stated, water rates are established only when there is actual water competition and this would not be provided by the proposed improvement. After careful consideration the board concludes that further expenditures on the Brazos River between Old Washington and Waco are not justified, and that the project should be entirely abandoned, even to the extent of maintaining existing locks and dams, as these detached structures can serve no useful public purpose. If for sanitary or other reasons local interests desire to maintain them it is recommended that they be authorized to do so.

For the board:

PETER C. HAINS,
Major General, United States Army, Retired,
Senior Member of the Board.

REEXAMINATION OF BRAZOS RIVER, TEX., OLD WASHINGTON TO WACO.

WAR DEPARTMENT,
UNITED STATES ENGINEER OFFICE,
Chicago, Ill., April 6, 1917.

From: Col. C. S. Riché, Corps of Engineers.
To: The Chief of Engineers, United States Army
(Through the Division Engineer).
Subject: Report on reexamination of Brazos River, Tex., Old Washington to Waco.

1. In compliance with your instructions of August 5, 1916, the following report is submitted.

2. Section 14 of the river and harbor act approved March 4, 1915, provides:

> That the following projects now under improvement shall be reexamined, in accordance with the law for the original examination of rivers and harbors, with a view to obtaining reports whether the adopted projects shall be modified or the improvement abandoned:
>
> * * * * * * *
>
> Brazos River, Tex., Old Washington to Waco.

3. The State of Texas is somewhat larger than Germany and has a number of rivers as large or larger than the German rivers. One of the largest of these Texas rivers is the Brazos, which has several forks rising in the plains of western Texas and eastern New Mexico. These forks unite and flow in a southeasterly direction through the east central portion of Texas, a distance of over 1,200 miles, empty-

ing directly into the Gulf of Mexico at a point 50 miles southwest of Galveston entrance. No survey of the river above Waco has been made. The air-line distance from the mouth to Waco is 207 miles, and the distance by water is 429 miles. The air-line distance from Waco to the source of the fork rising in New Mexico is 414 miles and the river distance, if the same ratio holds as below Waco, would be 828 miles, making the total length over 1,250 miles. (The length has hitherto been reported in the annual reports as 950 miles.) A sketch[1] showing the general location of the river and its adjacent territory is inclosed herewith.

4. The portion of the river now under consideration extends from Old Washington, 254 miles above the mouth, to Waco, 429 miles above the mouth, a distance of 175 miles. The watershed of the entire river is approximately 36,000 square miles, of which only some 2,500 square miles are below Old Washington. Below Waco the river flows through fertile bottom lands from 2 to 8 miles wide, a considerable proportion of which is under cultivation. These bottoms are at times overflowed from 1 to 10 feet deep. Between Old Washington and Waco the bed and banks are as a rule composed of unstable material, causing frequent changes in location of the channel and occasionally of the river itself. The height of banks varies in general from 25 to 45 feet, averaging about 30 feet; the width between banks varies from about 325 feet to about 1,000 feet, averaging about 500 feet; the low-water surface width varies from about 90 feet to about 250 feet, averaging about 160 feet.

5. Discharge observations have been made by the United States Geological Survey at Waco, Tex., for a number of years, and from their records the discharge was as great as 132,000 second-feet, on May 25, 1908, and as small as 3 second-feet, on December 7–10, 1910. The flood of December, 1913, was greater than that of 1908, but there is no record available to give the discharge at that time. The stage of the river varies at Waco from +0.2 feet on the gage, April 30, 1902, to +39.7 feet on the gage December 3, 1913, and at Old Washington it ranges from 1 foot below zero of gage to 51.3 feet above (1913 flood).

6. The total fall from Waco to Lock and Dam No. 1 is 210.8 feet in a distance of 170.3 miles, or an average of 1.24 feet per mile. The slope, however, is not uniform. At the Falls of the Brazos (mile 384.7) there is an almost perpendicular drop of 4 feet. At several places there are rock shoals with a fall of 2 to 8 feet in less than 1 mile, and there are numerous sand and gravel bars where the fall is much greater than the average. The average fall between the eight proposed lock sites is as follows:

No. of lock.	Mile of first-named lock.	Average slope per mile.	No. of lock.	Mile of first-named lock.	Average slope per mile.
		Feet.			*Feet.*
1 to 2	259.7	0.85	5 to 6	351.6	1.45
2 to 3	302.0	1.16	6 to 7	377.8	2.08
3 to 4	340.0	2.10	7 to 8	383.8	1.33
4 to 5	347.7	1.80	8 to Waco	418.0	1.09

[1] Not printed.

The low water discharge is small and depths during low water are insufficient for navigation. There are no regular high and low water seasons, the river being subject at all seasons of the year to quick, flashy rises, followed by a very slow recession. Rises, however, are more frequent from April to June, and in December than at other times of the year. Crops in this section of the river move during the fall and early winter.

7. The river and harbor act approved August 31, 1852, provided "For surveys of the harbors at Sabine, Galveston, Pass Cavallo, Velasco, Brazos de Santiago, and Corpus Christi, and the rivers Sabine, Brazos, and Trinity, Texas, $5,000." No record of a report on this item is available in this office.

8. The river and harbor act of June 23, 1874, contained the following item: Brazos River below Waco, including the bar at its mouth. A transit and stadia survey was made and report is published on page 929, Annual Report, Chief of Engineers, for 1875. The report was unfavorable as to any work above Old Washington.

9. The river and harbor act of September 19, 1890, contained a provision for the examination of Brazos River, from its mouth to Waco.

Report on preliminary examination was published in House Document No. 63, Fifty-second Congress, first session, and on page 1555, Annual Report, Chief of Engineers, 1892. The report was unfavorable.

10. The river and harbor act of August 18, 1894, contained a provision for the examination of Brazos River from the city of Waco to the town of Richmond. A report on preliminary examination was published on page 1833, Annual Report, Chief of Engineers, 1895. The report was unfavorable.

11. The river and harbor act, approved June 6, 1900, provided for the examination of—

Brazos River from its mouth to the city of Waco, with a view to procuring a navigable depth of 4, 5, and 6 feet; first, from its mouth to the town of Old Washington, in Washington County; second, from said town of Old Washington to the city of Waco. In case the survey is made, the report thereon shall show the most advantageous depth to each point and whether a system of locks and dams will be necessary, and, if so, the cost and location of same.

Reports on preliminary examination and survey were published in House Documents Nos. 283 and 450, Fifty-sixth Congress, second session, and on pages 1975, 2004, and 2009, Annual Report, Chief of Engineers, 1901. The report by the district officer and the division engineer was favorable for the improvement of the river between Old Washington and Waco by the construction of 18 locks and dams at an estimated cost of $3,500,000. The Chief of Engineers made no recommendation.

12. The river and harbor act approved March 3, 1905, contained the following item:

Improving Brazos River, Tex., from Old Washington to Waco: The Secretary of War is authorized and directed to cause an examination of this section of the river with a view of determining whether four or six months' navigation can be secured to Waco at a reasonable cost by any method other than by locks and dams; and if not, the least number of locks and dams that will furnish such navigation; and in the event that it should appear feasible to secure four to six months' navigation by open-channel work or by not to exceed nine locks and dams the Secretary of War may expend for the improvement of said river an amount not to exceed $75,000, which amount, under the conditions named, is hereby appropriated.

Report on this examination was published in House Document No. 705, Fifty-ninth Congress, first session, and was favorable for the construction of eight locks and dams and 103 miles of open-channel improvement, at a total cost of $2,915,000, with $101,800 annually for maintenance and repairs. The Board of Engineers for Rivers and Harbors reported unfavorably on the advisability of the project, but in view of the wording of the act the Chief of Engineers expressed no opinion on this point.

13. The river and harbor act of March 3, 1909, contained the following item for examination of—

Brazos River with a view to the selection of sites for the additional locks and dams between Old Washington and Waco.

Report on preliminary examination and survey was published in House Document No. 95, Sixty-second Congress, first session. The maps accompanying this report give the latest survey information for this section of the river, and attention is, therefore, invited to them, as no duplicates of these maps are inclosed herewith.

14. The existing project is based upon the above-quoted item from the river and harbor act approved March 3, 1905. It contemplates securing a navigable depth of 4 feet at ordinary stage of water for four months and 3½ feet for six months of the year by constructing eight locks and dams and 103 miles of open-channel work, at a total estimated cost of $2,915,000, these locks to be 170 feet long and 55 feet wide, except Lock No. 8, which is 143 feet long and 55 feet wide, with from 0 to 4½ feet over the lower miter sill at low water. (H. Doc. No. 705, 59th Cong., 1st sess.) This project has not been adopted as a whole, but Lock and Dam No. 1, at Hidalgo Falls, was authorized by the river and harbor act approved March 2, 1907; Lock and Dam No. 8 by the act approved June 25, 1910; Locks and Dams Nos. 3 and 6 by the act approved July 25, 1912. It is believed that the completion of this project would give practically the same facilities for navigation between Waco and Old Washington as can be had between Old Washington and the mouth of the river without the use of locks and dams.

15. On January 1, 1917, the status of the work on the river was as follows:

a. *Lock and Dam No. 1 (259.7 miles above mouth).*—This lock and dam was completed December 31, 1914, at a total cost of $451,640.68. Expenditures since from the appropriation for "Operating and Care of Canals and Other Works of Navigation" to December 31, 1916, $34,702.

b. *Lock and Dam No. 3 (340 miles above mouth).*—A maneuver boat and three barges have been constructed for this work at Lock and Dam No. 8. Materials for the railroad spur to the site of the dam and for bunk houses have been ordered and partly delivered, and the grading of the railroad spur completed. Total expenditures to December 31, 1916, $40,007.41.

c. *Lock and Dam No. 6 (377.8 miles above mouth).*—The land required for the construction of this lock and dam is being procured by local interests; condemnation proceedings were in progress on December 31, 1916. It is understood, however, that this land has since been acquired by the United States. Plans for the work have been prepared and approved, but new drawings are to be made. A maneu-

ver boat and three barges are being constructed at Lock and Dam No. 8. Total expenditures to December 31, 1916, $29,636.93.

d. *Lock and Dam No. 8 (418 miles above mouth).*—This lock and dam was practically completed in June, 1916, but the raising of the dam developed several leaks, for the correction of which it is proposed to construct a line of steel-sheet piling at the upper edge of the dam connecting thereto by concrete. About half of the piling had been driven on December 31, 1916, but it is understood that all of it has now been completed. The total expenditures to December 31, 1916, had been $640,131.93.

The total expenditures to December 31, 1916, exclusive of those from the appropriation for "Operating and Care of Canals and Other Works of Navigation" were $1,161,416.95.

16. The river is not navigable above Old Washington, except at high-water stages. There are forwarded herewith hydrographs [1] of the river at Waco and Valley Junction from the date of establishment of Weather Bureau gauges at those points, from which the approximate depths at mean and higher stages and fluctuations of water surface may be secured. A list of bridges across the river, with data concerning them, is as follows:

Location.		Owner.	Kind.	Clear height.		Clear width between piers.	When built.
Miles above mouth.	Nearest town, street, etc.			At mean low water (feet).	At high water (feet).		
254.0	Old Washington..	Washington and Grimes Counties.	Fixed.....	46.0	None.	191.5	1877
272.0	Navasota.....	G. C. & S. F. Ry.....	.....do.....	39.0	None.	206.0	1903
288.4	Bryan.....	Brazos and Burleson Counties.	.....do.....	53.1	2.7	259.8	1908
299.0	.....do.....	.....do.....	.....do.....	54.7	1.5	200.2	[1] 1915
307.0	.....do.....	.....do.....	.....do.....	47.8	None.	120.4	[1] 1915
312.2	.....do.....	H. & T. C. Ry.....	.....do.....	47.0	None.	288.0	1912
336.0	Hearne.....	I. & G. N. Ry.....	.....do.....	53.1	None.	316.5	1905
339.5	Port Sullivan.....	Milam & Robertson Counties.	.....do.....	45.5	None.	215.3	1915
347.5	Cameron.....	.....do.....	.....do.....	47.3	None.	193.7	1914
352.2	.....do.....	.....do.....	.....do.....	39.5	None.	289.0	1900
374.8	Highbank.....	Falls County.....	(2).....	.....	.....	.....	.....
379.2	Marlin.....	.....do.....	Fixed.....	38.0	None.	265.0	.....
388.7	.....do.....	.....do.....	.....do.....	35.0	1.5	296.0	1908
424.2	Waco.....	M. K. & T. Ry.....	.....do.....	43.8	None.	138.0	1906
424.3	.....do.....	St. L. & S. W. Ry.....	.....do.....	39.5	None.	183.0	.....
424.6	.....do.....	City of Waco.....	Suspension..	39.0	1.8	463.0	[1] 1914
424.61	.....do.....	Southern Traction Co.....	Fixed.....	34.3	None.	143.0	1907
424.7	.....do.....	McLennan County.....	.....do.....	38.5	1.5	442.0	1901

[1] Rebuilt. [2] Wrecked in December, 1913, flood; to be rebuilt.

17. Navigation in the past has been carried on from the mouth to Old Washington, 254 miles above the mouth, and occasionally as far up as Port Sullivan, about 87 miles above Old Washington, but there has been very little navigation farther up than Columbia, about 34 miles above the mouth of the river, since the Civil War. The 1875 report of survey states that prior to 1858 navigation was carried on at high water to Old Washington and at low water to Columbia. The report of July 11, 1905 (p. 5, H. Doc. No. 705, 59th Congress. 1st sess.), discussed the possibility of open-river improvement, and

[1] Not printed.

concluded "it is obvious that to obtain the desired navigation by open-channel methods alone would require an alteration of the slopes in many places to an extent which is impracticable." There appears to be nothing of record to indicate the stage at which the obstructions would be drowned out so that navigation of the river in its natural condition would be practicable, but it is believed that such stages would be very short in duration and irregular as to time of occurrence.

18. The section of the river between Old Washington and Waco has no terminal facilities whatever at the present time because there is now no use for them. The citizens of Waco, Tex., who are very much interested in the navigation of this river and who are making a strong demand for its improvement, have stated that, should the river be improved sufficiently to permit of navigation, they will furnish all the public wharves and transfer facilities that will be necessary, the city of Waco owning over 4,000 linear feet of river frontage averaging over 100 feet in width. Wharves built on this public land could be very easily connected by short spur lines with the railroads entering the city. The Waco city commission on September 2, 1915, passed a resolution stating that when the time shall come for the construction of wharves, docks, and terminal facilities for shipping on the Brazos River, an election will be called for the issuance of bonds for the construction and maintenance of said terminal facilities, and the sum of $1,200 was then appropriated for the purpose of ascertaining what terminal facilities would be necessary to take advantage of the improvement of Brazos River. The cities of Marlin, Calvert, Bryan, Hearne, Navasota, Hempstead, and Brenham have also passed resolutions stating that when the time shall come an election will be called for the issuance of bonds for the construction of public wharves, docks, and terminal facilities at the various points on Brazos River.

19. The present commercial development of the cities above named and of the adjacent country is fully described in the accompanying documents. The bottom lands of the river are of very great fertility.

20. There are no sites on this section of the river at which waterpower plants could be profitably installed. During intermediate stages of the river it would be possible to develop waterpower at the various dams, but low stages by reason of insufficient flow and high stages by reason of the drowning out of the dams would cause the power to be developed so intermittently that it could have no present commercial value.

21. There is much interest along the river in the protection of its bottom lands from overflow by floods. These lands are of great agricultural value, and their protection merits very earnest consideration. This subject is of sufficient importance to justify the Government in exercising a close supervision of all embankments and other structures built in the river bottom as well as in the bed of the stream itself, with a view to the prevention of undue interference with flood flow. The river has had two very disastrous floods in recent years—one in June–July, 1899, and the other in November–December, 1913. Of the two, the latter was the higher and is the record high water for the portion of the river under consideration. In this connection it may be stated that under date of April 15, 1914, the Secretary of

War in a letter to the Speaker of the House of Representatives specifically included the Brazos in a list of five rivers in the country as meriting early consideration with a view to protection from flood damage (House Doc. No. 914, 63d Cong., 2d sess.); and the river and harbor act of July 27, 1916, requires the examination of the Brazos with a view to devising plans for flood protection, etc.

22. In regard to the advisability of continuing the improvement of the Brazos, attention is invited to the appended review[1] of the case submitted by the Brazos River & Valley Improvement Association and to the accompanying documents.[1]

23. Those directly interested in the matter have at quite an expense made a tonnage survey of the territory which would be affected by the improvement. In the nature of things this tonnage survey is not complete—but much time and effort were consumed in the matter and the result has been a more nearly complete showing than has probably ever been made for any river. Attention is especially invited to these various appended reports.[1]

24. In effect, an improved Brazos River, such a river as would permit reliable and efficient barge navigation, would result in the application of materially lower freight rates to and from all points actually on the river; and the influence of these lower rates would extend over a zone on each side of the improved part of the river and above the head of its navigable portion. This zone would extend to all points where the local freight rate (by wagon, truck, or railroad) to the river plus the river rate equaled the existing rate. The area of this zone would be approximately 150 miles in width and 280 miles in length (to a point approximately 75 miles above the head of navigation at Waco), or an area of about 42,000 square miles, which is nearly as great as the area of Pennsylvania. Freight rates at the river points would be lowered the most, and this lowering would gradually diminish thence to the limits of the zone.

25. Based on the tonnage survey above referred to, an annual total of over 11,000,000 tons of freight would be affected. This is for the year 1914 alone, and takes no account of probable increases in tonnage in the future. The saving to the people on this volume of tonnage, it is shown, would have been $6,837,783 annually.

26. Taking from this amount a liberal sum for operation and maintenance of the completed improvement, an annual saving to the public of $6,000,000 is shown on existing business alone. This is 6 per cent on $100,000,000, which sum is far in excess of the cost of a most elaborate and thorough improvement. Where the public interest is involved to such an extent the matter becomes one meriting very careful consideration.

27. Should the river be improved, there may be some question as to how much of the tonnage affected will actually be transported by water, and how much will continue to be transported by rail but at the reduced rates which the competition of the improved river will enforce.

28. To my mind what proportion of freight is actually carried by water and what is actually carried by rail is immaterial. It is the people's money which would be spent for such an improvement, and it is the people themselves who would secure the benefits of the re-

[1] Not printed.

sulting lowered rates, whether their freight actually went by water or by rail. There is no mysterious difference between a dollar saved on a water shipment and a dollar saved on a rail shipment. The two dollars are exactly equal.

29. But it has been held in many quarters that the effect on rail rates of an improved waterway should be ignored, and that there are other and better ways of inducing railroad corporations to lower their rates than by subjecting these corporations to the competition of a waterway. In fact it has been stated by high authority that if any point requires a lower rate it should not secure it by the very expensive means of improving a river; that that low rate can be and should be obtained in another way.

30. This would be correct if there were any other way, but it appears that water competition is the only way by which any permanent and material reduction of freight rates can be obtained in such territory.

31. The suggested alternative method of obtaining lowered freight rates is through such instrumentalities as the various State railroad commissions and the Interstate Commerce Commission, particularly the latter.

32. Some years ago, in a report on Des Moines River, Iowa (H. Doc. No. 1063, 62d Cong., 3d sess.), to which attention in this connection is especially invited, I discussed the limitations of control over freight rates which could be had by the instrumentality of such commissions. I will repeat, in substance, that discussion, because it is of controlling influence in this connection.

33. The law of the land is a more powerful weapon for the concentrated efforts of the corporation which is able to mold, manipulate, and produce the evidence than for the scattered efforts of the most fortunate individuals.

34. The law of the land found authentic expression in the reissue of the Great Charter in the time of Henry III:

> No freeman shall be taken or imprisoned or desseized of his freehold or liberties or free customs, or outlawed or exiled, or anywise destroyed; nor shall we go upon him but by the lawful judgment of his peers or by the law of the land.

35. The Federal Constitution contains its equivalent, due process of law, in two places: First, in the fifth amendment, which provides that no person shall be deprived of life, liberty, or property without due process of law, and which has been construed to limit the power of the Federal Government only; second, in the fourteenth amendment, which provides that no State shall deprive any person of life, liberty, or property without due process of law; nor deny to any person within its jurisdiction the equal protection of the laws, which limits the power of the States.

36. Confiscatory legislation, acts which confiscate the property of a citizen by the mere edict of the legislature, fall within the inhibition of these amendments. "In these cases," said the United States Supreme Court in Cummings *v.* Missouri (4 Wall. 277, 323), "the legislative body, in addition to its legitimate functions, exercises the powers and office of judge; it assumes, in the language of the textbooks, judicial magistracy; it pronounces upon the guilt of the party, without any of the forms or safeguards of trial; it determines the sufficiency of the proof produced, whether conformable to the rules

of evidence or otherwise; and it fixes the degree of punishment in accordance with its own notions of the enormity of the offense."

37. In the case of Munn *v.* Illinois and the so-called Granger cases, the United States Supreme Court held that the rate of the charges of all business affected with a public interest is subject to regulation by the legislature; that the fixing of rates was a legislative and not a judicial question; but in the Railroad Commission cases (116 U. S. 307) the court declared:

> This power to regulate is not a power to destroy, and limitation is not the equivalent of confiscation. Under pretense of regulating fares and freights, the State can not require a railroad corporation to carry persons or property without reward; neither can it do that which in law amounts to a taking of private property for public use without just compensation or without due process of law.

38. In Interstate Commerce Commission *v.* Cincinnati, etc., Railway Co. (167 U. S. 479) it was held that the prescribing of future rates is a legislative act, while the inquiry as to the reasonableness of present rates is a judicial act; and in Chicago, etc., Railway Co. *v.* Minnesota (134 U. S. 418) it is said:

> The question of the reasonableness of a rate of charge for transportation by a railroad company, involving, as it does, the element of reasonableness both as regards the company and as regards the public, is eminently a question for judicial investigation, requiring process of law for its determination.

In Chicago, etc., Railway Co. *v.* Wellman (143 U. S. 339) it is said:

> The legislature has power to fix rates, and the extent of judicial interference is protection against unreasonable rates.

39. Thus it appears that the courts can not fix rates, but can only unfix them; that the legislature can fix a rate, but if it appears upon a trial, based upon evidence produced by the railroad, that the rate so fixed is unreasonable—that is, does not yield a fair return upon the property invested—the duty of the court is to enjoin its enforcement. One would expect that in this conflict between the railroad corporations and the people, the people would have the advantage before the legislatures and the railroads would have the advantage before the courts; this, because the courts are necessarily controlled by the evidence produced before them and the corporations have control of the business, know about it, know the value of the property invested, and can conform the evidence so as to require or justify the desired decree, while the people do not control the business, do not know about it, do not know the value of the property invested, can not procure the evidence or point out where its adverse conformation departs from the truth, and hence are practically powerless and in the hands of the railroad company when it comes to the determination in court of what the fair return should be. The results in practice seem to have justified this expectation.

40. The Interstate Commerce Commission has made several rulings, the results of which would have been to reduce freight rates, but it was held, in the case of Missouri, Etc., Railroad Company *v.* Interstate Commerce Commission (164 Fed. Rep. 645), that in fixing the rates the Interstate Commerce Commission acts only as a legislative or administrative board and not judicially, and its determina-

tion or action can not preclude judicial inquiry into the justice and reasonableness of its rates; that the act declares unequivocally that the circuit courts, sitting in equity, are vested with jurisdiction to entertain, hear, and determine suits to compel obedience to orders of the Interstate Commerce Commission prescribing rates, and also suits to annul or enjoin the enforcement of such orders; that the hearing in a suit of either kind is not necessarily confined to an ascertainment of what was determined by the commission and to a consideration of the sufficiency of the facts as determined by it, but, on the contrary, the hearing may be *de novo* and may include the taking and consideration of evidence other than that before the commission.

41. In Stickney *v.* Interstate Commerce Commission (164 Fed. Rep. 638), the court held that under the provisions of the Hepburn Act the circuit court has ample jurisdiction to set aside or suspend any order of the Interstate Commerce Commission resulting from a misconception or misapplication of a law to conceded or undisputed facts. Hence, that the court has jurisdiction to set aside an order of the commission which attempts to reduce a terminal charge below its just and reasonable value.

42. It appears that after the passage of the interstate commerce act it still remained within the power of the railroads to involve the question of freight rates in litigation in the courts in suits instituted by themselves and under pleadings and forms of their own selection.

43. Several of the States began about the same time the attempt to fix or regulate freight rates by acts of their legislatures, commissions, and otherwise. The results, as exemplified in Arkansas, Kansas, Nebraska, Missouri, Minnesota, Virginia, Michigan, Texas, Kentucky, and elsewhere, are part of our history and need no amplification. No real headway has been achieved in the reduction of freight rates. Discriminations have been discarded to a great extent, but the net result of attempted legislative control of freight rates amounts practically to this: That a reduction will stand if agreed to by the railroads and will not stand otherwise.

44. See St. Louis, Etc., Railroad Company *v.* Gill (156 U. S. 657), Mercantile Trust Company *v.* Texas, Etc., Railroad Company (51 Fed. Rep. 529), Chicago, Etc., Railroad Company *v.* Minnesota (134 U. S. 458), Lake Shore, Etc., Railroad Company *v.* Smith (173 U. S. 687), Trammell *v.* Dinsmore (102 Fed. Rep. 800), Louisville, Etc., *v.* McChord (103 Fed. Rep. 216).

45. The basis of compensation as set forth in Chicago, Etc., Railroad Company *v.* Dey (35 Fed. Rep. 879), is as follows:

> Compensation implies three things: Payment of cost of service, interest on bonds, and then some dividend. Cost of service implies skilled labor, the best appliances, keeping the roadbed, and the cars, and machinery, and other appliances in perfect order and repair.

46. In Smyth *v.* Ames (169 U. S. 526), the same subject is treated, and the court says:

> The basis of all caluclations as to the reasonableness of rates to be charged by a corporation maintaining a highway under legislative sanction must be the fair value of the property being used by it for the convenience of the public. And in order to ascertain that value the original cost of construction, the amount expended in permanent improvements, the amount and market value of its bonds and stocks, the present as compared with the original cost of con-

struction, the probable earning capacity of the property under particular rates prescribed by statute, and the sum required to meet operating expenses, are all matters for consideration, and are to be given such weight as may be just and right in each case.

47. To the same effect are many other decisions of our courts. It appears that the tests prescribed involve the production of evidence almost exclusively within the knowledge and control of the railroad companies, thus making it extremely difficult, if not impossible, for persons on the outside to make a successful assault upon their established rates or successfully to resist an attack inaugurated by them upon a statute or order of a commission seeking rate reduction.

48. The Interstate Commerce Commission and the various State commissions have been engaged in their activities for some 30 years. It has been demonstrated that they can enforce the adoption of safety appliances and do other things of a like police nature, and that they can also put a stop to discriminations whenever these latter can be made manifest, but as for any effective lowering of rates to a point such as would be produced by a competitive waterway their efforts have been fruitless.

49. Let us see what has happened to some of the freight rates in this very Brazos territory.

50. Appended hereto is a letter[1] from Hon. Allison Mayfield, chairman of the Railroad Commission of Texas, dated November 11, 1916, to which is attached a statement[1] of various class rates—

(*a*) Between St. Louis and Texas common points.

(*b*) Between Waco and Galveston.

(*c*) Local Texas rates for hauls of 25, 50, 75, 100, and 125 miles. All at various times from the early nineties to date.

51. Those under (*a*) have risen since the early nineties. Those under (*b*) and (*c*) have for the most part fallen somewhat since the early nineties, but have generally risen lately. There have been many changes in classification of various articles—some from higher to lower classes, some from lower to higher. It would be impossible within reasonable compass properly to cover the ground in the matter.

52. It may be stated, however, that some months ago the Interstate Commerce Commission, in a case involving a question of rates between Shreveport, La., and Texas points, issued its order and found what it considered to be reasonable rates for that traffic, and the Texas carriers in revising their tariffs in pursuance of that order, construed said order as giving them authority to apply the same rates to traffic moving altogether between points in Texas, and to ignore the rates of the Railroad Commission of Texas. This action of the carriers is embodied in Texas Lines Tariff No. 2–B, or what is commonly known as "Fonda Tariff No. 2–B," the rates provided in which, while in some few instances less than the rates prescribed by the Texas commission and theretofore applying, are in the main very much higher than the Texas commission's rates and worked material increases over the rates that said Tariff No. 2–B undertook to supersede. This tariff and act of the carriers in alleged pursuance of the order of the Interstate Commerce Commission took effect on November 1, 1916, and in addition to the changes made in

[1] Not printed.

the figures of the rates themselves, said order of the Interstate Commerce Commission also ordered the substitution of the western classification for the Texas classification. This substitution of classifications had the effect of very materially changing from lower to higher classes many commodities moving by freight between points in Texas, to make a list of which, however, would require much time and labor.

53. Where in all this activity of the last 30 years is there any evidence of any material lowering of rates? The present tendency clearly is upward.

54. Let us take the present class rates effective between Waco and Galveston, 234 miles by rail, and where there is as yet no water competition:

Class rates between Waco and Galveston, in cents per hundred pounds.

	1	2	3	4	5	A	B	C	D	E
Effective Nov. 1, 1916.....	87	74	61	51	43	45	35	30	26	22

55. And the present class rates effective between Memphis, Tenn., and New Orleans, La., 396 miles by rail, and where there is effective water competition:

Class rates between Memphis and New Orleans, in cents per hundred pounds.

	1	2	3	4	5	6	A	B	C	D
Effective Nov. 1, 1916.....	65	50	45	35	30	25	16	26	15	12

56. And the present class rates effective between Chicago, Ill., and New York City, 912 miles by rail, and where also is effective water competition:

Class rates between Chicago and New York, in cents per hundred pounds.

	1	2	3	4	5	6	Rule 25.	Rule 26.
Effective Nov. 1, 1916.....	78.8	68.3	52.5	36.8	31.5	26.3	58.1	42

57. In the light of the above, is it probable that the first set of rates by present methods and without water competition will ever be brought to anything like a parity with the other two?

58. Nor is the present method of regulation by the Interstate Commission and by the various State commissions without a very serious measure of cost in itself. It is stated that in 10 years this regulation has necessitated an increase of 87 per cent in the number of general office clerks employed by the railroads at a cost to them of over $40,000,000 annually. In the fiscal year 1915 it is reported that the railroads were compelled to furnish these various commissions, etc., over 2,000,000 separate reports. In addition to this is the cost to the public of maintaining all these various commissions, which is estimated to be close to $50,000,000 annually. These are large sums to pay

every year for the adoption of safety appliances and the prevention of discriminations. They are far in excess of the annual appropriations for all the rivers and harbors of the country.

59. It is asserted in some quarters that, while water competition will reduce rates in territory immediately affected, this will do no good to the country as a whole, because the railroads will recoup themselves by raising rates outside the limits of the affected territory.

60. Such a plea is misleading. The greatest single factor in the making of a rate is what the traffic will bear. This is true notwithstanding all efforts on the part of commissions and courts to proportion rates to the cost of the service rendered; for the reason that the rate which the traffic will bear can be arrived at practically by trial and without serious danger of loss, whereas the cost of the service is largely a theoretical matter, is exceedingly difficult and expensive to ascertain and may result in serious loss if the resultant rate is either too high or too low as compared with what the traffic will bear.

61. Existing railroad rates, therefore, although at a distance from a waterway which has suddenly become competitive, being substantially based on what the traffic will bear can not be arbitrarily increased to offset lessened rates on those portions of the railroads subject to water competition and where the rates have been lowered to meet such competition.

62. In this connection it must also be borne in mind that water competition is not the only kind of competition which railroads must meet. There are numerous cases where railroads in Texas have obtained authority to lower rates to meet the competition of wagons. This fact in itself is perhaps the best illustration which could be given of what railroad rates in this territory really mean.

63. There seems, therefore, to be no escape from the conclusion that refusal to improve the Brazos means the denial to a territory nearly as large as the State of Pennsylvania of all chance for such intensive commercial and industrial development as is enjoyed by more favored localities.

64. Low freight rates are vital to produce such intensive development and the population and prosperity which would accompany it. Transportation charges are in effect a tax. Were it possible to eliminate them altogether it would be of incalculable benefit, and the lower they can be made the better. With a substantial lowering in rates materials can be moved which could not previously be handled except at a loss. This creates new industries, increases population and its means of support, and the railroads themselves will share in these benefits. The competition with the railway corporations would not be destructive, but along constructive lines. The greater volume of traffic which would result would more than make up to them for the lower rates which water competition would enforce.

65. And beyond all that, additional transportation facilities are badly needed to-day and will be all the more needed in the future unless the development of the country is to cease. In a report by the Committee on Interstate and Foreign Commerce of the House of Representatives (H. Rept. No. 352, 64th Cong., 1st sess.) it is stated that "It is announced by experts who claim to know that it will require an expenditure of from five to fifteen billion dollars to supply

the railroads of the country with sidetracks, warehouses, terminal facilities, and the other equipments and improvements necessary to handle the transportation business of the country, present and prospective, in the near future." It would be the part of wisdom to put a portion of this sum into the alternative method of transportation by waterways, which would relieve the railways of much of the coarse freight, and permit them the more easily to handle such freight as is peculiarly suitable for them, and, in addition, would be available for general use should railway service become interrupted by strikes or otherwise. The large questions of public policy involved in this whole matter are of a character which should not be left for determination by any set of individuals. They are questions which Congress alone is competent to decide.

66. The improvement of rivers like the Brazos has been widely criticized because of their present lack of water-borne commerce. This regardless of the large annual tonnage whose transportation rates would be affected, and ignoring the fact that neither a waterway nor a railway can actually carry freight until its construction is completed. The Brazos, however, when improved, will give access by water from the interior of Texas not only to ship side at its mouth at Freeport, but also, through the Intracoastal Canal, to ship side at Galveston and Port Aransas—and, upon completion of that canal, to Mobile, New Orleans, and Mississippi, Missouri, and Ohio river points generally, and to the Great Lakes, where a waterway connection with Illinois River now seems to be assured. It will in no sense be isolated, but will at once become a part of an extensive system of water communications.

67. To judge the worthiness of a proposed waterway improvement solely by the amount of water-borne commerce now transported on it is not a safe method.

68. The money for such improvements is collected from all of the people, regardless of any special interests which any of them may have or with which any of them may be affiliated. It is right and just, therefore, that the benefits to be derived from a waterway improvement should also be widely spread among the people, and that there should be no danger of these benefits being monopolized or nearly monopolized by any special interest.

69. The benefits from the improvement of a river like the Brazos will be widely spread among the people. Not only will these benefits accrue to all people living or doing business in the zone tributary to the river, but they will accrue to all people and places doing business with those who live in that zone. For example, if the freight rate between Brazos points and Chicago is reduced this will enable Chicago the better to increase its trade with that territory, and so will benefit Chicago. There will be no possible monopolizing of the benefits. In spite of this fact, opposition to river improvements of this character has, in certain quarters, been very outspoken and pronounced.

70. And yet there are many other kinds of waterway improvements which are made at the cost of the Government, and which are not so free from the taint of monopoly, and yet against which little or no opposition is heard. We have many harbors of this character, although the great majority are fairly free from this objection. That protests are not more vigorously made against those which are more

or less monopolized shows that undue weight is often given to the supposed merits of existing water-borne tonnage.

71. It is impossible to explain this point properly without an illustration. There are a number of harbors which could be referred to for the purpose, but the harbor at Conneaut, Ohio, illustrates this matter more pointedly than any other of which I have knowledge. At Conneaut is a harbor which is handling over 10,000,000 tons of water-borne commerce annually. There can be no question as to the physical necessity for its existence and further improvement. The entire harbor, however, is under the direct control of the Pittsburgh & Conneaut Dock Co., and its only direct rail connection is the Bessemer & Lake Erie Railroad, both of the corporations named being affiliated with what is popularly known as the Steel Trust. The United States Government to date has spent over $1,600,000 for piers at the entance to this harbor and for an outside breakwater, etc., and yet the entire harbor is fenced off from the general public.

72. To verify this, I visited Conneaut, went to the gate in the fence, told the watchman I wanted to get to the East Government pier, and was directed to go to the office of the Pittsburgh & Conneaut Dock Co. for a pass to permit me to cross the ground of the company, which would have to be done in order to reach the Government pier. The original pass received is appended hereto.[1] It was good solely for the date stated, and was not good at night. It is manifest that the corporation which does business through the port of Conneaut derives substantial benefits from the funds the Government has expended there. Just what proportion of these benefits is received by the general public is not so clear, even though there is a large water-borne tonnage which uses this harbor.

73. I do not know of a river anywhere which could be entirely fenced off and which could not be approached without the consent of some corporation. Furthermore, such benefits in lower rates, etc., as would be obtained from an improved river would be manifestly widespread among the public at large and there would be no possibility that any special interest could monopolize them.

74. For all of the above reasons and for the further reason that the Government has already made a substantial start in the work of improving the river, I am of opinion that the improvement of Brazos River, Texas—old Washington to Waco—connected as it is with ocean ports and other waterways, and penetrating to the railroad center of Waco, which is close to the geographical center of the State of Texas, is worthy of being continued by the Government, certainly to the extent of being carefully surveyed so that all the facts regarding it may be known. Such a survey should be especially thorough in everything connected with the determination of sites for locks and dams, and should include ample exploration by borings to determine the location of satisfactory foundations. It would also be highly desirable if such a survey could also include the entire bottom lands of the river, as this would be of permanent and material assistance in the determination of all questions connected with floods, with many of which questions the Government is directly concerned.

C. S. RICHÉ,
Colonel, Corps of Engineers.

[1] Not printed.

[First indorsement.]

OFFICE DIVISION ENGINEER, GULF DIVISION,
New Orleans, La., May 21, 1918.

To the CHIEF OF ENGINEERS, UNITED STATES ARMY.

1. Forwarded.

2. As stated in the above report, the Brazos River is a very long one. From its sources in New Mexico it flows for more than half its length through a semi-arid region, entering the fairly well watered part of Texas a comparatively short distance above Waco. In the semi-arid region the range of variations from the normal annual rainfall is unusually great. Very heavy downpours, both local and rather general, occur at times, causing the "flashy" rises of the river mentioned in the report. On the other hand, the region is subject to very long periods of drought, during which, at many points and for many months at a time, there is no visible flowing water in the river bed, though it is said that there is always some flow under the bed. I personally examined the river from Waco to near its sources in the spring of 1917, in connection with the preliminary examination ordered by the river and harbor act of July 27, 1916, with a view to devising plans for flood protection; and I found that this condition existed at that time. It has probably existed nearly all the time since then, as it is only recently that the drought of about two years' duration has been relieved. From a little above Waco down to the northern limit of the coastal plain, a river distance of perhaps 300 miles, the valley is very fertile, and in ordinary years has sufficient rainfall for the production of large crops, cotton being at present the principal one. The valley is wide, and is subject at times to sudden, disastrous floods, for protection against which levees are in some places being built.

3. In connection with the peculiar physical characteristics of the river, as regards great variations of volume, it should be stated that in 1917 an amendment to the State constitution of Texas was adopted authorizing the formation, by the inhabitants of the various drainage basis of the State, of so-called conservation districts for purposes of flood protection, irrigation, drainage, etc. Under this amendment the entire drainage basin of the Brazos River, in Texas, would form one district. I understand that the organization of such districts is being undertaken, and that plans are being considered for protection of lands subject to floods and for the prevention or checking of floods by reservoirs. Should these efforts result, in the case of the Brazos, in the construction of reservoirs on the upper river and its tributaries, the present unfavorable conditions as regards low water flow may be considerably improved.

4. The valley is served by a number of railroads, but it is claimed that the railroad rates on agricultural products, and particularly on cotton, from Waco and other points in the valley to the seaports of Galveston and Houston are excessive.

5. As stated, the present project provides only for the construction of four locks and dams, Nos. 1, 8, 3, and 6, of which Nos. 1 and 8 have been completed, No. 3 is well advanced toward completion, and No. 6 is not yet built. These locks and dams are a part of the project proposed in House Document No. 705, 59th Congress, 1st session, which project contemplated the construction of eight locks

and dams, with 103 miles of open channel work, the purpose being to secure a navigable depth of 4 feet, from the mouth to Waco, for four months, and 3½ feet for six months of the year. The securing of a 4-foot navigation on the rest of the river, 260 miles, from Old Washington to the mouth, under a project then in force, which included the construction of training walls and spur dikes, is assumed (this project contemplated securing that depth to Old Washington for 8 months in the year). The report of the Board of Engineers for Rivers and Harbors, given in the above-mentioned House Document, estimates the production of cotton in the valley below Old Washington to be equal to that between Old Washington and Waco.

6. So far as I have been able to ascertain, the improvement below Old Washington has never been completed, and in recent years the only work done there has been snagging and the removal of overhanging trees. There has been practically no navigation on that section of the river. The following is quoted from the Annual Report of the Chief of Engineers, for 1914 (pp. 829 and 830), regarding this section of the river:

> It has good depth from the mouth to near the head of tidewater above Columbia (mile 36) and about a 4-foot navigable channel above that point to about mile 50.
>
> The river has a very small low-water discharge. * * * The high banks erode readily, consequently the navigable channel is unstable, and open-river improvement difficult and expensive. A navigable channel of 4 feet exists only when the river is at a stage of about 4 feet, or possibly 4 months per year in intermittent periods.
>
> No advantage has been taken of the improvement above Columbia, principally on account of the fact that the characteristics of flow of the river are such that the periods during which the river can be navigated are indefinite as to time and duration.
>
> The operations during the year consisted in the removing of obstructions by snagging and the cutting of trees on banks between mile 99 and mile 236 with United States snag boat *Waco*. No work was done in the nature of jetty construction or repairs, and the work of that nature that has been done has either been obliterated or is of no further use.

7. As to the purpose of the proposed improvement from Old Washington to Waco, this, as shown in the House document mentioned, is the reduction of freight costs, particularly on cotton. In that document (p. 8) as comparison is made of the railroad rate on cotton from Waco to Galveston, with the rate of Memphis to New Orleans, which latter rate is influenced by actual or potential water competition. The two cases, however, are not entirely comparable, as there is a broad and deep channel from Memphis to New Orleans throughout the year, whereas the project contemplates a depth of only 4 feet for 4 months in the year from Waco to Old Washington and for a long distance below Old Washington. As is certain dry years it would probably be extremely difficult, if not impossible, to maintain a navigable depth of 4 feet for 4 consecutive months in the 103 miles of open-channel work above Old Washington. This fact also would operate to add to the dissimilarity between the two cases of freight routes mentioned. The conditions just stated would, in my opinion, have a decided bearing both on the cost of actual water transportation on the completion of the project, and on any reduction of railroad freight rates that might be expected, based on the water competition.

8. Under date of January 13, 1901, the district engineer, in reporting on a survey of Brazos River from its mouth to Waco, recommending a project for procuring a navigable depth of 6 feet by open river improvement below Old Washington and by the construction of 18 locks and dams above Old Washington, used the following words (p. 2012, Annual Reports of the Chief of Engineers, 1901):

> The chief purpose of improving the river being the lowering of charges for transporting freight, it seems proper to invite attention to the following:
> For waterways to control railway charges, navigation must be actual and not theoretical. The mere existence of a waterway will effect nothing in this respect unless boats can easily and quickly be placed upon it should railway charges at any time be raised, etc.

The division engineer concurred in the recommendation, but stated his opinion that the lower river below Old Washington should be improved first, by training walls, spur dikes, and snagging.

9. I agree with the above statement of the district engineer, but it seems to emphasize the fact that the present project, even with the completion of the eight locks and dams and the open river improvement of 103 miles so as to give a depth of 4 feet in ordinary seasons, and not in the many extraordinary seasons that are likely to occur, will not fully and satisfactorily accomplish the desired purpose, and would not accomplish it if the uneconomical depth of 4 feet were maintained for four months every season from the mouth of the river. The project, therefore, seems only a tentative or partial one, which will have to be supplemented later if a satisfactory result is to be obtained. It also seems to me possible that in the fairly near future the improvement of the Brazos to Waco, so as to give a 6-foot navigation throughout the year, may become economically desirable, and possible of accomplishment within justifiable cost, this latter opinion being based on a possible improvement of the low water flow as above indicated, so as to make practicable and reliable the maintenance of the depth below Old Washington and of the depth between dams in the upper river.

10. I do not think that the present project should be abandoned, or that it should now be modified, but, rather, that work on it, except the completion of the locks and dams already ordered and the maintenance and operation of locks and dams completed and to be completed, should be held in abeyance for the present, for the following reasons:

First. The improvement of the river from the mouth to Old Washington should first be completed, and a reasonable amount of experience had with its use and maintenance.

Second. The course of action of the inhabitants of the Brazos basin, under the above-mentioned conservation amendment, and the effect on the low water flow of the river, should be awaited.

Third. As conditions regarding rail rates and the probabilities of securing the correction of excessive rail rates are now quite different from those existing when the project was adopted, particularly on account of the present governmental control of these rates, it seems desirable not to expend large sums for reducing excessive transportation costs without further knowledge as to whether these rates are likely to be excessive hereafter.

Fourth. In order to determine, with some reasonable degree of accuracy, in advance of additional large expenditures, the benefit that would result from the improvement of the Brazos, further experience is needed with improved rivers serving agricultural districts in this country, under the conditions regarding railroad rates which now prevail and those which will prevail for a few years to come.

11. In my opinion no survey is now necessary in connection with the existing project.

J. C. SANFORD,
Colonel, Corps of Engineers,
Division Engineer.

[For report of the Board of Engineers for Rivers and Harbors, see p. 3.]

HEARING BEFORE THE BOARD OF ENGINEERS FOR RIVERS AND HARBORS IN REFERENCE TO BRAZOS RIVER, TEX.—SPECIAL SUBJECT UNDER ACT OF MARCH 4, 1915.

DECEMBER 3, *1918.*

Present: Maj. Gen. Peter C. Hains, Brig. Gen. Henry C. Newcomer, Col. S. W. Roessler, and Col. W. L. Fisk, members of the board.

The following-named gentlemen appeared before the board in reference to the above subject: Hon. Morris Sheppard, Senator from Texas; Hon. Joe H. Eagle, Representative in Congress from Texas; Hon. Rufus Hardy, Representative in Congress from Texas; Hon. Tom Connally, Representative in Congress from Texas; Hon. J. J. Mansfield, Representative in Congress from Texas; R. L. Henry, Brazos River and Valley Improvement Association, of Waco, Tex.; Col. W. W. Seley, president of the Brazos River and Valley Improvement Association; L. M. Hewitt, secretary, Chamber of Commerce, Navasota, Tex.; H. Driscoll, Waco, Tex.; John Wright, president of the Chamber of Commerce, Waco, Tex.; W. V. Colburn, representing the Waco Chamber of Commerce; A. J. Windrow, city engineer, Waco, Tex.; G. H. Zimmerman, representing Chamber of Commerce, Waco, Tex.

STATEMENT OF HON. MORRIS SHEPPARD, SENATOR FROM TEXAS.

Senator SHEPPARD. Gentlemen, I think the interest taken in the Brazos River is most effectively shown by the persons here, as representative a delegation as ever came to Washington. Congressman Connolly, of the district in which Waco is situated, Waco being the head of navigation of the existing project, will take charge of the hearing, after I have concluded. Congressman Eagle, of Houston, is here, Congressman Mansfield is here, Col. W. W. Seley, and former Congressman Henry, who has been in favor of this project from its beginning. The names of the remainder of the delegation will be submitted by Congressman Connolly.

The Brazos River has been divided into three sections by the Government Engineers, the section composing the mouth, where a commodious harbor through which it connects with the Gulf of Mexico and the great ocean highways of the world has been constructed and which is now under improvement and maintenance pursuant to an established Government project; second, the section between the mouth and Old Washington, a distance of 254 miles, which is under improvement by open channel work under a project devised by the Chief of Engineers in 1901; and third, the section between Old Washington and Waco, a distance of 170 miles, under improvement by a system of locks and dams prepared by Col. Jadwin in his report of 1905.

In his report of 1905 Col. Jadwin stated that a depth of 4 feet for eight months of the year could be obtained by the open channel work then in progress in section 2, and that a depth of 3½ feet for six months or 4 feet for four months could be obtained in section 3 with eight locks and dams.

As I understand it, the board does not think that proper navigation or navigation to a sufficient extent could be established on such a shallow stretch of water as is called for under this project, and I want to take just a little time to refer to certain rivers where there is considerable navigation.

On the Rhone River in France, from Le Parc, near the Swiss boundary to Lyons, a section 95 miles long, the navigable draft is 1.8 feet. The traffic on this section in 1905, the year of the investigation of the British Waterways Commission, was 160,000 tons.

On the Rhone, from Lyons to Arles, a distance of 178 miles, the navigable draft is 3.3 feet. Boats of this draft on the Rhone, carry 400 to 500 tons and are from 400 to 430 feet long. The traffic on this section amounted in 1905 to 750,000 tons. France expended on the Rhone between Lyons and the sea, a distance of 208 miles, from 1846 to 1900, a period of 54 years, $13,445,000, or $64,000 a mile.

Now the maximum estimate made by Col. Jadwin of the cost of these eight locks and dams on this project was $6,000,000, that would be something like $14,000 per mile.

In Germany the Oder River has six divisions: (A) Junction with Neisse to Breslau, 46 miles, depth mean low water, 2.6 to 3 feet; (B) Breslau to Furstenburg, 185 miles, depth mean low water, 3 feet; (C) Furstenburg to Kustrin, 38 miles, depth mean low water, 3.3 feet; (D) Kustrin to junction with Finow Canal, 31 miles, depth mean low water, 4.2 feet; Finow Canal to Stettin, 49 miles, depth mean low water, 5 to 8.7 feet; Stettin to sea estuary, 20 miles; total, 349 miles.

This river has been improved from 1816 to 1906, 90 years, at a total cost of $6,148,000, or $17,600 per mile. The cost of maintenance in 1905 was $489,750. or $3.200 per mile. The traffic on this river in 1905 was 4,200,000 tons. Of this amount 1,107,000 tons were received and dispatched at Breslau, while the tonnage in transit by Breslau was 1,028,000. Thus there were over 2,000,000 tons shipped that year on a stretch of the river 231 miles long with a navigable depth of 2.6 to 3 feet.

Gen. NEWCOMER. You must bear in mind that these figures are the low water depths only, and not the depths that are maintained the greater part of the year. At the low water depth the traffic is largely suspended.

Senator SHEPPARD. I obtained this, of course, from the record of the British Waterways Commission.

Gen. NEWCOMER. Those are the low water depths, not the average depths on which traffic is transmitted.

Senator SHEPPARD. I do not see why they would give the depth on which traffic could not be transported.

Gen. NEWCOMER. At those low depths they can only carry part cargoes, but they do carry full cargoes during a considerable portion of the time.

Senator SHEPPARD. This report does not so state.

Gen. NEWCOMER. That may be.

Senator SHEPPARD. As I understand it, this was the depth on which navigation was had the year round, carrying this tonnage. I will endeavor to verify it.

The Vistula in Germany has four divisions: (A) Russian frontier to Neuenberg, 84 miles, depth mean low water 3.3 to 3.6 feet; (B) Neuenberg to Pickel, 23 miles, depth mean low water 4 to 5 feet; (C) Pickel to Dirschau, 12 miles, depth mean low water 4 to 5 feet; (D) Dirschau to Danzig and Neufahrwasser, 34 miles, depth mean low water 5 to 23 feet. The traffic on this stream in 1905 was 1,240,000 tons. There have been expended on this river from 1831 to 1906, a period of 75 years, $24,729.000, or $161,000 per mile. Cost of maintenance in 1905 was $753,354, nearly $5,000 per mile.

Gen. NEWCOMER. I know that in the case of the Oder River the Germans contemplated the question of the depth to which they would improve it; they found it cost too much money to improve it to a depth for carrying full cargoes all the time, and they decided to postpone improvements to a greater depth. There is a considerable portion of time that they can not carry full cargoes and a considerable portion of time, of course, when they can.

Senator SHEPPARD. I have a statement as to the draft of the boats on the German rivers and the number, if I can put my finger on it. There were 22,238 boats on the German waterways in 1905; 10,443 were boats carrying from 10 to 150 tons.

General NEWCOMER. Of course, the Germans have claimed, and the French and English admitted, that the German waterways have been more successful than French waterways, because they have been using larger boats, as a rule. The German waterways are built for barges of 400 tons, many of them, and

others 600 tons. For instance, on the Oder, the 400-ton barges are the barges that carry coal to Berlin down the Oder from the coal fields of Salacia.

Senator SHEPPARD. The Main-Danube Canal in Germany, 110 miles long, with 100 locks and dams, has a navigable depth of only 4.2 feet; that of the Saale and Unstrut, connecting rivers, from Halle to Bretleben, a distance of 85 miles, with 21 locks and dams, has a mean low water depth of only 4 feet; that the river Saale from Elbe to Halle, a distance of 66 miles, with 7 locks and dams, has a mean low water depth of from 3 to 4.3 feet. Many of the boats on all German waterways have a draft of less than 2 feet. Of the 22,238 boats on German waterways in 1905, 10,443 were boats carrying from 10 to 150 tons. John H. Bernhard, one of the foremost shallow-water experts in this country, has devised a self-propelling barge, with a draft of 18 inches, that will carry 180 tons. In view of these instances, does it seem extravagant to ask for 8 locks and dams on the Brazos in order to secure a navigable depth of 3½ feet for six months and 4 feet for four months in every year for a distance of 475 miles? This is one lock and dam for every 59 miles.

The nine principal canalized rivers of Germany, the Saar, the Main from the Rhine to Offenbach, the Main and Regnitz, the Fulda, the Saale, the Saale and Unstrut, the Oder from mouth of Neisse to Kosel, the lower Netze from Drago to Nakel, and the Upper Netze from Bromberg Canal to Russian frontier, have a combined length of 425.2 miles, with 78 locks and dams, one lock and dam to nearly every 5½ miles—an average depth of about 4½ feet. With eight locks and dams we will obtain on the Brazos a navigable channel 50 miles longer than all the canalized rivers of Germany combined.

Now, in Col. Jadwin's report of 1905, where he outlined the present project, he referred to the fact that Texas, the largest State in the Union, had derived but little benefit from water transportation; that the Brazos had a total length of 900 miles, with a drainage area of 36,000 square miles, an area equal to more than one-sixth of the entire German Empire. He indorses the improvement of the Brazos in the following unqualified language:

"Having in mind the existing development of the valley, the fact that it lies in the center of the State, is traversed by three railroads, produces about one-third of the cotton crop of the State, and probably half of the crop of the State passes through it now by rail, that Texas is the principal cotton State, producing an average of about 2,500,000 bales, worth about $50 a bale."

That was in 1905. It is now between 4,000,000 and 5,000,000 bales which is produced in the State.

"That there is no water transportation in the section from Washington to Waco; that this improvement will put this section in water communication with the largest cotton port in the United States, the results obtained elsewhere where water competition has been afforded, the possibility of an extension of the improvement farther inland above Waco, if required, and the relatively low cost and the quickness with which the results can, with adequate appropriations, be obtained to Waco, it is evident that the proposed improvement is especially meritorious, and that the basic conditions show it to be a project worthy to be undertaken by the United States."

It should be stated here that Waco is within a few miles of the center of population of Texas. It is the largest inland cotton market in the world, and the territory tributary to Waco in the Brazos Valley produces more than one-third of the cotton crop of Texas, about 1,500,000 bales, produces more than one-tenth of the cotton crop of the world, and contains more than one-third of the people of Texas. One of the largest fuel-oil concerns in the world has established an extensive warehouse at the mouth of the Brazos and has indicated its intention of barging this fuel to Waco as soon as the river is improved. They are building a storage plant with a capacity of 600,000 barrels. That is the Swenson concern, with which you gentlemen are familiar. I know Gen. Newcomer will recall that concern.

As I said before, the business men of Waco are represented here, and there are no more progressive or abler men anywhere in the world. They will assure this board that if this river is improved it will be utilized. They are familiar with the situation, they know the need of the additional transportation facilities in that section, and I know of no other way of endeavoring to impress you effectively with the probability of its utilization than by the visit of these gentlemen here and by the assurance which they will give you along these lines.

I will now ask Congressman Connolly to proceed with the hearing.

STATEMENT OF HON. TOM. CONNALLY, REPRESENTATIVE IN CONGRESS FROM THE STATE OF TEXAS.

Mr. CONNALLY. Gentlemen, ex-Congressman Henry, who has been in touch with this project since its inception, is present to-day, and with your permission will address you.

However, I want to call attention to the fact that, representing the city of Waco and the territory immediately adjacent thereto, a large delegation has come here, and the good faith of our people is evidenced by the fact that we have here this morning Mr. John F. Wright, president of the Waco Chamber of Commerce; Col. W. W. Seley, president of the Brazos River & Valley Improvement Association, which consists of all the commercial bodies residing in the Brazos Valley; Mr. R. L. Henry, ex-Member of Congress; H. Driscoll, traffic commissioner for the city of Waco; W. V. Crawford, of the Young Men's Business League of the city of Waco; R. J. Windrow, city engineer of the city of Waco; H. O. Bishop, representing the Chamber of Commerce of Waco; Mr. H. H. Zimmerman, representing the Chamber of Commerce of Waco; C. W. Jones, representing Senator Culberson, and also a citizen of Waco; and Mr. L. M. Hewitt, secretary Chamber of Commerce, Navasota, Tex.

I shall not undertake to devote much time to the technical features of this project, because I am not a technical man, but it does occur to me that some reply should be made to the tentative objections which the board presents in the notice relative to this hearing. With your permission I shall devote a few moments to that phase of it.

It is suggested by the board that the work would probably cost a great deal more than was originally estimated. I believe that observation might be agreed to, yet the force of the objection be lightened from the fact that the cost of materials in this day and time have greatly increased since the time when the estimate was originally made. In addition, I would like to say that the utilization of the waterway, if improved, would be greatly enhanced over its prospective utilization at the time it was originally projected. Industries in that particular section have greatly increased; the population has greatly increased; the city of Waco has greatly increased not only in population but as to the extent of territory which it serves.

Waco is the distributing center for a very large area of territory, and the improvement of this stream would not only be a benefit to the immediate sections adjacent to the river, but it would affect the rates, of course, throughout the whole zone which is served by the city of Waco. That is the reason it has forged to the front so rapidly as a jobbing center. I think I will not be contradicted when I say that the largest single distributing concern in the State of Texas, the Shear Co., a large wholesale concern, is located at Waco. Not only that concern is located there but the Cooper Grocery Co. and other companies, which almost rival it.

I notice the board has also called attention to the fact that the navigation would only be intermittent, and for that reason it would not encourage or justify the establishment of a boat line. Of course, intermittent navigation would not be as desirable as navigation throughout the whole year, but that in no sense weakens the argument that any kind of navigation would be an improvement over none; and navigation, even for a short period of the year would necessarily influence the rates of commerce throughout that whole territory. It may be suggested that the bulk of the commerce of that territory moves in the fall and in the winter, at a time when droughts do not exist. We have droughts, but they are unusual. When we do have them they are in the summer months when there is no traffic, to speak of. So far as agricultural products and things of that kind are concerned, our cotton and other supplies move in the fall and in the winter when, it seems to me, even under the most adverse conditions, the river would be open to navigation if this improvement were carried out.

Further in connection with the question of droughts, I want to refer the board to a publication, pages 12 and 13, "Run-off and Mean Flow of Some Texas Streams," by T. U. Taylor, dean of the school of engineering, University of Texas. I believe if you will consult that table it will occur to you that it would be extremely unusual for the Brazos River to be in such a condition that there would not be sufficient water, with this improvement, to carry the commerce.

The board says: "No mining or manufacturing industries to create a large tonnage, and there are in this country no instances where farm products are offered for shipment by water in sufficient quantity to justify so large an expenditure as is involved in this improvement." It is true there are no mining and manufacturing interests to create large tonnage, yet a very low freight rate is essential, especially for the heavy tonnage, such as lignite, coal, and things of that kind, and it would be unreasonable to require the existence of those things which could only exist by reason of a low rate in advance.

In the Brazos Valley there are innumerable deposits of lignite. I have in mind one lignite field at Calvert. There is another in Milam County. The mines at Calvert, I do not suppose are more than a mile from the bank of the river; right on the bank of the river and yet they can not be developed under present conditions. Lignite, of course, is a cheap fuel, but it is bulky; it has to have cheap transportation in order to compete with coal and other fuels. Those are fields that have been developed to some extent and are in operation, and there are other places down the river where there are undeveloped lignite deposits which cheaper transportation would make possible of the highest development.

With respect to manufacturing interests, at the city of Waco there are already quite a number of manufacturing concerns which would serve a much larger territory if they had an outlet. If they had an outlet they could compete with other points for the business. The improvement of the river would stimulate these interests very greatly. It occurs to me that to require, before you improve a river, the existence of things which navigation is intended to promote, would be to hang your clothes on a hickory limb and not go near the water. It would be a very foolish policy for a railroad concern, starting to build a railroad, to only build a railroad in territory that was already served by railways, which was already highly developed and which needed no further transportation facilities. The far-seeing railroad promoter is going to seek out the fertile territory, one that is undeveloped but which is capable of development, build his railway through that territory and build up to the manufactories, mines, and other industries which his railroad can serve. If Mr. Hill had followed the policy of waiting until the country was developed before building his railway in the Northwest, there never would have been any railways in the Northwest. So it occurs to me that with a territory as rich—and there is no richer in the United States, and for that matter no richer anywhere—a territory as rich as this Brazos Valley, to require them to have these things developed before the improvement of the waterways would be putting the cart before the horse; to require that that territory, so far as population is concerned, be developed to its maximum before building an improved waterway would be to follow just as falacious a policy.

Now, let us see. With a rich territory, no matter what your population is now, you know it is going to become greater. It is not a fair comparison to compare Texas, so far as population per square mile is concerned, with Europe, but some day, due to the growth and development of the territory that comparison can be made. We believe that with transportation facilities, with a rich soil and prosperous people, that development of industry and agriculture will come naturally.

I notice the board states: "The fact that considerable funds have already been expended on a project of doubtful utility adds little or nothing to the evidence in favor of additional and much larger expenditures; the question at issue is whether the completion of this project at a further cost of several million dollars is warranted by the probable resulting benefits to commerce and navigation, and this appears to be doubtful."

Now, I take it that the Brazos River, if improved, would serve a territory, a very considerable territory, as compared to the entire territory of the State of Texas. When you compare the amount of money invested in the railways of Texas with the sum required to complete the canalization of the Brazos River, you will find that sum very inconsiderable indeed. I want to call particular attention to the fact that we are not simply improving this waterway for to-day, to-morrow, for 10 years or 15 years, but it is an improvement which will be permanent and which will serve not only the people of this generation, but the people of several generations, many, many generations. Therefore I take it the sum required for this improvement is a mere bagatelle when the results and benefits which will accrue are taken into consideration by this board.

The Chamber of Commerce of the City of Waco begs to call attention of the board to the following pamphlets and data now on file with the board: (1)

Report of Preliminary Examination by the District Engineer; (2) Printed pamphlets bearing upon this subject by citizens' committee of Hearne, Tex.; (3) by Bryan Commercial Club; (4) by committee of Woods County; (5) by Bellville Business League; (6) by Sealy Business League; (7) by Cameron Citizens' Organization; (8) by Brazos River and Valley Improvement Association; (9) by committee of Calvert citizens; (10) by County Commission and Commercial Organization of Waco, Tex.; and (11) by Marlin Commercial Club.

As evidence of the fact that the people of Waco and those in contiguous territory are intensely interested in this proposition, and are willing not only to show interest by their enthusiasm but by spending their money, the city of Waco, through its official organization, sometime ago passed an order and had it placed upon its minutes that whenever the improvement of the Brazos River reached such a stage as to require terminal dock facilities at the city of Waco, the city, by bond issues, would provide municipal docks and terminal facilities at that point.

I take it that the same thing is true of all the other points along the Brazos River. They are very much in earnest about this project and are prepared to do anything to cooperate with the Government to make the project a success.

As I said before, Mr. Henry is here to-day. He has been in touch with this project from its very inception, and I will be very glad if the board will hear Mr. Henry along the same line.

STATEMENT OF MR. R. L. HENRY, REPRESENTING THE BRAZOS RIVER AND VALLEY IMPROVEMENT ASSOCIATION.

Mr. HENRY. Gentlemen of the board, as has been stated by Senator Sheppard and Representative Connolly, the interest of the people at Waco and along the river, and of the Texas people generally, is evidenced by the fact that these gentlemen are present to urge your approval of this project.

This is not a sudden conviction of mine that the project should be approved by this board. In 1909 I first began a study of it when I was a Representative in Congress from that district, and during all these years I have tried to keep in intimate touch with every phase of the Brazos River project, not only in Texas, but here in the War Deparment, before the House of Representatives, and also in the Senate and on the other side.

To-day I shall undertake to meet the case stated by this board in their order, a copy of which I have before me, and endeavor to convince you gentlemen that the things we are urging should be granted now. I shall try to meet the case in its larger aspect and not look at it from a local standpoint or a partisan standpoint.

I have retired from public life, but my interest in this enterprise and other things of value to my country has not abated. I have traveled all the way here of my own accord, and at the invitation of the Brazos River and Valley Improvement Association, and the chamber of commerce of my own city and those who are interested in this river to present my views to you. I shall try not to be extravagant in my statements when I express matters that I think should be given due consideration. We must go back and take up the fundamental elements of the question that is before us. Why were the railroads built originally in this country? Why did this Government of ours donate millions and millions of acres of land to construct the continental railroads from one side of this country to the other? Not only as a military and a postal necessity, but for the purpose of stimulating the growth of vast areas not theretofore populated, and to build up a commerce and develop great enterprises in various sections of the United States. We believed that the old transportation by oxcarts and wagons was too expensive and was not adequate, and we therefore undertook to build these great railways.

In Texas, my native State, we have given, from first to last, more than 35,000,000 of acres of our public domain to stimulate the building of railways across that State. We have done that for two purposes—one was to give us better means of transportation, and the other was to develop the unpopulated sections of Texas.

We are not here to-day to place an obstacle in the way of railroads, in so far as their rights are concerned under the Constitution and under the laws of this country, and I shall come directly to the proposition which I conceive to be the one of paramount importance in the minds of you gentlemen—the necessity of improving this river. There could only be two necessities for it. One is that it would give us better freight rates, we believe; and the other is it

would give us another facility for moving commerce. If those two reasons are not good, there is no reason for improving this river or any other river, as I see it. The people along this river are entitled to the improvement of the river not only for the purpose of lowering the freight rates, but it is a necessity as an additional means of transporting the vast commerce that is there now, and that will come hereafter.

Gentlemen, I wish that you might go back to the original report made in 1901 on the preliminary examination and take up the statement made by Mr. L. L. Foster, who was formerly one of our railroad commissioners, a man whose ability was transcendent on the rate question and railroad problems. He takes up this question and urges it with great zeal, and, I think, with great success.

Now, I am not going to say that you gentlemen are wrong in all of your conclusions, but I am going to try to convince you that you should give us a very deliberate consideration, which I am sure you will, and allow us to exhaust all of our rights before this tribunal. I take it that the War Department is willing and glad to expend the necessary money that is appropriated by Congress to improve rivers and harbors. I can look into the future and see where we will have additional railroads in this country, where our great rivers that are worthy will be improved and where we will have a great system of highways, and good roads connecting up with these lines of transportation.

Gentlemen, I will now take up the first proposition, and that is that the work would cost very much more than was originally estimated. We can afford to admit that, and I do admit it, because that project only contemplated eight locks and dams from Old Washington to the city of Waco, a distance of 172 miles. This report was made by Gen. Jadwin, who is now in France. He was our district engineer at that time, and if you will allow me to discuss the details with which you gentlemen are all familiar, I would like very much to do it.

Mr. Burton, who was chairman of the Rivers and Harbors Committee in the House at that time, said that he was not certain of the feasibility and advisability of this project. Mr. Burleson, who is now Postmaster General, was representing some of the counties adjacent to the Brazos river at that time, and he and I urged that it was feasible and advisable, and appealed to Mr. Burton and the Rivers and Harbors Committee to let us have a special examination made of the river. Gen. Jadwin—then captain—made this special survey on the query that was propounded to him by the item in the Rivers and Harbors act to this effect, "How many locks and dams from Old Washington to Waco will be necessary to give a depth of 3½ and four feet," if that is the language of the item. "If it is less than nine, then $75,000 is hereby appropriated to begin the construction of lock and dam No. 8 at Old Washington and at Hidalgo Falls, reversing the order of the appropriation. So confident did we feel that I said that we were willing to stand any test that the Engineer Corps put to us about this project, and we are willing to stand any test that Congress requires, and I say to-day that we are willing to stand any test. If it is not a worthy project it ought to be destroyed and no more money should be expended in improving it.

What have we? We have an area which is nearly as large as the State of Pennsylvania along the Brazos River that would be relieved by this improvement. Here is a State larger than the original thirteen States of the Union, larger than all the New England States, and New York, New Jersey, Pennsylvania, Delaware, Indiana, Illinois, and Ohio combined, interested in this project. It is not a local project, gentlemen. If you gentlemen have not abandoned the doctrine that the people are entitled to as cheap a rate as they can get in shipping their products and freight, then I maintain that here is the way to lower the freight rates. Furthermore, if you still adhere to the conclusion which I am sure you do, that the people are entitled to be relieved of the situation where freight is congested everywhere, then we ought to have this relief. Gen. Jadwin points out in his special report that at the very time he was making it cotton to the amount of thousands and thousands of bales was on the depot platform at Hico and at Waco and at Marlin, Representative Connolly's home, that could not be transported and was held there for weeks and for months because there were not adequate facilities for carrying that freight. Those towns are in sight of the river, and there will be no trouble in getting the stuff over to the river if the river was made suitable for navigation. Now, let us admit that 8 locks and dams are not sufficient. So far as that is concerned I am willing to concede and do concede that there must

be more locks and dams than 8, because I have stated that I am going to undertake to meet the case as it is. If it takes 12 locks, if it takes 24, this river runs 429 miles from Waco to the Gulf, it will be such a great artery of commerce that it will cause relief along the line that I have suggested, and the expenditure would be very small as compared with the vast benefits that could be set over against it. There are five or six railroads paralleling the Brazos River that carry freight. The very first road that was built was begun in 1854. It was built right along the banks of the Brazos River. That was the Houston & Texas Central. Then the others came, the Santa Fe, the Lorenzo Pass, the M. K. & T., and the I. & G. N.

Now, gentlemen, the railroads are not entitled to a monopoly in carrying freight. We know that we can not take anything away from them which has been guaranteed under all the decisions of the Supreme Court and the Constitution, nor do we want to do it. What we would like you gentlemen to do, and I am sure you will, is to take all these documents that we lay before you and let us exhaust our rights here, and if this project is not meritorious, you gentlemen can and will say so. I stand on it. I believe in it as firmly as anything I have advocated during my twenty years' service in the House of Representatives, and, as I said a moment ago, I look forward to the day when we will do for all of these rivers what should be done for them, and for the railroads too.

I am not going to make a comparison of this stream with any streams in other countries, because Senator Sheppard has covered that matter in a remarkably lucid way. I will, however, advert to this fact, that only yesterday the President of the United States appeared before Congress and urged the further improvement of our railroad facilities, the development of our rivers, and the establishment of good roads, three problems of tremendous importance to the growing population of this country. One of the planks in the platform of Lloyd-George, now before the people of England, is further improvement of their canals by large expenditures of money, and I think you gentlemen will agree that wherever projects are worthy this country can afford to appropriate whatever money is necessary, and, if it is required, can afford to issue bonds, do the work, and do it as quickly as possible.

I was not one of those that became impatient because the work on the Brazos and Trinity did not proceed more rapidly, because I remembered the first survey of the Panama Canal was made more than 400 years ago and it has taken that long to build it. Finally, when President Roosevelt took the initiative, and I indorsed every act of his as a Member of Congress, we did build it, and the people have been impatient for 400 years. I do not expect to see this enterprise completed quickly. I may not live to see it completed, but I say the benefits, which I will try to show you later on, are enough to warrant us in expending $10,000,000 or $20,000,000 to give us navigation of the Brazos River for six months in the year or for whatever period a sufficient number of locks and dams would give.

I do not hesitate to say—I shall not delude myself—that we must have some locks below Old Washington between Old Washington and Richmond. Perhaps all of you gentlemen have visited the Brazos River. I have been up and down that river with Capt. Jadwin and with Col. Riché and others half a dozen times, and I think I understand as well as a layman could the general aspects of it, and I believe there will be additional locks and dams necessary in order to give us the kind of navigation to which we are entitled. We concede the point that the work will cost very much more than originally estimated. The next proposition in development of substantial river commerce is regarded as impracticable because of the few months of intermittent navigation each year over long reaches of shallow river will neither control the freight movement nor the freight rates nor will it encourage or justify the establishment of a boat line. That can be conceded, too. I do not believe you gentlemen will say, if Congress is willing to adopt a policy and appropriate $10,000,000 to put in whatever locks and dams are necessary to make this navigable, that we can not have six months' navigation. We must confront that proposition and we are going to undertake to do it. I haven't a doubt, no matter what party or administration may be in power, that ultimately Congress will give money enough to do this very thing, like they gave vast acreages of land to build railroads that were necessary. I believe they are willing to do it.

The next question is "There are no mining or manufacturing industries to create a large tonnage, and there are in this country no instances where farm products are offered for shipment by water in sufficient quantity to justify so large an expenditure as is involved in this improvement." That is true, but why? There are not enough manufacturing enterprises at present, or other big enterprises, to warrant the improvement of the river, but it will develop, as it has developed along the lines of the railroads. We are at the head of navigation. We do not expect any commerce to develop in that river until the 8 locks and dams, or the 12 locks and dams, or enough to give us navigable water, are put in there. We do not expect it. One lock was built at one end of the stretch from Waco to Old Washington, and the other lock built at the other end, but that means nothing. I have always thought it would require the interpolation of other locks and dams from Waco to the Gulf.

Mr. HARDY. In your opinion, right in the Brazos River Valley, including Waco, Marlin, and other points, is there not now in storehouses enough cotton—is there less than 200,000 bales of cotton that could easily be shipped down the river this season?

Mr. HENRY. We have had one of the worst droughts we have ever had in that section of Texas, we made a short crop of cotton but this year I should say your estimate is too low; that it would be more than that. In ordinary years it would amount to 500,000 bales of cotton, because more than 1,500,000 bales of cotton are raised in the territory that will be influenced by the improvement of this river—more than one and a half million bales of cotton. Right there at Marlin, Representative Connally's home town, within 2 miles of the river, the traffic is congested and can not be moved because people have no way to ship it. They would be willing to pay the exorbitant rate of nearly $3 to the railroads to send it to Galveston and get it out to the markets of the world, if they could get the cars; but they can not do it. That has been the situation for years and years. There is an object lesson on the question of whether the river will be utilized. We believe in the project. We have secured the sites for all the locks, and we have given bond to secure the additional ones and are ready to secure every one even if it requires 36. We are willing to do everything reasonable that this board thinks should be done by people who believe in an enterprise like this. Waco is a thoroughgoing city and believes in it. I shall not disparage any other community, but if we should happen to get the Brazos improvement before the Trinity River improvement is made, which is 600 miles away, I fear there might be some rusty bolts and locks on some of the wholesale houses, because those enterprising merchants, wholesalers, and shippers would come to Waco where they could get the benefit of cheaper rates.

Mr. HARDY. I can't let you get away with that, because I am on both of these projects.

Mr. HENRY. I know you are, Mr. Hardy. There is a very wise solution of the question, and that is for you to work as hard for both rivers as you do for one, work for the improvement of the Trinity as well as for the improvement of the Brazos.

Here, gentlemen, is this rich valley, hardly scratched by the agriculturists. There is no richer country in the world, and no finer country on the face of the earth. I do not say that by way of boasting about Texas or the Brazos Valley. If you will help us open this river we can put our cotton on trucks 75 miles away from the river on each side—150 miles—which contains nearly one-third of the population of the State, and we can haul it over to the river, and put it onto the barges and float it down to the Gulf. I could probably enumerate 50 nonperishable articles of freight that we could send up and down the river in the same way. If you gentlemen will allow me to discuss the question of the saving in freight rates, which I think is legitimate, because Congress certainly deals with it seriously as a question of policy, I have been told that on the question of cotton alone every year our people would save $2 a bale in shipping it from Waco to the Gulf of Mexico. Twice the 1,000,000 bales would be $2,000,000. As has been outlined in this report, prepared at great expense by the Chamber of Commerce and the Young Men's Business League of the city of Waco, there would be a saving at a very conservative estimate, of $7,000,000 annually with the present commerce, which statement has been verified, checked, and rechecked by those bodies at Waco and by our Railway State Commission at Austin. There will be a saving of $7,000,000 a year, and I think that is a very conservative statement. Even if it cost $10,000,000 to improve the river it ought to be done; if it costs $20,000,000 it ought to be done, because

we are building for the centuries that are to come in this country and we ought to take note of them, as we have always taken note of these great problems that go so far into the future.

The next question is this: I am trying in my feeble way to convince you gentlemen that some of the points outlined in your bulletin are not well taken. We come now to the question which is of the very essence of the proposition: The fact that considerable funds have already been expended on a project of doubtful utility adds little or nothing to the evidence in favor of additional and much larger expenditures. The question at issue is whether the completion of this project at a further cost of several million dollars is warranted by the probable resulting benefits to commerce and navigation, and this appears to be doubtful. You were wise in your analysis of the case, that that is the question and the only question before you gentlemen, that it appears to be doubtful. Doubtful, why? Because of those foregoing things that you have set out above. But when you contemplate what it means, if you are willing to take the two propositions into consideration that Congress has taken into consideration and which I deem of vital importance—reduction of these rates and additional facility for moving commerce—then, I say, it is not doubtful. At this time there are only 25 people to the square mile in that part of Texas, and it is one of the most populous parts of the State. In England they have something over 325 people to the square mile, in Holland they have something like 400 people to the square mile, in Massachusetts they have over 300, in Rhode Island nearly 400, and yet that soil supports that population with that many people to the square mile. I can remember the time when this State had a little over 500,000 population, and I do not think I am an old man. To-day we have a population of 5,000,000 people. Texas is capable of supporting a population of 25,000,000 people, and then its capacity would not be taxed as are the capacities of these other countries and States. In this valley we will not only produce cotton; we can produce sugar, we can produce rice, we can produce grain and grain products, we can produce stock and everything that any other country can produce. We admit that it is purely an agricultural country at the present time, yet the prospects are enough to warrant the expenditure of vast sums of money to improve the river. I shall not pretend that we are going to develop commerce there until the river is ready for navigation. I am not going to stultify myself by saying that. I have never stated it as a representative of my people, but I do say if you will give us sufficient locks and dams the people will secure the sites at their own expense and will do whatever is required by you, which I am sure will be reasonable, and they will put the boats and the commerce on the river. Even with the six great railways now paralleling the Brazos River, we have not sufficient transportation facilities to relieve the congestion, and that condition will grow worse as the years go on. We will use the river. I do not say this in a spirit of antagonism to the railroads. It would not jeopardize their interests; but if it did, if we do not confiscate their property the people are entitled to get additional facilities for moving commerce, if the Government is willing to appropriate the money.

What I am trying to do is not to be extreme but to be as candid as I can with this board, which holds our fate in its hands to a large extent with reference to this project. We believe in it so strongly that we want you gentlemen to order a survey of it, to make it the best survey we have ever had; let it be surveyed from every point of view, not only as to navigation but, since the creation of this new committee, survey it as to flood control. Let us locate the sites for the locks and dams exactly. If you come to the conclusion that the locks can not be built on the Brazos River because of the shifting banks and sands there, then we are willing to accept your judgment. But if after that survey you come to the conclusion that they can be built and that we are warranted in asking for the approval of the project, then we invoke your judgment. I do not know whether you gentlemen care to have any argument on that phase of the question, because you are qualified on that and I know nothing about it, but I have observed that in the remarkable progress of engineering that no feat seems impossible. I remember when we made the first appropriation for the Panama Canal. They said it could not be built on account of the great subterranean river there that made it impossible. You gentlemen have all stood there, as I have and others have, and I never doubted that the engineers of the United States would find a way of conquering that obstacle if it really existed. They conquered it, and it did not seem to be very difficult to them. Gen. Jadwin was there for a long time before he made

this special report on the Brazos River; he came to the conclusion that the objections were not insuperable. I do not believe it will be challenged that it is a feasible project from an engineering standpoint. I assume you gentlemen will concede that it is feasible, and the only question is whether the facts warrant the expenditure of the money necessary to make it a navigable stream.

Now, gentlemen, I think I have tried to meet the questions involved fairly and candidly and have evaded none of them. You may still adhere to your judgment and not give the survey. We hope you will not do that. We want the survey and we want it just as thorough as it can be made. Then send your recommendation back to the War Department and let it come to Congress. If you say you believe it would take $10,000,000 to put in a sufficient number of locks and dams, let us go before Congress and ask them what their policy will be. We are willing to rest the case there and risk Congress. I am satisfied we will be able, in the long run, to secure all the money we need, not only to improve this river, but the other one. We want to carry our fight there and see what it will take. Of course, you gentlemen are not in a position to know now how many locks and dams it will take, because a proper survey has not yet been made. Direct your engineers to make a survey, decide just how many locks and dams are needed and where they shall be established, and every detail that goes into this project so far as you can see them, and if our effort is futile we want to know it. After we have expended over $1,000,000, after some of us have devoted 18 years to the study of it, give us this last chance to meet the case on the broader field that you may make out for us, and let us see what Congress may do about it and what you gentlemen may say about it when it comes back to this board again.

We do not want to let the project be abandoned without the most earnest protest. We want to go forward with it. And I say, and I repeat with emphasis, that if it is not a feasible project, if there is something wrong about it, and we would be wasting the people's money, after all these eighteen years of study I would turn my back on it, if your Engineer Corps says that it is not feasible, and would never raise my voice again in advocacy of it. We have not reached that stage yet. Senator Sheppard told you in the Senate why this item was put in here for a resurvey of the river. We all know why that was done. If you will allow me to make a personal allusion to that I will say that I walked from the House over to the Senate, and I said, "If Mr. Burton insists upon putting it in, put it in." We were willing to have it surveyed once, twice, or as many times as the Engineer Corps thought necessary to test its merits. Let us not turn this report of the district engineer down, if I may thus put it. Give us the other chance. He may be wrong. Gen. Jadwin may be wrong, but no engineer has ever said there was an engineering difficulty in the way; it is just the question of expense and the advisability of it. That is the real question. I do not know whether it will be out of place for me to say this or not, but I have discussed this project many times with these distinguished engineers and with my neighbor, Gen. Jadwin, many times when he was over in the War Department. I know what he believes about it. I think he and these other gentlemen rank high in their professions. At least they convinced me that they were right about the engineering features. Of course, I know that there are many laymen who will say that it is an impossibility to improve this river for commerce. That would not weigh with you gentlemen. That has nothing to do with the case, so far as this board is concerned, I take it.

Here are 5,000,000 people with this rich country and with great prospects before them. We have put 15,000 miles of railroads in Texas, which are inadequate to handle our commerce. We have this river and the other river that can be utilized, so let us carry the question before Congress. Let us have a survey made and let us go there and fix the burden on Congress. I do not know and you gentlemen do not know at this time what their recommendation might be after this survey is made, because it would be ordered for the purpose of determining what recommendation you should make when it gets back to you. That is all we ask. We are too much interested not to plead with you to do all that you can as engineers, to give us a chance to try our case in every forum where it should be tried. We hope that when this survey comes in that it will convince you gentlemen of its advisability. If you still say it is doubtful, then I consider it would be no disrespect to this board for us to come back and ask Congress to give us trial of it. We certainly would not want to be disrespectful to the board and we would not be. During my service I have always tried to accord proper courtesy to the various departments of the Government that had a solemn duty to perform. I have thought that I had a duty to perform myself.

I have traveled all the way here at my own expense, and I hope as a public spirited citizen, to lay these matters before you gentlemen, and I say that I should be very much disappointed if you do not let us exhaust this last recourse and have the survey. The money of course will be available to make a detail survey. We want to know what it is. If it is a project too big for us to put through Congress or for the War Department to put through on the ground that it is inadvisable, we will quit; but if it is not too much, we want to try it. I say $20,000,000 would not be too large a sum to spend, because of the benefit of millions and millions of dollars to the people who have rights in the railroads and in the waterways and in the roads of the country. It should be considered and it will be considered. It would not be too much.

I believe those are the salient points that I wanted to lay before the board. I have tried to meet every proposition outlined by this board and I hope that I have done so conscientiously. I have more confidence in your judgment, far greater confidence, than I have in my own, but I do not believe we are asking too much, when Senator Sheppard, Senator Culberson, and these representatives along the Brazos River, and the citizens from Waco and all along the Brazos River come and appeal to you to let us go to the bottom of the case and let it be once and for all determined whether or not it is feasible and advisable in the very broadest possible view that we can take of it. That is the appeal that I leave with you to-day, assuring you that my people at Waco, the people along the Brazos River, are fairly imbued with the idea that this ought to be done, and that they will gladly take up any reasonable burden that you lay on their shoulders and will do their part. I give you my word, for whatever it is worth, in view of the fact of what my constituency has done and those who are interested, that they will do in the future as much and more, and they will meet you gentlemen on the broader field and do what they can to develop this question and determine whether we are entitled to the relief or not.

Gen. NEWCOMER. Do you think we have sufficient authority of law to make the broad investigation that you request?

Mr. HENRY. I think so. I think you have it under the act creating the board in 1907.

Gen. NEWCOMER. In 1902.

Mr. HENRY. 1902, yes; I think you have plenary power. I have always regarded the board as having plenary powers.

Gen. NEWCOMER. Congress has passed a law that after a report is made, no further report shall be made upon the subject unless called for by a concurrent or joint resolution of Congress or an act of Congress. The point here covers the Brazos River from Old Washington to Waco and does not really cover the entire problem.

Mr. HENRY. I understand. Here is the query that is propounded to the board, with a view of obtaining a report: Whether the adopted project shall be modified. Now, how are you going to tell in what way it shall be modified unless you have the survey? I think that is fair, and not an improper thing for me to say.

Gen. NEWCOMER. It is usually confined to the limits contained in the act when we examine a proposition. Of course, if it simply said, "Brazos River," that would be another question.

Mr. HENRY. That is all true. Of course, the project is only approved as to the four locks and dams.

Gen. NEWCOMER. The point is, we might say, there are more locks needed between Old Washington and Waco. That would solve the question because there would be more locks needed below Old Washington.

Mr. HENRY. I think there would be; yes. I think there would be two or three locks and dams needed there.

The question I was leading up to is this: I think even this language here gives your board plenary authority to order this survey, if you will allow me to state it, and I think it is perfectly legitimate and proper, because it was an official matter. When this item was written into the bill I went over and talked it over with the Chief of Engineers and with Col. Kelly, who had it in charge. Col. Jadwin was there at the time and it was understood that that language meant that Col. Riché should make a preliminary examination, which he had done. Then if he recommended a survey, then the department would take it up. But there wasn't any doubt in the minds of those who had been inquiring about it, although they did not seek to bind this board and had no right to bind it—I certainly was not trying to bind it. I knew it would come

here, and there didn't seem to be any question, because we had acquainted ourselves with the merits of the proposition. If you gentlemen agree that you haven't plenary authority, which I think you have, to order this survey, you could very easily let it go over to the next session of Congress, or even at this session of Congress, and Senator Sheppard and our delegation in the House can put through an item authorizing a detailed survey, which could be done even if we do not have the rivers and harbors bill as an emergency matter. But I think your authority is plenary. I haven't any question about it and it was so understood at the time. The reason we did not protest against this item when Senator Burton insisted upon it was that we did not want only a preliminary examination, but we wanted a survey—we wanted to know where these locks and dams should be. Of course, I understand all the various phases that a project has to go through; at least, I tried to understand it during the 18 years that I have followed it. I have tried to cooperate with the engineers.

But let us have the survey and we will be satisfied. Candidly, gentlemen, we would not like to see this case go off on this preliminary examination. I would not like to see it. If it did, what might happen would be that some overzealous citizen along the river or in Waco, or some overzealous ex-Congressman, or some overzealous Representative in Congress now might insist that there ought to be some further consideration, and I do not want to see that. When this matter began in 1852, the Congress of the United States made an appropriation to improve the river. That was before there was a single mile of railroad built from Houston and Galveston to the north. Then they commenced to build so fast that they took the commerce off the rivers. We used to have commerce there. It was negligible, of course. I do not advert to that as a very serious factor, because the river never was properly improved for navigation. Congress recognized that in 1852, when Texas was a republic and before we were admitted into the Nation, and they appropriated $60,000 to snag the river and clean it out and do the best they could for that stream, which was then carrying cotton and commerce of all kinds. There were boats there and there have been times, in a rise in the river, when the boats would ply downstream from Waco. They certainly did run from the mouth up to Port Sullivan, a distance of 75 miles from Waco, before the war. The Civil War came on, and, you gentlemen know, construction in the South naturally lagged and everything went to pieces. When the war was over and our people began to take up the question of developing the State again, the first thing they did was to give 16 sections of land, alternately divided, to the railroads that would build and to the public schools of our State, in order to give us a means of transportation. There were not, I suppose, 300 miles of railroad in Texas before the Civil War, Judge Hardy?

Mr. HARDY. Oh, no; nothing like that.

Mr. HENRY. Nothing like 300 miles, and since 1865 I think there have been built 15,000 miles; is that right, Mr. Driscoll?

Mr. DRISCOLL. Approximately, yes.

Mr. HENRY. We gave away this vast domain which I am sorry to say is not occupied now, but will be occupied. The people of Texas will find a way so that the 35,000,000 acres will be used to make homes for the people and to develop our great State without doing injustice to anyone. Our fathers, if I may call them that, in Texas were burdened and oppressed with the transportation question. They were farseeing men. They went to Texas from every State in this Union in the early days. They were liberal to the corporations and they are liberal to the railroads now. But the railroads are not adequate for our needs, certainly along the Brazos River, and if you set aside the question of a reduction in freight rates even now, in the long years to come, the improvement of this river will justify it, because it will afford a splendid facility for the movement of our commerce. I am not saying these things idly. You can send your engineers there and let them make investigations again and again, in the fall of the year and in the winter, and you will find that we are entitled to this relief. I am not going to compare this river to any other river in Texas or in the South. Gen. Jadwin said it is the largest river flowing into the Gulf of Mexico west of the Mississippi, and he has said over and over again that it is the best undeveloped river in the United States and ought to be improved. He says officially, in what I regard as his splendid special report, that it is the very best river in the State if it is taken up and improved by Congress. I believe it. It is a vast stream, almost an inland sea, as some of you gentlemen know, up as far as Freeport, Richmond, and those points, an

abundance of water. It runs for 1,200 miles from its source in New Mexico through the plains of Texas, through the very heart of that vast State, and it ought to be made an artery of commerce for our people. I believe it would be as valuable, if locks and dams could be put there, as a means of transportation as the six railroads which now parallel it, and it will be necessary. So that is the prospect that I see before me. I have faith in it and I would like to have it confirmed by you gentlemen allowing a survey.

Put us to any test, but do not say in this preliminary examination now that it is not advisable. If we can get by you to the jury, if we can get to Congress we would like to have them state their policy again. Give us the chance to take it there again, without any reflection intended whatever on the Board of Engineers or the Engineer Department, and let us see whether or not the Congress will regard it lightly under any party or under any administration. I do not believe it will. I can only hope that you gentlemen will take this view of it. I hope I have not traveled out of the bounds that you allow here to those who have deep concern in the matters they put forth. I am quite sure I have not intended to go outside, and if there is any question that I can answer I will be very glad to do it.

I want to call your attention to these statistics and this data compiled at great expense by these business organizations and by the city of Waco. There is a lot of valuable material there, and while you gentlemen know more about it than Mr. L. L. Foster, who prepared this statement and converted me to the project after I had been in Congress for six years, I hope you will reexamine it. I think it is a monument to him. He was on the railroad commission and was a man of transcendent ability. He has said things in there that are just as new as anything that has been said here to-day, and we have not come up to the standard set by him. It is in the first preliminary examination made by Col. Riché. Of course, you have all these documents before you, and they are available to you, but this is a document of the Fifty-sixth Congress, second session, No. 283. You will remember his final report came in in House Document 450, second session; afterwards came along Gen. Jadwin's special survey, and afterwards Col. Waldron located the eight locks and dams. I think those are all of the surveys of importance up to this time. Of course I attribute no special importance to any survey that was made prior to 1900, as bearing on the case in hand now, because there was no commerce at that time and they were not thorough. In fact, the river never has been thoroughly surveyed and I do not deem them of any importance in a consideration of the case. But these other reports, of course, are of value because they contain a lot of facts and data that will aid you and help you to solve the question.

I thank you for your courtesy.

STATEMENT OF MR. W. W. SELEY, PRESIDENT OF THE BRAZOS RIVER & VALLEY IMPROVEMENT ASSOCIATION.

Mr. SELEY. I am not going to take but a moment of your time. I am president of the Brazos River & Valley Improvement Association, which consists of business men in the Brazos Valley. We took a great deal of pains and we employed expert statisticians; we visited the different railroad headquarters and the chamber of commerce, the wholesale dealers as well as the railroad men, and we have gotten up and filed a report with you. I think you must have at least a dozen of these pamphlets which we prepared. I want to show you that they are as near correct as it was possible for men who knew how to get these things up to do it. We did not get this up to color the matter at all, but we thought it would be better for us to submit our argument to you in writing than it would be orally. I think the other gentlemen have explained our situation very plainly and clearly. These arguments that we have filed with you are reliable, and we trust that they will have some weight with you in your decision.

STATEMENT OF MR. H. DRISCOLL, OF WACO, TEX.

Mr. DRISCOLL. Gentlemen of the board, several references have been made to freight rates and the potentiality of water competition. Without taking up very much time, I want to leave with you a few copies of a statement that I have made from the decisions of the Interstate Commerce Commission from the fifteenth report down to date, No. 48. I have here reference to more than 100 cases decided by the Interstate Commerce Commission bearing on the sub-

ject of water competition, wherein they found water competition in all parts of the country, and included in this statement are a few court decisions bearing on the same subject.

You will find by referring to these cases that canals and lakes that are only navigable during certain seasons of the year, oceans, gulfs, and streams that are only navigable for a very few months in a year, and sometimes only occasional years at that, and that they have had quite a controlling influence on the making of rates.

I want to say this, that it is well to consider what traffic actually moves. The cotton from Texas actually moves to the Gulf. Very little of it moves to Kansas City and St. Louis. I would say that 95 per cent of our cotton actually moves to the Gulf, so it is in the natural trend of traffic.

A statement has been made that we do not have manufactured products. We do have manufactured products, but the manufactured products are moving the other way; they are moving from the manufacturing centers of the United States in the East, east of a line drawn from Buffalo down to Pittsburgh. The rates in the territory east of that line into Texas now are all made on Galveston combinations. They are made on St. Louis or Memphis. Therefore, a very considerable portion of our traffic that we distribute through our jobbing houses in central Texas originates east of that line and comes up through the Gulf, so it is the natural trend of traffic. If that was a river that ran in some other direction, I would be inclined to agree with you that possibly we would not develop the traffic, but with the six railroads that we have traversing that section, they are all busy, more than busy, and if you would divide that tonnage up and give the river just as much as you do any one railroad, give it one-sixth of the traffic which moves, you could load down all the boats that you could put on the river. If you make a survey of that traffic and take the number of cars that move through the State of Texas over these railroads and divide that tonnage up, you will have all the business that any river in this country could hope to take care of. I do not believe that they could take care of one-sixth of the traffic.

Now, the effect of the freight rates is very plainly seen, when I tell you that the first-class rate from New Orleans to Kansas City is $1.37—$1.10 first class before the 25 per cent increase—while the rate over into Texas, one-third or one-fourth the distance, was higher than that. That not only applies to nonperishable freight, but it applies to perishable freight now, because all rates are made in relation to each other. Take bananas in carload lots from New Orleans to Kansas City and the rate is 63 cents; from New Orleans to Waco it is 80 cents. You can not move a cargo of bananas from New Orleans to Kansas City without refrigerator boats, and yet they have been moving them all these years up there, even up into Canada, the rate from New Orleans to Canada being 79 cents, and the rate to Waco being 80 cents. The potential competition is the thing that would justify an immense amount of money being spent on the river, in my opinion.

I know you gentlemen are busy, and I know it is a very tedious thing to dig through these hundred cases, but if you are in doubt as to the wisdom of spending any money from the standpoint of the freight rates alone, I am satisfied that when you have reviewed just a few of these cases if you will take one recent decision, then one 10 years back, then one 15 years back, etc., you will be convinced from just a superficial examination, that you will not make any mistake and that that one thing is a controlling factor.

I thank you.

STATEMENT OF L. M. HEWITT, SECRETARY OF THE CHAMBER OF COMMERCE OF NAVASOTA, TEX.

Mr. HEWITT. Gentlemen, I simply want to call attention to our interest in this project. It has not been mere words with us. I trust you will excuse my cold. I have come from a warm country where we have the windows open, etc., and my voice is a little bit husky.

I want to explain to you the situation of Navasota. It is 75 miles north of Houston and 2½ miles off from the Brazos River. I have also been requested to represent the people of Brenham, the people of Bryan, and the people of Hempstead, with all of whom I work a great deal in my commercial work. I am commercial secretary there. They have all been very much interested in this project, both as to the feasibility as a means of transportation and also on the subject of reclamation.

In 1916 we were about to close contracts for two steel barges. We had made considerable examinations and inquiries from your engineers as to the normal depth and the low depth of water, and we were advised by Col. Riche that we would have 2 feet 6 inches at the very lowest stages of the year; that as a general thing we would have 3 feet 9 inches of water from Old Washington to the dock that we proposed to put in there at Navasota.

By putting a lock at a point near Sealy—the river is 165 feet there as compared with 185 at the mouth of the Navasota, or where that lock and dam is there at Hidalgo Falls—we would get a very much higher level of water. But even with the present stage of water, we proposed at that time to put on four steel barges to handle our commerce. The year before we had been tied up for almost five months in undertaking to move our cotton. The territory that I represent here to-day produces 180,000 bales of cotton a year, and nearly all of that is within a mean haul of 2 miles from the river. So you can see our people were interested in moving their product at a time when they were putting it through the compresses. Right at this time we have 10,000 bales of cotton tied up in our warehouses; the city of Bryan has about that much and the city of Hempstead has a large amount. We can not get the cars to move it. I do not care anything about discussing the freight-rate proposition, the freight rate on cotton. We all know that water rates are cheaper and more economical than railroad rates at any time, and we would use the river if we could. The reason we abandoned the idea of putting on barges at that time was this: In the latter part of 1916 when we had this project about closed we were about to go into the war. We knew we would be called upon to help finance. We did not know just what the war would do to the situation of the Brazos River, and in view of all those things we decided to postpone it until after the war. I would like to say that the communities that I represent here, containing about 22,000 people, have absorbed over $2,000,000 in Liberty bonds, and we have given outright to the different war activities over $100,000. We were the first county in the State of Texas in the last war-work drive to report a 50 per cent oversubscription on the first day, and when it comes to this project we are ready to work with you. We already have the land for our docks. There will be three docks. One will be a dock that can be used in any stage of water, up and down. It will be what is called a movable dock.

I just want to tell you that our people are vitally interested in this project; we are not only interested to the extent that we have come up here, paid our own expenses, to tell you about it, but we are willing to cooperate with you in every way that you reasonably demand. We know that you will only make reasonable demands upon us and we are ready to cooperate with you in every way.

I thank you, gentlemen.

STATEMENT OF HON. J. J. MANSFIELD, REPRESENTATIVE IN CONGRESS FROM TEXAS.

Mr. MANSFIELD. Gentlemen of the board, I am not as familiar with conditions on the upper Brazos as are the gentlemen who have just been before you. I am down in the coast section. I do not know of anything that I can add to what has been said by these gentlemen, but I want to suggest this idea, that the section with which I am familiar is getting to be quite an industrial section. We have near the mouth of the river the Freeport Sulphur Works, which produce 49 per cent of the sulphur output of the United States. That plant is now in the hands of the Government and the owners before turning it over to the United States had expended millions there for machinery, docks, in building railroad tracks and an artificial lake and such other things necessary for the operation of the plant. There is also nearing completion at that place a large chemical works. I do not know how soon it will be in operation. It may be now. I have not heard from it for a year or more, but it is a large plant and it cost a great deal of money.

Gen. NEWCOMER. Is that being run by the Government or by the Swensons?

Mr. MANSFIELD. It is entirely separate from either one. They are entirely in harmony with the Swensons, however, who own the sulphur mines.

Gen. NEWCOMER. I presume Government operation of the sulphur mine is temporary and a war measure?

Mr. MANSFIELD. Only; yes. The Government has taken the entire output, practically; that is, the Government and concerns that are manufacturing munitions, like the Du Bonts and people like that. Thirty or forty miles up the river, in Fort Bend County, they have a very large sugar refinery, the largest in the United States, I expect, where they manufacture cane sugar.

Mr. WEBER. Is that on the river?

Mr. MANSFIELD. It is right near the river. I think it is on the Oyster Creek, only 6 or 8 miles from the Brazos River. It is the Imperial Sugar Refinery. They import a great deal of sugar from Cuba and produce quite a product there. They also own and operate a railroad of about 125 miles. Col. Eldridge, who is in charge of the sugar refinery, is president of the railroad. It built the railroad at its own expense, and practically for its own purposes, because they could not get shipping facilities that they needed, and they built up this short railroad to connect up with a number of other roads. That has been in operation for several years, and up to the time of the war was being extended quite largely. At the same town we have what is known as the Sealy Mattress Factory. I am not familiar with that, but I do know that they furnish all the large hotels of Texas with all their mattresses, like the Hayes in Houston and the St. Anthony at San Antonio; and also in Dallas. They also operate a big warehouse in the city of New York. I do not think they operate a warehouse in this city, but their products are shipped here. Not long ago, in fact within three weeks, there passed under my observation a telegraphic order for quite a number of these mattresses which they sent over here to accommodate the war workers from their New York warehouse. It is going to be a big concern, and those people are all vitally interested in the question of the development of this river. They want it done. The men who represent them in Congress are supposed to carry out their wishes in so far as it is possible to do so. They expect it of them. They do not expect anything unreasonable, but so far as judgment, common sense, technical knowledge, engineering, and everything of that kind will authorize it, those people want those things carried through. They feel they have a river there that is capable of being made a fine stream for navigation.

I know nothing of the technical questions involved. I do not know anything about the locks or the dams or anything of that kind that is necessary, but I do believe firmly that we have a fine stream there and a good proposition for navigation. So far as the fertility of the country is concerned, I have been over the world a little, and I have never seen anything to equal it anywhere in any country or in any State in this Union. There is no more fertile country, no better country anywhere than the country that is drained by the Brazos River in Texas, at least for the first few hundred miles, and also into the interior, if you go up into the black-land country which is just as fertile and productive. The valley proper is several miles wide, to say nothing of all the tributaries in the country drained by this stream, all of which will be benefited by navigation, and I firmly believe that it is the most fertile country that I have ever had occasion to see.

Now, gentlemen, I do not know that I can add anything to what has been said by the other gentlemen. I just wanted to voice my sentiments and let you know that the people in that section of the country where I reside are deeply interested in this question and would like to see it put through.

I thank you.

Gen. NEWCOMER. Senator Sheppard referred to a development at the mouth of the river that was new to me, something about an oil plant put there by the Swenson concern.

Mr. MANSFILD. That is 15 or 20 miles from the mouth, a new oil field just developed.

Gen. NEWCOMER. A new oil field?

Mr. MANSFIELD. Yes.

Mr. HENRY. You had in mind the sulphur development?

Gen. NEWCOMER. I know about that; yes.

Mr. MANSFIELD. This oil field is located about 18 miles from there—a few miles from the river. They have been drilling for oil there ever since 1902.

Gen. NEWCOMER. The Swenson people are doing that? You spoke of the Swensons being interested.

Mr. MANSFIELD. I do not know about the Swensons, but all the oil companies at Beaumont are interested over there. They have brought in a great many wells there. Mr. Eagle is interested in the oil field.

Gen. NEWCOMER. That is new information to me.

Mr. MANSFIELD. Well, it is new. It has not been developed long. They struck oil last year, or the year before, but they have been drilling there and discovered an immense belt of salt near where they found the oil. There is a peculiar formation there, a mound covering three or four thousand acres of land, 200 feet high, with the entire country around perfectly flat. The

people who understood the oil game were certain that there was something there, and they kept at it for 10 or 15 years until they finally discovered it.

Mr. HENRY. Will you let me interrupt you there a moment?

Mr. MANSFIELD. Yes.

Mr. HENRY. In regard to the oil-field development there; they have struck a great oil field, and there is a probability that it will be the greatest in the State. That is right within easy reach of the river.

Gen. NEWCOMER. That has been within the last four or five months?

Mr. HENRY. Yes. They are putting in a refinery plant and investing millions of dollars in these fields. They are pretty close to the river.

Mr. WEBER. Are there any towns on the lower river now that have an especially low rate by virtue of being on a waterway?

Mr. MANSFIELD. I think not.

Mr. WEBER. As compared with the other sections?

Mr. MANSFIELD. I think not. I do not think they have any special rate—any of them. Richmond and those towns are located a few miles up the river, and the traffic at the present time is carried by the railroads running east and west.

Mr. WEBER. Do you have any recognized water rate at all?

Mr. MANSFIELD. No.

Gen. NEWCOMER. Does not that indicate that the extension of equal facilities—no greater facilities—upstream, probably would not result in any recognition of water competition?

Mr. MANSFIELD. Well, I think this, that with barges on the river there would be an immense traffic north and south. As Mr. Driscoll said a while ago, that is the natural trend of the freight in that country, and the reason they go east and west on the lower Brazos at this time is because the railroads run in that direction. No railroads run north and south on the lower Brazos.

Mr. HARDY. I do not know whether it would answer the question asked by Gen. Newcomer, but the bayou from Houston to Galveston has shown a very decided effect on railroad rates there. The rates from Houston to Galveston are very low.

Mr. WEBER. That is a recognized competing waterway that is in practical use.

Mr. HENRY. I do not like to trespass on your time, but in this statement by Mr. Foster he gives a number of instances where the freight rate has been lowered from that part of the river and sets them out in his argument. I do not know whether those rates still obtain, but they were made by the railroad to meet water competition with the permission of our State railroad commission. For whatever they are worth, they are in there. I have not looked into that particular point myself.

Mr. CONNALLY. I think that is all we care to submit, gentlemen. I thank you.

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