

THE HISTORY OF THE BUILDING OF THE GOLDEN GATE BRIDGE

A DISSERTATION
SUBMITTED TO THE DEPARTMENT OF HISTORY
AND THE COMMITTEE ON GRADUATE STUDY
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FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

By

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PREFACE

The building of the Golden Gate bridge brought to realization an old dream of Bay area residents. Planned in the Golden Twenties and constructed during the Depression Thirties, the Golden Gate project spanned an important period of California history. Outside of E. Cromwell Mensch, The Golden Gate Bridge (San Francisco, 1935) and Joseph B. Strauss, The Golden Gate Bridge (San Francisco, 1937), both of which provide detailed technical descriptions, little effort hitherto has been made to place the building of the Golden Gate bridge in its historical setting. This study is the first general history that has been written about the bridge from original materials.

To uncover the story of the movement to build a bridge, to assess public opinion on both sides of the Golden Gate respecting such a structure, and to be cognizant of other current problems, the author examined several Bay area newspapers. In San Francisco, the Chronicle, Examiner, News, and Bulletin (after August 1929, the Call-Bulletin) were studied. The newspaper index of the California State Library in Sacramento provided several hundred references in the Chronicle and Examiner relating to the bridge. An examination of the articles appearing in these two San Francisco papers led to information contained in other Bay area

journals. Complete files of these newspapers were found in the San Francisco City Library.

Beyond the Golden Gate to the north, newspapers possessing a wide local circulation were studied. The San Rafael (Calif.) Independent contained approximately 200 stories dating back to 1916. Additional bridge material was obtained from the Marin (Calif.) Journal, a weekly also published in San Rafael. Files of the Independent were located in the library of the San Rafael Independent Journal.¹ The Marin Journal was found in the San Rafael City Library. A third North Bay newspaper examined at length was the Santa Rosa (Calif.) Press Democrat. Santa Rosa was a seedbed of pro-bridge agitation, thus particular attention was given to the editorial and news coverage of the Press Democrat in the years 1919 to 1932.

Other newspapers consulted included the Ukiah (Calif.) Republican Press, Sausalito (Calif.) News, Palo Alto (Calif.) Times, and the New York Times.

Valuable primary materials located in the San Francisco City Engineer's office aided in piecing together the history of the formative years of the bridge project. Here, two scrapbooks were discovered containing letters exchanged in 1920-21 by the city engineer, M. M. O'Shaughnessy, and Joseph B. Strauss, later to become chief engineer of the Golden Gate bridge district. These scrapbooks also contained

1. The San Rafael Independent Journal is the result of a merger, in 1948, of the Independent and the Marin Journal.

the correspondence between O'Shaughnessy and the U. S. Coast and Geodetic Survey in Washington concerning a federal survey of the Golden Gate channel to determine the feasibility of a bridge. Since neither the O'Shaughnessy-Strauss nor the O'Shaughnessy-Survey correspondence is available to the public, printed copies of the most significant letters are included in the appendix. Other local government repositories investigated included the files of the San Francisco Board of Supervisors, containing the Journal of Proceedings of that body, and the files of the California State Public Utilities Commission, where the annual statistics on ferry traffic across the Golden Gate during the twenties and thirties were recorded.

In the Marin County Free Library in San Rafael, the manuscript copy of Clifford Flack's Marin Chronology, 1880-1932, provided valuable data on Marin County history, including early sentiment for a Golden Gate crossing.

The litigation involving the bridge district was one of the important themes throughout the preconstruction period. Since the Golden Gate Bridge and Highway District was the first bridge district formed under the enabling statute passed by the State of California in 1923, the rulings of the county superior courts and the California State Supreme Court on the constitutionality of the bridge district took on unusual significance.

The Francis V. Keesling Papers in the Borel Collection at Stanford University provided the most important

single source of material pertaining to the construction period. Keesling, a bridge district director from 1929 to 1936 and chairman of the influential building committee during the same period, assembled three file drawers of material concerning the bridge district. Included in this collection were the "Memorandum of Minutes" of the board of directors, 1930-36; a 200-page daily calendar in which Keesling recorded a day-by-day account of his bridge activities; and three scrapbooks containing approximately 2,000 newspaper clippings. In addition, the papers contained several hundred letters, memoranda, telegrams, financial and traffic reports, proposals, surveys, speeches, and other printed matter.

Lacking an adequate political history of the Bay region during the period of the thirties, the author relied heavily upon the library of the San Francisco Chronicle and upon conversations with Earl C. Behrens, political editor of the Chronicle since the 1920's. Correspondence with some of the major contractors (such as Bethlehem Steel Company), several San Francisco business and booster organizations, and James Adam, general manager of the Golden Gate Bridge and Highway District, supplemented the contemporary coverage of the economic conditions during the depression.

The annual reports of the bridge district, California State Senate committee reports, and newspaper accounts were utilized for the final chapter, which surveys the history of the span since its opening in 1937. Biographies, memoirs,

special studies, textbooks, and magazine articles pertaining to the history of the Bay region and California provided a general background for the narrative.

A chronological ordering of the material was used in dealing with the history of the project to 1933. For the period of construction, 1933-37, a topical organization was followed; this portion of the study included treatment of the financing of the structure, the building of the bridge, and the maneuvering and impact of politicians upon bridge policies. Throughout the dissertation an effort has been made to interrelate the story of the Golden Gate bridge with the local and national economic and political developments of the period.

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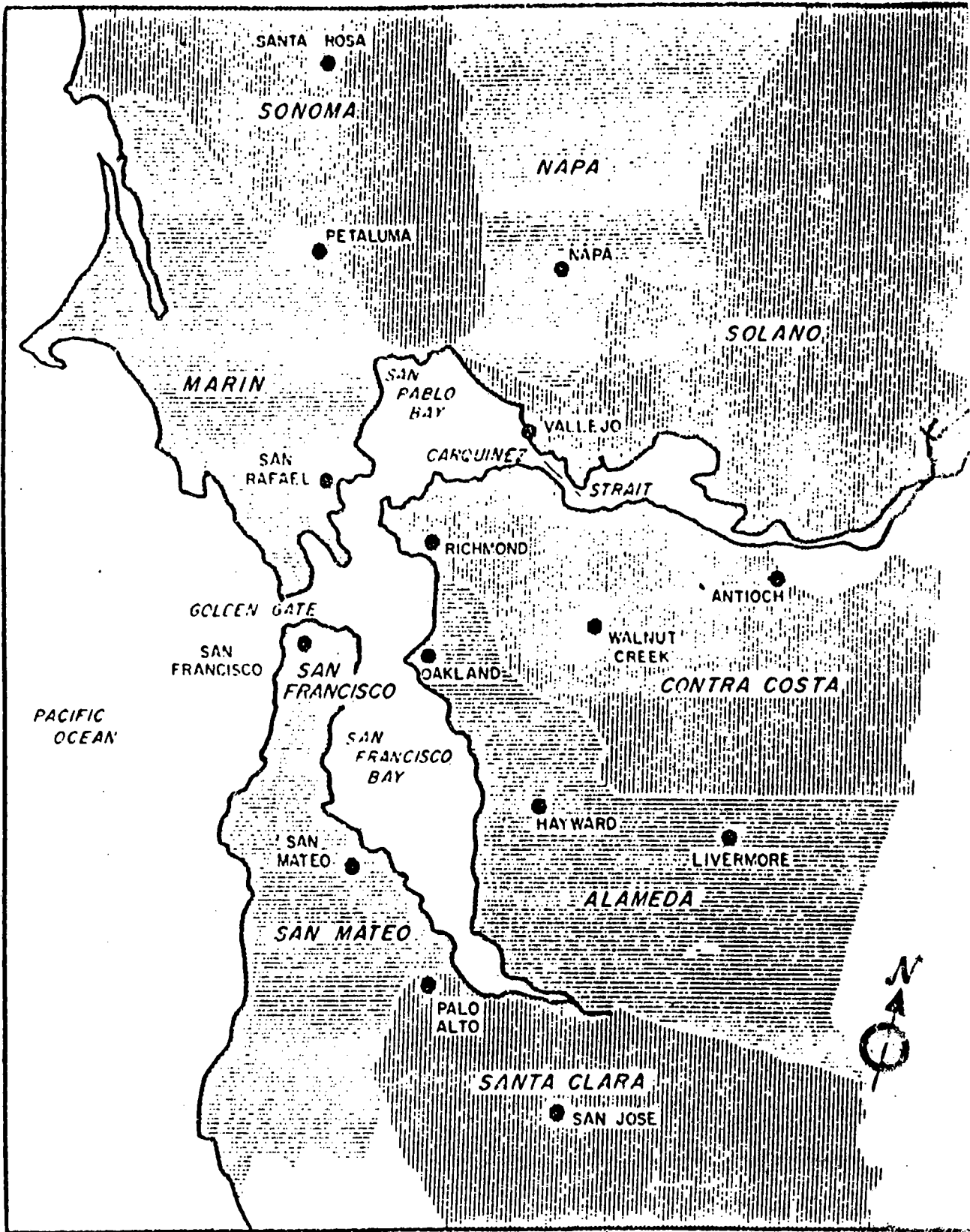
CHAPTER I

GROWTH OF THE IDEA

Introduction

Few metropolitan areas have been blessed with more natural advantages than the San Francisco Bay region.¹ Today (1958) the more than 3,000,000 people who reside in the area live in a climate that is mild the year round, tempered by the presence of the Pacific Ocean. Rich agricultural valleys, particularly the 515,000-acre Santa Clara Valley in the south and the narrow 270,000-acre Napa River Valley in the north, produce large amounts of farm and dairy products for the expanding population. The San Francisco Bay, which forms one of the finest natural harbors in the world, has made the port of San Francisco a gateway to the Pacific and a leading world trade center. To all these attributes may be added the fact that the area is rich in

1. See map, p. 2. The San Francisco Bay region as referred to in this study is comprised of nine counties; they are: San Francisco, Marin, Sonoma, Napa, Solano, Contra Costa, Alameda, Santa Clara, and San Mateo. This nine-county unit has been the basis for economic studies of the Bay area made by state and local authorities. See California, Fact-Finding Committee of the California Assembly on Tidelands Reclamation Development, Related Traffic Problems, and Relief of Congestion on Transbay Crossings, Report on Development of the San Francisco Bay Region, prepared by John L. Savage (San Francisco, 1951), p. 7; San Francisco, Department of City Planning, The Population of San Francisco: A Half Century of Change (San Francisco, 1954), p. 6.



The Nine-County
SAN FRANCISCO BAY AREA

natural beauty, yearly attracting thousands of new residents and visitors.²

The growth of the region, however, has not been without its problems. Since the days of the Gold Rush, the need of an adequate water supply for San Francisco and a satisfactory baywide transportation system has been a constant challenge. Throughout the latter half of the nineteenth century, San Francisco's water supply was developed from local resources. When these failed to meet the requirements of the rapidly expanding metropolis, the construction of the Hetch-Hetchy aqueduct from Yosemite National Park in the Sierra Nevada was undertaken. Begun in 1914, and put into operation in 1934, the Hetch-Hetchy project has met the water needs of San Francisco.³

Unlike the development of water resources, however, building an adequate transportation network in the Bay area has been infinitely more complicated. Such significant factors as geography, rapid population growth, and the introduction of the automobile had to be reckoned with in the construction of any transbay transportation system. San Francisco, key to the area, is located on a narrow, hilly

2. Walter McElroy, ed., San Francisco: The Bay and Its Cities (New York, 1947), pp. 43-44. For a full discussion of San Francisco's geography and points of interest see Aubrey Drury, California: An Intimate Guide (New York, 1947), pp. 242-82.

3. Ray W. Taylor, Hetch-Hetchy: The Story of San Francisco's Struggle to Provide a Water Supply for Her Future Needs (San Francisco, 1926), pp. 9-13; McElroy, San Francisco, pp. 43-44.

4

tip of a peninsula bounded on the west by the Pacific Ocean, on the north by the Golden Gate, and on the east by the San Francisco Bay. Across the Bay to the east lies the city and port of Oakland, the western terminal for transcontinental railroads. Immediately to the north beyond the Golden Gate is Marin County, gateway to the redwood country of Northern California with its rich agricultural and lumber industries.⁴

The land-locked harbor of San Francisco with its many bays and inlets is a magnificent waterway, covering over 400 square miles much of which is navigable by ocean-going vessels. The entrance to the Bay, the Golden Gate, is a picturesque strait one mile wide at its narrowest point and some three miles long. Through the strait flow all the waters from California's Central Valley river system.⁵

The Spanish founded San Francisco in 1775 on the water's edge from which they had access to ocean shipping lanes. In the years to follow, however, the Spanish settlers in the Bay area displayed little maritime interest. As late as 1841, American vessels visiting San Francisco found no evidence that the Spanish had made any effort to enlighten themselves concerning the maritime possibilities of the port.⁶

4. For a description of California's famed redwood empire see Alfred Powers, The Redwood Country (New York, 1949) and Howard Brett Melendy, "One Hundred Years of the Redwood Lumber Industry, 1850-1950" (Ph.D. dissertation, Stanford University, 1952).

5. Olaf P. Jenkins, ed., Geological Guidebook of the San Francisco Bay Counties (San Francisco, 1951), pp. 79-84.

6. John P. Young, San Francisco (San Francisco, 1912), I, 121-22.

5

The discovery of gold in 1848 brought about radical changes in the life of this coastal city. As hundreds of ships sailed through the Golden Gate bringing with them tens of thousands of gold-seekers, San Francisco became a world-renowned port. Almost simultaneous with this development was the establishment of a river steamer service to carry the heavy freight and passenger traffic moving from San Francisco to Sacramento and the gold fields that lay to the east. These river steamers, which made their first regular runs in 1850, were brought to San Francisco around the Horn from the Atlantic seaboard.⁷

Also in 1850, the first regular ferry service was inaugurated between San Francisco and the expanding settlements on the eastern shore of the Bay centering around Oakland. By the time of the Civil War, the San Francisco-Oakland ferry service had been increased to six trips daily. The completion of the first transcontinental railroad in 1869 with its western terminus at Oakland gave impetus to a further expansion of this service; on September 6, 1869, the first ferry boat carrying transcontinental rail passengers arrived in San Francisco from the train-ferry terminal in Oakland.⁸

7. John W. Caughey, California (New York, 1946), pp. 292-301; George H. Harlan and Clement Fisher, Jr., Of Walking Beams and Paddle Wheels (San Francisco, 1951), p. 16.

8. Neill C. Wilson and Frank J. Taylor, Southern Pacific: The Roaring Story of a Fighting Railroad (New York, 1952), p. 193.

Throughout the remainder of the nineteenth century and into the twentieth, the ferry boat facilities were extended to many other points on the San Francisco Bay. New routes were inaugurated, the number of ferry boats was increased, and the service was improved as the population in the Bay region soared from 50,000 at the end of 1849 to over 1,330,000 by World War I. In 1917, the year America entered the war, 43,000,000 passengers crossed the Bay on ferries.⁹

Up to the time the United States entered the world conflict, the ferry system had been able to meet the transportation needs of the San Francisco Bay area. There were some misgivings, however. A new form of transportation, the automobile, had made its appearance on California roads around the turn of the century. By 1910, the number of motor cars in California had increased to 44,000; a decade later that number had jumped to nearly 600,000.¹⁰ After 1910, the automobile began to appear in significant numbers in ferry statistics. In the year 1917, over 600,000 auto-ferry trips across the Bay were completed. This upsurge in automobile travel brought growing traffic congestion on the ferry routes. The vessels, designed primarily to carry passengers and a relatively few horse-drawn carriages, could not accommodate the herds of "horseless carriages." The

9. Drury, California, pp. 243-44; San Francisco, Chamber of Commerce, Ninth Annual Statistical Report of the San Francisco Chamber of Commerce, 1920 (San Francisco, 1921), p. 8.

10. U. S., Public Roads Administration, Highway Statistics: Summary to 1945 (Washington, 1947), p. 19.

ferry owners continued to improve and augment their fleets, but their efforts failed to meet the demands of the mounting number of car owners for more efficient transbay service.¹¹

A transportation revolution was in the making, one which would have a great impact on the economic, social, and political growth of the region. The automobile was the key to this new era, and to serve adequately this new form of transportation it would be necessary to replace the ferry boats with bridges.¹² New York City, which since 1883 had erected four bridges across the East River linking Manhattan Island with the mainland, provided an example for San Francisco.¹³ Building bridges in the San Francisco Bay, however, presented many financial and engineering problems which took years of careful planning, study, and public education to resolve.

The Golden Gate bridge project, promoted as a partial answer to San Francisco's transbay transportation problems,

11. The Southern Pacific Company constructed the first auto ferry in 1908, followed by a second vessel in 1912. At the time these two boats were evidently regarded as experiments, since it was not until the twenties that the ferry companies emphasized auto-ferry construction. At the height of the ferry boat era--the late twenties and early thirties--a fleet of over thirty vessels was devoted exclusively to transporting automobiles. See Harlan and Fisher, Of Walking Beams, p. 36.

12. For a history of the automobile industry see M. M. Muselman, Get A Horse! The Story of the Automobile in America (New York, 1950) and Allen Nevins, Ford: The Time, The Man, The Company (New York, 1954).

13. By 1910 New York was served by the Brooklyn bridge (1883), the Williamsburg bridge (1903), the Queensboro bridge (1908), and the Manhattan bridge (1909). See Encyclopedia Britannica, IV, 127.

originated during World War I. Today (1958), twenty-one years after its completion, the role of this crossing is still expanding, contributing to the development of an ever-enlarging metropolitan area.

Bridge Proposals

The most celebrated of the early bridge proposals for the San Francisco harbor was advanced by the fabulous "Emperor Norton I" in 1869. In August of that year "Emperor" Norton issued a proclamation directing that a suspension bridge be constructed from Oakland to Yerba Buena Island to Sausalito (Marin County), and from there to the Farallon Islands. Although this scheme was impossible of execution, it did underscore the basic desire for closer unity among the various Bay area communities.¹⁴

The proposal to bridge the Golden Gate had been agitated for a number of years. The first definite consideration given to the idea reportedly came in the 1870's, during the initial railroad building era in California. In 1872, Charles Crocker, one of the "Big Four" in the Central Pacific railroad, presented a plan to the Marin County Board of Supervisors calling for the construction of a railway bridge across the Golden Gate. The purpose of the span was to make

14. Emperor Norton I, Emperor of the United States and Protector of Mexico, a real person who assumed a legendary role during the early days of San Francisco. See Allen S. Lane, Emperor Norton: The Mad Monarch of America (Caldwell, Idaho, 1939) and Albert Dressler, ed., Emperor Norton (San Francisco, 1927), p. 20.

San Francisco the western terminus of the transcontinental railroad which had been completed in 1869.¹⁵ During the remainder of the nineteenth century and into the first decade of the twentieth century, plans to bridge the Golden Gate were frequently suggested. But, like Crocker's, they were all considered too visionary to be of practical value.¹⁶

After the beginning of World War I and prior to American involvement, the idea was put forth again, this time to take root and prosper until the bridge was planned and constructed. The man primarily responsible for initiating the movement was James H. Wilkins, a local engineer and newspaperman from Marin County.

Wilkins came to California in the year 1861, as a boy of seven. With his family he settled in Marin in the town of San Rafael, twenty miles north of San Francisco. Following his graduation in engineering from the University of California in the late 1870's, Wilkins returned to San Rafael. There, instead of pursuing his engineering training, he established a weekly newspaper, the Tocsin, and began to take an active interest in public affairs. Shortly after 1910, he accepted a position on the San Francisco Bulletin.

15. San Francisco Bulletin, Aug. 26, 1916.

16. Another proposal that received some currency was made by Thomas A. Box, a resident of Sausalito in Marin County. In 1896 he presented his plan to William Kent, at that time a United States Congressman from Marin. Kent evidently did not take the suggestion seriously; however, this did not prevent Box from pursuing his project winning for himself the dubious title of the "crazy old man" who wanted to bridge the Golden Gate. San Francisco Chronicle, May 27, 1937.

It was while he was on the staff of the Bulletin that he published the first of several articles outlining the need and a plan for a bridge across the Golden Gate.¹⁷

At the time of his first article in August 1916, Marin's economy was devoted almost entirely to agriculture. In fact, one of the most striking features in the history of the Bay area was the sharp contrast between the rate of growth of San Francisco and that of Marin County, separated as they were only by the Golden Gate. In the decades following the Gold Rush, San Francisco had grown to the status of a major seaport on the Pacific Ocean, serving as the regional capital for a large portion of the West. Since 1860 her population had grown from 57,000 to 417,000 by 1910.¹⁸ Marin, meanwhile, retained its rural atmosphere and occupations. During the 1870's, when the first railroads were constructed in the county, some of the civic and business leaders had a vision of developing a rival port on their side of the bay. These plans never materialized, however, as the momentum of an early start put San Francisco in a commanding position.¹⁹ By 1910, Marin's population

17. Florence Donnelly, secretary, Marin County Historical Society, to author, Nov. 12, 1956.

18. U. S., Bureau of Census, Thirteenth Census of the United States: 1910. Population, II, 149.

19. Marin County (Calif.) Journal, April 6, 1872; June 29, 1872. See J. P. Munro-Fraser, History of Marin County (San Francisco, 1880) for detailed coverage of Marin's early history. The best source for more recent events is Clifford Flack, Marin Chronology, 1880-1932, an unpublished manuscript in the Marin County Free Library.

stood at 25,000--only a fraction of that of the major metropolis that lay but one mile away across the Golden Gate.²⁰

Water communication between Marin and San Francisco was established on a permanent basis in 1868, when the first regular ferry service was inaugurated. Gradually this route was expanded, and by 1917 a flourishing passenger-freight-auto service existed operating between San Francisco and the town of Sausalito. In 1917, over five and one-half million passengers crossed the Golden Gate.²¹ The number of motor cars carried in that year is not available, but in 1919 over 123,000 vehicles made the trip by water.²²

James Wilkins was one of the growing number of businessmen who traveled daily to San Francisco from his home in Marin County. Since the 1870's he had watched this ferry traffic grow and had experienced firsthand some of the commuter's problems. By 1916 Wilkins had reached the decision that the future of Marin lay in closer transportation ties with San Francisco. Drawing upon his knowledge of engineering and using his faculty for writing, he launched a one-man campaign in the Bulletin to win support for the construction of a span across the Golden Gate.

20. U. S., Bureau of Census, Thirteenth Census of the United States: 1910. Population, II, 146.

21. San Francisco, Ninth Annual Statistical Report, p. 8; George H. Harlan, "The Saga of the Ferries," Sausalito (Calif.) News, Feb. 27, 1941, pp. 1-2.

22. Golden Gate Bridge and Highway District, Vol. II:

The structure Wilkins envisioned was a suspension bridge stretching from Lime Point on the San Francisco side to Fort Point in Marin. The suspended portion, or center span, would be 3,000 feet long with two 1,000-foot side spans to connect with either shore. Wilkins estimated the cost at \$10,000,000. This proposed bridge, said the author, although of unprecedented size, was not only structurally possible but, in view of the rapid growth of the Bay area, was economically feasible. Furthermore, once the bridge was completed, Marin and the other north Bay counties would have easy access to the large metropolitan markets in San Francisco. This, in turn, would enhance San Francisco's role as the regional capital. In addition, and not of least importance to Wilkins, the bridge would eliminate the "costly and vexatious ferry crossings" which traversed ocean shipping lanes.²³

Following the publication of his article, Wilkins sought recognition and support for his proposal from local officials. In San Francisco, he presented the project to the city engineer, Michael M. O'Shaughnessy.²⁴ While the idea appealed to him, O'Shaughnessy believed Wilkins' cost

Traffic Analysis and Report of the Traffic Engineer (San Francisco, 1930), Appendix A, p. 19.

23. San Francisco Bulletin, Aug. 26, 1916.

24. Michael M. O'Shaughnessy, city engineer of San Francisco, 1912-1932. Known as the "father" of San Francisco's Hetch-Hetchy water resource development, O'Shaughnessy became an early and avid supporter of the Golden Gate bridge proposal. See Who Was Who in America, 1897-1942, p. 921.

estimate of \$10,000,000 was too high to make the bridge practical at that time.²⁵ In Marin leaders hailed the proposal as of immediate and permanent importance. It was an idea, said one observer, that should appeal to all the northern counties whose progress had been halted more or less by their comparative isolation from the great movements of San Francisco's commercial life.²⁶ In August 1916, the San Rafael City Council and the Central Marin Chamber of Commerce went on record in support of the project. The following month the Marin Board of Supervisors adopted a resolution, subsequently forwarded to the surrounding counties, in which the board urged the construction of the crossing.²⁷

The initial reaction to Wilkins' idea, while generally favorable, was of short duration. The brief flurry of activity in the months of August and September 1916 soon faded away as the attention of the local citizenry was focused increasingly on the forthcoming presidential election and the war in Europe. By the end of the year, Wilkins' plan to bridge the Golden Gate was receiving no further attention from the local press.

25. San Francisco Bulletin, Aug. 31, 1916.

26. Wallace Foster, president of the Central Marin Chamber of Commerce, as reported in the San Francisco Bulletin, Aug. 29, 1916.

27. San Rafael (Calif.) Independent, Aug. 29, 1916; San Francisco Bulletin, Sept. 6, 1916; San Francisco Chronicle, Sept. 9, 1916.

The Postwar Movement

While America's war effort precluded giving much attention to purely local matters, the Golden Gate project was not entirely forgotten. During 1917, City Engineer O'Shaughnessy conducted a private survey among fellow engineers asking their opinion on the prospects for such a structure. For the most part the men he talked to confirmed his own doubts as to the feasibility of the span, particularly in reference to the overall cost. Many of the estimates ran as high as \$100,000,000.

The one positive reaction came from Joseph B. Strauss, a Chicago engineer who had returned to San Francisco in 1917 to confer with O'Shaughnessy about the construction of some small bridges on San Francisco streets.²⁸ Strauss was not new to the Bay area. Besides operating a branch office of his bridge company in San Francisco for several years, he also had designed and constructed the famous aerscope at the Panama-Pacific Exposition held in San Francisco in 1915. When O'Shaughnessy broached Wilkins' plan, Strauss ventured that such a crossing was both economically and structurally possible. Moreover, he agreed to

28. Joseph Baermann Strauss was born in Cincinnati in 1870. In 1892 he was graduated from the University of Cincinnati in civil engineering. Thereupon he entered the bridge engineering profession as a designer and in 1904 formed his own bridge company, with offices in Chicago and San Francisco. During his career, which ended with his passing in 1938, Strauss built more than 400 bridges. The Golden Gate bridge was his last, and greatest, achievement. See Winfield S. Downs, ed., Who's Who in Engineering (New York, 1937), p. 1338.

draw a set of plans, provided he received an accurate set of soundings of the channel. Encouraged by Strauss' suggestion, O'Shaughnessy agreed to secure the data. No definite time was set.²⁹

Following the signing of the Armistice in November 1918, movements developed to arouse new public interest in the span. The pro-bridge appeals, however, still lacked organization and, for the most part, were confined to San Francisco and Marin counties. In San Francisco, the Bulletin resumed its campaign with editorials and more articles by its staff writer, James Wilkins.³⁰ The San Francisco Board of Supervisors, in recognition of the growing sentiment for the span, passed a resolution calling upon California's Congressional delegation to promote legislation which would provide for a federal survey of the Golden Gate channel. In this way it would be possible for O'Shaughnessy to supply Strauss with the information that the latter desired.³¹

The recommendation from the supervisors elicited sympathetic responses from Bay area legislators. Congressman Clarence F. Lea of Santa Rosa (1917-1949), for example, gave immediate and warm support. He envisioned a crossing that would benefit all of Northern California and, in view of the

29. Joseph B. Strauss with Frank J. Taylor, "Here's Your Bridge, Mr. O'Shaughnessy," Saturday Evening Post, May 29, 1937, p. 20.

30. San Francisco Bulletin, Nov. 15, 1918.

31. San Francisco, Board of Supervisors, Journal of Proceedings, XIII (1918), 943.

transportation problems in the Bay area arising out of the war, Congressman Lea felt that the bridge was a military necessity. Congressman Julius Kahn of San Francisco (1899-1924) stated that such a span would be one of the most impressive works undertaken by man, and promised to support any legislation calling for a survey at federal expense.³² Within a few weeks a bill was introduced into Congress, co-sponsored by California's Senator James D. Phelan (1915-1921) and Congressman Lea. By early 1919, however, it was evident that the legislation would be blocked indefinitely in committee.³³

In Marin County, meanwhile, the other branch of the span-the-Golden Gate movement was quick to revive following the end of the war. Spurred on by the San Rafael Independent and James Wilkins, a concerted effort was made to enlist public support.³⁴ By the middle of 1919, the Independent claimed that an extensive grass-roots movement in favor of constructing a Golden Gate crossing existed throughout Northern California. To organize these open expressions of support, the Independent scheduled a public meeting in August 1919 at San Rafael.³⁵

32. San Rafael Independent, Nov. 27, 1918.

33. Ibid., Jan. 29, 1919.

34. See issues of the San Rafael Independent for November 1918 and January 1919.

35. Ibid., July 2, 23, 1919.

When the meeting convened, approximately one hundred representatives from organizations in San Francisco, Marin, and Sonoma counties were present. Included were prominent business and civic leaders such as Frank P. Doyle, a banker from Santa Rosa; Robert Trumbull, a well-known rancher from north Marin County; former Congressman William Kent, also of Marin; and Supervisor Andrew Gallagher of San Francisco.³⁶

In discussing ways and means for accomplishing their goal, the delegates agreed that a considerable amount of preliminary study remained before further organizational steps could be taken. There was need of a detailed engineering plan drawn by a recognized bridge engineer. (Wilkins was a civil engineer with no bridge experience.) There was also need of a sound program for financing the huge project. Once these two basic steps had been accomplished the bridge supporters felt they would then be in a position to organize the movement and to enlist public support.³⁷

Of particular portent to the bridge project was the friendly attitude of Supervisor Gallagher of San Francisco during the San Rafael conclave. Gallagher promised to return to San Francisco and seek that city's aid in obtaining a survey of the proposed site. A few days following the San Rafael meeting, the San Francisco Supervisors, acting upon motions introduced by Gallagher and Richard J. Welch, passed

36. Santa Rosa (Calif.) Press Democrat, Aug. 3, 1919; San Rafael Independent, Aug. 6, 1919.

37. San Rafael Independent, Aug. 13, 1919; Sept. 3, 1919.

two resolutions directing the city engineer to make a feasibility study of the proposed Golden Gate bridge and report his findings to the Board.³⁸

O'Shaughnessy, who as yet had not been able to fulfill a similar request made by Strauss, took his problem to the United States Coast and Geodetic Survey. In a letter to headquarters in Washington, the city engineer asked whether or not such a survey might not be made by them in performance of their regular duties.³⁹

The idea was given a friendly reception in Washington and, following an exchange of letters, an order was issued from Washington to the branch office of the Survey in San Francisco directing it to take soundings of the channel.⁴⁰ The work was begun in February 1920, and by the end of April all the basic geodetic information had been assembled and forwarded to the city engineer's office. Upon receipt of the data, O'Shaughnessy mailed it to Strauss and to two other engineers.⁴¹

38. San Francisco, Board of Supervisors, Proceedings, XIV (1919), 697. See also appendix, p. 220.

39. O'Shaughnessy to E. Lester Jones, superintendent, U. S. Coast and Geodetic Survey, Jan. 5, 1920, City Engineer files, San Francisco.

40. E. Lester Jones to M. M. O'Shaughnessy, Jan. 28, 1920, City Engineer files, San Francisco. See also appendix, p. 221.

41. The other engineers were: Francis G. McMath, president of the Canadian Bridge and Iron Company of Detroit and a consulting engineer on the Quebec bridge, and Gustav Lindenthal, consulting engineer for the Port of New York Authority. See O'Shaughnessy to Strauss, May 14, 1920; O'Shaughnessy to

San Francisco-Oakland Bay Bridge

The next eighteen months were spent waiting and watching--waiting hopefully for a practical plan to be developed by one of the three engineers, and watching, in the meantime, a popular movement develop in support of the construction of a Bay bridge from San Francisco to Oakland.

Only two of the engineers to whom O'Shaughnessy had supplied data replied--Joseph Strauss and Gustav Lindenthal. Lindenthal's response, the first to be received, was enthusiastic. ". . . an interesting and grand proposition," he said, "entirely practicable from an engineering point of view." However, his cost estimate of \$56,000,000 was too high to make his plan attractive to San Francisco officials.⁴² Strauss' proposal was submitted in the fall of the following year (1921). Based on the geodetic information supplied to him, Strauss still considered the bridge structurally possible. The total cost he estimated at \$17,000,000.⁴³

With the receipt of Strauss' plan, the supporters of a bridge across the Golden Gate felt they had, for the first time, a complete and practical proposal. The cost figure was considered to be within the economic capabilities of the

Lindenthal, May 18, 1920; O'Shaughnessy to McMath, May 18, 1920, City Engineer files, San Francisco.

42. Lindenthal to O'Shaughnessy, June 22, 1920, City Engineer files, San Francisco.

43. Strauss to O'Shaughnessy, Aug. 3, 1921 (appendix, pp. 225-26); Oct. 6, 1921, City Engineer files, San Francisco. For a complete record of the Strauss-O'Shaughnessy correspondence during this period see appendix, pp. 220-26.

region; with the number of cars constantly growing, the anticipation that toll revenue would pay for the bridge seemed reasonable. Also, Strauss' detailed plans, replete with sketches and specifications, gave the bridge proponents something tangible to present to the public. By the summer of 1921, however, it was the San Francisco-Oakland Bay bridge and not the Golden Gate span that the local press, city officials, and business organizations were urging. In the interval between the meeting at San Rafael in August 1919 and the receipt of Strauss' plan in the summer of 1921, the supporters of the Golden Gate bridge had lost the initiative to the promoters of the Bay span.

The possibilities of a crossing between San Francisco and Oakland had long appealed to local leaders on both sides of the Bay. As early as 1912, the San Francisco Board of Supervisors had passed a resolution recommending the construction of such a span.⁴⁴ Two years later Charles E. Fowler, a prominent bridge engineer, unfolded his Bay bridge project. Enthusiastic over Fowler's proposal, Bay area officials forwarded the scheme to the United States War Department requesting its approval. After studying the plan, however, the War Department refused to grant permission to construct the bridge on grounds that it would obstruct shipping.⁴⁵

44. San Francisco, Board of Supervisors, Proceedings, VII (1912), 347.

45. Charles E. Fowler, The San Francisco-Oakland Cantilever

Pg 21 Missing

Organizing the Movement

The sudden and unexpected collapse of the Bay bridge project left a vacuum in the minds of the bridge-conscious citizens of the Bay region, and when the proposal to build a bridge across the Golden Gate was again presented, support was immediately forthcoming. Strauss, who had recently submitted his plans for the Golden Gate structure, came to San Francisco to assist in a public information campaign to explain his proposal. In cooperation with City Engineer O'Shaughnessy, James Wilkins, Frank P. Doyle of Santa Rosa, Thomas A. Box of Sausalito and others, Strauss launched a series of speeches before service organizations and business clubs. In a crusading mood, the bridge engineer repeatedly

emphasized that the proposal, once considered "a wild flight of the imagination," could now become the "crowning achievement of American endeavor," a fitting tribute to the Great Golden West.⁴⁸

By the end of 1922, an impressive list of local newspapers, civic groups, and booster clubs endorsed the plan. In addition, the San Francisco and Marin boards of supervisors reaffirmed their support.⁴⁹ In December suggestions that another Bay-wide meeting of Golden Gate bridge supporters be convened came from Mayor Rolph's office in San Francisco and the San Rafael Independent. In the

⁴⁸. Joseph B. Strauss with M. M. O'Shaughnessy, Bridging of the Golden Gate (San Francisco, [1922]), p. 1.

⁴⁹. San Francisco Examiner, Dec. 8, 1922.

following January, Frank Doyle and the Santa Rosa Chamber of Commerce took the initiative and sent out invitations for an open meeting to be held in Santa Rosa.⁵⁰ 1923

The meeting, which opened on January 13, was an immediate success. Three hundred delegates from nearly every county in Northern California came to Santa Rosa to hear of the progress which had been made towards building a crossing. Mayor Rolph of San Francisco, a large delegation of San Francisco supervisors; Frank L. Coombs, State Assemblyman from Napa County; Harry Speas, president of the Golden Gate Ferry Company; and a representative of a large financial house in San Francisco were among those present. The only key supporter missing was Strauss, who remained in Chicago to direct his company's bridge business.⁵¹

Thomas A. Box of Marin County, and a Golden Gate bridge backer since 1896, presided over the meeting. Speaking to the assembled, O'Shaughnessy related the history of the entire movement from the time Wilkins launched his one-man campaign in 1916 in the columns of the Bulletin. A number of other speakers followed, all of whom, according to newspaper reports, enthusiastically supported the proposal. Even President Speas of the ferry company which had the ferry franchise across the Golden Gate expressed the belief that there would be ample business for both bridge

50. San Rafael Independent, Dec. 6, 20, 1922; Santa Rosa Press Democrat, Jan. 13, 1923.

51. Santa Rosa Press Democrat, Jan. 14, 1923.

and ferry. Before closing, the delegates voted to form the "Building of the Golden Gate Bridge Association." The purpose of this voluntary citizens' organization was to coordinate and advance construction plans. In their first formal action, the bridge association named an executive committee headed by W. J. Hotchkiss, a prominent San Francisco businessman, to carry forward the objectives of the association.⁵²

Summary

The Santa Rosa meeting had launched the bridge project. In a little over six years, the movement had grown from a few scattered supporters to a formal organization with widespread backing in the Bay region and throughout Northern California. The rise of the automobile gave voice and meaning to demands for a Golden Gate crossing; and the citizens who first realized the need--newspapermen, businessmen, and local government officials--assumed leadership. Opposition to the project, not yet crystallized, existed and would be heard from as the bridge association took steps to find ways and means of building the span.

52. Santa Rosa Press Democrat, Jan. 14, 1923; San Francisco Bulletin, Jan. 15, 1923; San Rafael Independent, Jan. 17, 1923. Other members of the executive committee included Frank P. Doyle of Santa Rosa, Assemblyman Frank L. Coombs of Napa, Captain I. N. Hibbard of San Francisco, and Supervisor Richard J. Welch, also of San Francisco.

CHAPTER II

FORMATION OF THE BRIDGE DISTRICT

Introduction

The vehicular traffic problem across the Golden Gate became more urgent with each passing year. By 1923 the annual auto-ferry crossings had increased to approximately 500,000 cars and trucks. The 1919 figure stood at 125,000.

TABLE I
AUTO-FERRY TRAFFIC ACROSS GOLDEN GATE, 1919-1928¹

Year	Golden Gate Traffic	Total Bay Traffic
1919	123,200	1,063,800
1920	184,800	1,335,900
1921	241,300	1,556,400
1922	301,800	1,789,400
1923	476,730	2,420,330
1924	566,025	2,717,325
1925	763,882	3,234,282
1926	919,835	4,768,035
1927	1,497,043	6,933,743
1928	2,195,520	8,553,529

1. Golden Gate Bridge and Highway District, Vol. II: Traffic Analysis, Appendix A, p. 19; Golden Gate Ferry Company of San Francisco to Railroad Commission of California, Annual Reports, 1923-1928; California Railroad Commission, "San Francisco Bay Ferry Statistics, Vehicular, and Passenger Traffic, 1920-1932," prepared by Ward Hall (San Francisco).

Since 1907, passenger and auto traffic across the Golden Gate had been handled by the Northwestern Pacific Railroad, a subsidiary of the Southern Pacific Company. In the years following World War I, the Northwestern Pacific was unable to meet the growing demands for auto transportation; consequently, a second ferry line was formed in 1922. This new, independent organization, the Golden Gate Ferry Company, brought into operation new and faster boats, especially designed to carry automobiles. Also, it constructed more conveniently located ferry slips to handle the rising number of motorists. In spite of these improved and expanded services, however, the problem of handling peak traffic loads persisted, as each year brought larger traffic jams to the ferry terminals.²

Passage of the Bridge Act

The newly established Golden Gate Bridge Association took advantage of the growing traffic congestion to press for the Golden Gate crossing. The first objective was to seek an enabling act from the state legislature which would permit the formation of a bridge district. Such an act was considered necessary for two reasons. First, the additional engineering surveys which would be needed would cost in the neighborhood of one million dollars, far beyond the means of any one group of citizens. This amount, however, could be raised by a bridge district, since such a body would have

2. Harlan, Sausalito News, Feb. 27, 1941, p. 6.

the power of taxation. Second, a state-sponsored district was needed because the federal government granted construction permits for bridges over coastal waters only to public bodies established by state legislatures.³

In January 1923, the association's executive committee, headed by W. J. Hotchkiss, organized a campaign to seek public support for the desired legislation. Joseph Strauss, whose plan had become the basis for the proposed bridge, was named to serve as the engineering consultant. To give advice on legal matters, George H. Harlan of Sausalito was appointed counsel.⁴ During February and March, Strauss, Harlan, and members of the executive committee delivered a series of speeches throughout the Bay area, concentrating on the larger business and civic groups. In their appeals, the speakers emphasized the immediate need of the proposed bridge; Strauss promised his listeners that the bridge could be completed by 1927, provided a bridge district was promptly formed. According to the Chicago bridge builder, three Eastern construction concerns had expressed interest in the bridge, and several financial firms in San Francisco reportedly informed

3. San Francisco Chronicle, March 13, 1923. According to an act passed by Congress in 1899, a bridge lying entirely within the boundary of one state could be constructed in a harbor if the project had been authorized by the state legislature and if the plans had been submitted to and approved by the Chief of Army Engineers and the Secretary of War. See U. S., Statutes at Large, 55 Cong., 3 sess., chap. 425, p. 1151.

4. Joseph B. Strauss, The Golden Gate Bridge: Report of the Chief Engineer to the Board of Directors of the Golden Gate Bridge and Highway District (San Francisco, 1937), p. 28.

Mayor Rolph that they would sell the bridge bonds without expense to the proposed district.⁵

As in the case of the 1921 drive to construct a San Francisco-Oakland bridge, newspapers and organizations responded enthusiastically. Representatives of the San Francisco Civic League and Improvement Clubs and Associations, which in 1919 had attended the initial Golden Gate bridge meeting in San Rafael, aggressively campaigned in behalf of the span, as did the Down Town Association, a group of businessmen also from San Francisco. In addition, the California Automobile Association, formed in 1907 to promote the construction of more and better highways, and the Redwood Empire Association, a promotional organization made up of eight northern California and one Oregon counties, lent their influential aid.⁶

The two groups that offered the strongest support were the Motor Car Dealers Association of San Francisco and the Bay area newspapers. The car dealers, headed by Mr. William L. Hughson, the world's first Ford dealer, and Mr. Leon J. Pinkson, also prominent in San Francisco automotive circles, launched an aggressive bridge-building campaign using the slogan, "Breaking the Chinese Wall Around San Francisco."

5. San Francisco Chronicle, March 13 to 16, 1923; San Rafael Independent, March 14, 1923; San Francisco, Board of Supervisors, Proceedings, XVIII (1923), 243.

6. San Francisco Examiner, March 18, 1923; George P. Anderson, president, Redwood Empire Association, to Keesling, Dec. 2, 1936, Keesling Papers.

Headquarters were established in downtown San Francisco; in the years to follow the car dealers spent upwards of \$75,000, publicizing the need for a Golden Gate crossing as well as other Bay bridges.⁷

The newspapers' contribution to the bridge movement was both direct and indirect. Through their editorial pages most of the San Francisco and North Bay newspapers gave the promoters of the project much encouragement. At the same time, the journals indirectly abetted the movement by devoting several pages each day, particularly on Sundays, to the "automobile age." "Blossom time tours" around the San Francisco Peninsula and travel hints for trips into the redwood empire were discussed at great length. The effect of this newspaper publicity was to focus public attention on the need for more and better roads and bridges.⁸

As popular support for the Golden Gate project increased, preparations were made to seek passage of legislation authorizing the establishment of bridge districts. With the aid of bridge counsel Harlan, Assemblyman Frank L. Coombs of Napa framed a bill which he introduced into the California Assembly in February 1923. In support of the measure,

7. Amos T. Crowl, manager, Motor Car Dealers Association of San Francisco, to author, June 1, 1956; San Francisco Chronicle, March 18, 1923. Mr. Hughson is still active (1958) in his own company, and Mr. Pinkson is presently the automobile editor for the San Francisco Chronicle.

8. See Sunday issues of the San Francisco News, Bulletin, Call, Examiner, and Chronicle for 1923. Also weekday issues of the Santa Rosa Press Democrat for the same year.

several officers of the bridge association, including W. J. Hotchkiss, Joseph Strauss, James H. Wilkins,⁹ Thomas A. Box, and others went to Sacramento to appear before the Assembly Committee on Roads and Highways. The most persuasive testimony again came from Strauss, the engineer and architect of the proposed span.¹⁰

After one month of hearings, during which little opposition was manifested to the bill, the assembly committee voted to recommend passage. In the weeks that followed, support for the measure in the state capital mounted rapidly, and in May the legislators passed a joint resolution urging the Secretary of War to approve the construction of a Golden Gate crossing when and if the proposition were presented to him. A few days later, the Coombs' bill was passed under the title of the "Bridge and Highway District Act."¹¹

Approval of the War Department

Bridge officials moved rapidly to take advantage of the momentum which had been generated by the legislative

9. As events in the history of the Golden Gate bridge movement unfolded, the role of Wilkins as the "father of the Golden Gate bridge proposal" became generally recognized. In 1928, the San Francisco Board of Supervisors passed a resolution in which they officially acknowledged Wilkins' contribution as the instigator of the modern movement to bridge the Golden Gate. See San Francisco, Board of Supervisors, Proceedings, XXIII (1928), 2679.

10. San Francisco Examiner, March 21, 23, 1923; San Rafael Independent, May 16, 1923.

11. Statutes of California, 45 Legis., Reg. Sess., Assembly Joint Resolution No. 2, p. 1671; 45 Legis., Reg. Sess., Chap. 228, p. 452.

victory at Sacramento. Legally it was now possible for the interested counties to proceed with the organization of the district. Before this step was undertaken, however, the leaders of the movement sought to obtain prior approval of the War Department.

The attitude of the War Department at this time remained a matter of considerable speculation. In 1921, when local authorities won approval for the San Francisco-Oakland crossing, the Army issued a ban on the construction of any other bridge north of Hunter's Point. Presumably, this included the Golden Gate.¹² Strauss, however, claimed that he had received assurances from Secretary of War, John W. Weeks (1921-1925), and certain members of Congress that the consent of the federal government would be forthcoming as soon as an acceptable scheme was submitted.¹³

The job of drawing up detailed plans and specifications, along with making up-to-date traffic studies of the Bay area, was a vast undertaking, particularly when the sponsors of the proposal had to volunteer their time and financial support. Strauss and other officials of the Golden Gate Bridge Association spent the better part of one year working on the project. Finally, by the spring of 1924, all the drawings and studies had been completed. At that time the San Francisco Board of Supervisors, acting in behalf of

12. San Francisco Chronicle, Dec. 13, 1921.

13. Ibid., March 13, 15, 16, 1923.

the bridge association, forwarded the plans to Washington for approval. The War Department set May 16 as the date for an open hearing on the petition.¹⁴

The meeting, held in the San Francisco City Hall, assembled the most impressive array of bridge supporters to date.¹⁵ Delegations from ten northern California counties, including San Francisco, attended the parley. Mayors, representatives from several chambers of commerce, state officials from Sacramento, in addition to the backers present at the organizational meeting in Santa Rosa in 1923, crowded into the supervisors' room at the city hall to urge federal approval of the bridge. Colonel Herbert Deakyne, district engineer for the United States Army, presided over the proceedings; Supervisor Richard J. Welch, chairman of San Francisco's special bridge committee, was in charge of the presentation of the bridge proposal.¹⁶

The military was particularly concerned with the possibility that a bridge across the Golden Gate might

14. San Francisco, Board of Supervisors, Proceedings, XIX (1924), 474.

15. A partial list of the counties and organizations represented at the hearing included: Counties--Del Norte, Humboldt, Lake, Marin, Mendocino, Napa, Sacramento, San Francisco, Solano, and Sonoma; organizations--Golden Gate Bridge Association, Down Town Association of San Francisco, California State Automobile Association, Sacramento Valley Development Association, State Highway Commission, State Board of Harbor Commissioners, and various chambers of commerce.

16. San Francisco Chronicle, May 17, 1924; San Francisco Examiner, May 17, 1924.

obstruct shipping in either peace or war. In reply, Joseph Strauss and City Engineer O'Shaughnessy stated that lights mounted on the bridge towers and piers would serve as excellent channel markers. And, in the unlikely event that the span should be destroyed by earthquake or enemy gunfire, the channel was sufficiently deep to prevent the sunken structure from blocking the entrance to the harbor. Other speakers, particularly residents who lived on the north side of the Bay, pleaded for federal approval of the span on grounds that it would remove the "water barrier" which presently separated San Francisco from the surrounding area. To reassure the War Department that California State officials approved of this project, a member of the State Highway Commission stated that his office was prepared to spend several million dollars to develop approach roads for the new bridge.

Newspaper accounts of the three-hour-long hearing reported no opposition to the span. On the contrary, observers were again impressed by the enthusiasm with which the bridge adherents fought for their plan. At the conclusion of the meeting, Colonel Deakyne observed that the most important question facing the War Department concerned the possible threat of the proposed bridge to ocean shipping. The district engineer did not indicate what his recommendation to Washington would be.¹⁷

17. Ibid.

Before the year's end the supporters of a Golden Gate crossing had their answer. In a letter dated December 20, 1924, Secretary Weeks approved the project and instructed San Francisco to draw up final plans.¹⁸ With the endorsement of the War Department the Golden Gate Bridge Association had achieved its original objectives--the passage of enabling legislation, providing for the establishment of a bridge district, and the approval of the federal government. Now it was up to the counties to take the initiative and form the bridge district.

WOW

Passage of County Ordinances

The Bridge Act of 1923 provided that "a bridge and highway district may be organized consisting of one or more counties or parts of a county or counties and including a city and a county."¹⁹ There were three methods outlined by which a county could signify its intention of joining; in the final analysis, however, only one of these was used. This method called for the passage of an ordinance by each county board of supervisors stating that the county "intended to unite with such other counties as may adopt like

18. San Francisco, Board of Supervisors, Proceedings, XIX (1924), 1541.

19. Provision for the inclusion of a "city and county" was made necessary since the boundaries of San Francisco city and county are identical. This city-county combines some of the features of both forms of government. The mayor is the chief executive, while the board of supervisors acts as the legislative body. See Winston W. Crouch and Dean E. McHenry, California Government, Politics, and Administration (Berkeley: University of California Press, 1949), pp. 222-24.

ordinances." In addition, a petition signed by ten percent of the number of qualified electors who voted at the last election for governor was to accompany the ordinance to the California Secretary of State.

The act then provided for a time limit, set by the Secretary of State, in which protests could be received from any property owner who paid taxes in the county where a bridge ordinance had been passed. These protests were then to be forwarded to the superior court of the county in which the property was situated. If any protest was sustained, the property in question was to be eliminated from the district. After all protests had been adjudicated and the bridge district boundaries determined, the Secretary of State was to issue a certificate of incorporation.²⁰

During the month of January 1925, the Golden Gate Bridge Association submitted proposed ordinances to the boards of supervisors in the eight counties which had indicated a desire to join in a bridge district. To the officials of the bridge association, particularly those from the North Bay area, the key county of the group was San Francisco because of its large population, long tax rolls, and strategic location. According to the 1920 census, San Francisco contained 500,000 residents or approximately 85% eighty-five percent of the population of the proposed eight-county district. Also, nearly eighty-five percent

20. Statutes of California, 45 Legis., Reg. Sess., Chap. 228, p. 452 and passim.

of the property valuation lay in San Francisco, which meant that the San Francisco rolls would produce considerably more than three-fourths of the district's tax income. Geographically, the city by the Golden Gate was vital to the district because the southern half of the proposed span, plus approach roads, lay within its borders. For these reasons the northern counties waited until San Francisco had made its stand known.²¹

In San Francisco, a resolution to bring the city into the district was presented to the board of supervisors in January.²² Discussing the step, many supervisors expressed concern over the city's disproportionately large financial responsibility as compared with her representation on the bridge directorate. Under the Bridge Act of 1923, San Francisco was entitled to five directors on a twelve-man board. This, said the supervisors, was not adequate, and before voting a bridge ordinance they asked that the statute be charged so as to give San Francisco at least one-half of the membership on the directorate. With this membership division, San Francisco could not be out-voted by the rural counties, whose aggregate population and property values were only a fraction of San Francisco's. In April, with all the North Bay counties endorsing the proposal, the state legislature passed the desired amendment.²³

21. San Francisco Chronicle, Feb. 14, 18, 1925.

22. San Francisco, Board of Supervisors, Proceedings, XX

Further assurances that the interests of San Francisco would be safeguarded came from Strauss and Harlan. Strauss, the engineering consultant, vowed that the total cost of the bridge would not vary ten percent from his estimate (\$21,000,000 in 1925). Bridge counsel Harlan stated that any bonds voted by the district would not affect the bonding limit of San Francisco, thus assuring the city that it would not have to forgo the construction of other necessary civic projects. On the basis of these pledges, plus the knowledge that San Francisco would be entitled to one-half of the membership on the board of directors, the supervisors voted unanimously in April 1925 to join a district.²⁴

In the next few months the formation of the district progressed rapidly. By November 1925, five other counties--Marin, Sonoma, Napa, Mendocino, and Del Norte--had passed ordinances and filed petitions with the Secretary of State indicating their intention of joining a district. Humboldt and Lake counties, where there was substantial resistance to the project, declined to unite with the other six counties. By December, all the necessary papers had been filed in Sacramento and the bridge association requested that the Secretary of State, Frank C. Jordan, publish the petitions

(1925), 107.

23. San Francisco Chronicle, March 27, 1925; Statutes of California, 46 Legis., Reg. sess., Chap. 387, p. 714.

24. San Francisco Chronicle, Jan. 31, 1925; March 27, 1925.

and set the time for receiving protests from individual taxpayers who wished to be excluded.²⁵

Protests Against Formation of a Bridge District

The steady progress of the Golden Gate bridge idea since the bridge association was formed in 1923 was challenged for the first time as taxpayers in counties where bridge ordinances had been passed sought to oppose the movement. The first indication of this opposition came when Secretary of State Jordan refused to publish the bridge petitions, giving as his reason that Mendocino County had repealed the ordinance which had brought it into the district. The action of the Mendocino supervisors and Secretary Jordan was a direct challenge to the legal framework of the district; thus officials of the bridge association immediately sought a court order to compel Jordan to issue the petitions.

In the case of Doyle v. Jordan (200 C 170; 1926) the California State Supreme Court upheld the validity of the Bridge Act of 1923, as amended in 1925. The state tribunal ruled that the ordinance of intention passed by the Mendocino supervisors was binding and could not be rescinded. The court also rejected the plea of amici curiae that taxpayers in Mendocino County were being deprived of their property without due process of law. The writ of mandate

25. Ibid., Aug. 8, 1925.

sought by the Golden Gate Bridge Association was granted, and Secretary Jordan was directed to publish the petitions and to set a time limit for receiving protests.

The final date for submitting protests was ordered for May 31, 1927, giving residents in the six counties well over one year to make their decisions. During this interval 2,308 property owners indicated their desire to be excluded from the district.²⁶ The highest number of protests originated in Mendocino, where 902 were filed. The next highest came from Napa with 823, followed by Sonoma with 574. Marin and San Francisco each had less than ten protests and Del Norte had none.²⁷ Following the receipt of these petitions in Sacramento, the Secretary of State forwarded them to the superior courts in the five counties concerned.

The Sonoma Hearings

Sonoma County was the first to hold hearings on the petitions. Here, in 1927, cogent arguments, drawn up by competent engineers, were presented in behalf of the protestants to convince the court and the public that Strauss' scheme was structurally unsound and economically unwise. By the conclusion of the hearing every phase of the proposed Golden Gate structure had been critically analyzed and appraised.

26. Santa Rosa Press Democrat, Nov. 4, 1928.

27. Ibid., Nov. 29, 1927.

The fact that Strauss' bridge plan went far beyond existing engineering experience placed the entire project in a vulnerable position. Going back to 1921 when Strauss presented his drawings to San Francisco, the longest bridge in the world was the 1,800-foot Quebec cantilever bridge across the St. Lawrence River. The longest suspension bridge--and this was the only type that could be constructed across the Golden Gate because of the depth of the channel--was the 1,600-foot Williamsburg bridge in New York City.²⁸

The maximum length of suspension bridges had remained fairly constant since the completion of the Brooklyn bridge (1596 feet) in 1883. Since the 1890's, however, many engineers had been theorizing on the possibilities of breaking the length barrier and constructing a span several thousand feet in length. In 1894, for example, when the United States Congress was considering a bid by New York and New Jersey to build a crossing over the Hudson River, the Army engineers concluded that a 4,300-foot suspension span was structurally possible.²⁹ Later, in the early twentieth century, David B. Steinman and Charles E. Fowler, consulting engineers for the Port of New York Authority, both stated that, in view of advances made in the theory of bridge building and in the

28. Encyclopedia Britannica, IV, 127. For the story of the growth of the science of bridge engineering see David B. Steinman and Sara R. Watson, Bridges and Their Builders (New York, 1941).

29. U. S., Senate Executive Documents, 53 Cong., 3 sess., No. 12, pp. 31-32, 38-39.

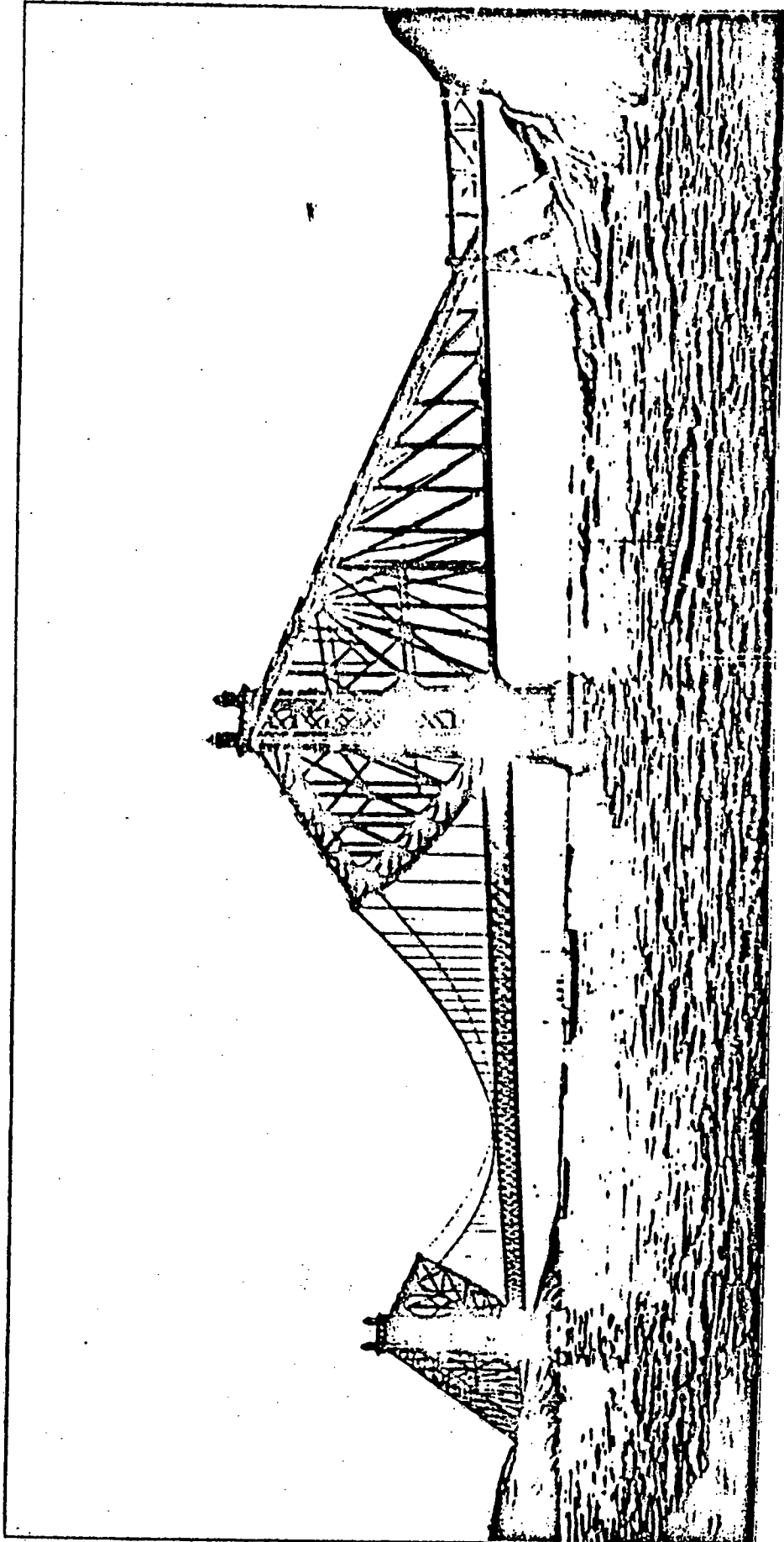
science of metallurgy, suspension bridges four to five thousand feet long could be constructed.³⁰ And at the time that Strauss was drawing plans for the Golden Gate span, Gustav Lindenthal, consulting engineer for the port of New York, was revising plans for a 3,240-foot suspension bridge across the Hudson.³¹

Although optimistic about the prospect for a bridge across the Golden Gate, Strauss did not share the general professional opinion as to the maximum length of a suspension bridge. In his judgment 3,000 feet was the maximum, and since the Golden Gate Channel would require a span of approximately 4,000 feet, Strauss felt it necessary to arrive at an entirely new design. The result was a "symmetrical cantilever suspension," as he called it, in which the designs of the cantilever and suspension bridges were combined. When completed, the bridge would have a center span of 4,000 feet and two side spans of 1,320 feet each.³²

30. David B. Steinman, Suspension Bridges and Cantilevers (New York, 1913), pp. 118-19; Charles E. Fowler, "The Longest Possible Bridge Spans," Scientific American, CXVIII (June, 1918), 504-505. For biographical sketch of Steinman and Fowler see Winfield S. Downs, ed., Who's Who in Engineering (New York, 1941), p. 1700 and Who Was Who in America, 1943-1950 (New York, 1950), p. 195. At the time of this study, Steinman was in charge of constructing the 3800-foot suspension bridge across the Straits of Mackinac, connecting Upper and Lower Michigan. See Steinman, "Bridges," Scientific American, CXCI (November, 1954), 61.

31. American Society of Civil Engineers, Transactions, XCVII (1933), 9. The span referred to was the George Washington bridge completed in 1932.

32. Joseph B. Strauss, "The Strauss Cantilever Suspension Bridge," Oct. 6, 1921, p. 1, City Engineer files, San Francisco. A photograph of Strauss' design is shown on p. 42.



PROPOSED GATE IN GATE BRIDGE
[E-3]
AND GATE IN GATE BRIDGE

Since his new design represented a departure from standard types, Strauss sought professional backing. In 1921, before submitting his plans to San Francisco, Strauss forwarded them to Charles R. Ellis, Department of Civil Engineering at the University of Illinois; H. A. LaChicotte, a New York engineer; and F. L. Thompson, chief engineer of the Illinois Central Railroad. All of them responded favorably. Ellis congratulated Strauss for combining two designs in which the end product seemed "to possess the virtues of both and the vices of neither." LaChicotte thought the design well conceived and executed and economical to build. Thompson concluded that Strauss not only had a workable design but one that was pleasing to the eye ⁽³³⁾ *ugh*

In 1925, after his bridge plans had been successfully defended before hearings of the California State Legislature (1923) and the War Department (1924), Strauss sent his drawings to the prominent New York bridge engineer, Leon S. Moisseiff, for further study. Moisseiff, who had worked on several bridges in the port of New York, affirmed the earlier findings as to the practicability of Strauss' design.³⁴

The engineering phase of the bridge was only one part of Strauss' proposal, however. The span had to be

33. Ellis to Strauss, June 13, 1921; LaChicotte to Strauss, July 27, 1921; and Thompson to Strauss, Oct. 2, 1921, City Engineer files, San Francisco.

34. Moisseiff to Strauss, July 27, 1925, Francis V. Keesling Papers.

economical, within the financial capability of the proposed district. In his original estimate in 1921 the cost was put at \$17,000,000. By 1927 the price had increased to \$27,000,000. The method of financing, as proposed by the bridge proponents, was based on the theory of a toll bridge supported by the taxing power of the bridge district. From statistics compiled by Strauss and other officials of the Golden Gate Bridge Association, the revenue from tolls would be adequate not only to pay for the bonded debt incurred to build the structure, but to raise \$88,000,000 in interest in the forty-year period required to retire the bonds.³⁵

40 40

At the Sonoma County hearings, where Judge C. J. Luttrell had opened the litigation in the fall of 1927, the Taxpayers' Protective League spoke for a group of over 550 landowners from Sonoma, Napa, and Mendocino counties who had pooled their resources in an effort to convince the court that Strauss' plan was of little or no benefit to them. George Harlan represented the Golden Gate Bridge Association.³⁶

Sonoma
see

35. Santa Rosa Press Democrat, Nov. 5, 1927.

36. The hearings in Sonoma had originally opened in the summer of 1927 with Judge Rolff Thompson, presiding. He immediately disqualified himself, however, on grounds of possible personal bias since he was a local property owner. Later, the Judicial Council of California appointed Judge Luttrell to hear the cases, not only in Sonoma, but in all the counties where protests had been filed. With one jurist sitting in judgment, the Judicial Council hoped to achieve uniform legal rulings. See Santa Rosa Press Democrat, Nov. 1, 1927; George Harlan to San Francisco Board of Supervisors, Jan. 16, 1928, in Proceedings, XXIII (1928), 141-42.

On November 1, the Taxpayers' League laid before Judge Luttrell a report on Strauss' Golden Gate proposal which had been drawn up by the Joint Council of Engineering Societies of San Francisco.³⁷ The genesis of this report went back to a resolution placed before the Joint Council in 1926 in which several of the local engineering societies viewed with alarm the claims made by the bridge proponents. Members of these groups felt strongly that the project had not been sufficiently investigated and that it was entirely premature for Strauss to make such positive statements in regard to the structural possibilities of the bridge or its final cost. Thus the Joint Council voted to make an independent study of Strauss' proposal and transmit their recommendations to the affected counties. J. B. Pope and W. J. H. Fogelstrom, consulting engineers for the city of San Francisco, and Charles B. Wing, chairman of the Department of Civil Engineering at Stanford University, were named to a board of engineers which made the study.³⁸

Appearing on the stand at the behest of the Taxpayers' League, Pope, Fogelstrom, and Wing unleashed a

37. The following national societies were represented in the Joint Council: American Society of Civil Engineers, American Society of Mechanical Engineers, American Institute of Mining and Metallurgical Engineers, American Institute of Electrical Engineers, Pacific Association of Consulting Engineers, American Association of Engineers, and the American Chemical Society.

38. J. B. Pope, Charles B. Wing, and W. J. H. Fogelstrom, Golden Gate Bridge: Report on Estimated Annual Cost to Taxpayers and Engineering Studies Preliminary to the Formation of a Bridge District (San Francisco, 1927), p. 4.

frontal assault on the entire project, including the chief engineer, Strauss. Using charts and maps of the Golden Gate Channel based on studies made by the U. S. Coast and Geodetic Survey, Pope presented evidence indicating that the rock formations at the site of the proposed south pier were unsatisfactory. In view of weakened condition of the rock at this point, the shortest practicable span was a 4,600-foot crossing, some 600 feet longer than that envisioned by Strauss. The ideal span, Pope concluded, barring economic considerations, should be 5,000 feet long.

To arrive at engineering costs, the board of engineers compared Strauss' plan with the George Washington bridge, then under construction in New York. On the basis of this study the engineers stated that the foundations for a Golden Gate span alone would cost \$29,000,000--\$2,000,000 more than Strauss' estimate for his entire plan. The bridge superstructure would add another \$92,000,000 to that figure. Preliminary organization, administration costs, and interest during construction would bring the final bridge figure to over \$112,000,000. What this would mean to the taxpayer, said the engineering board, was clear. In order to retire the debt, the property owners, in addition to paying the bridge toll, would have to be assessed approximately \$120,000,000 over a forty-year period.³⁹

During the remainder of their testimony, lawyers

39. Ibid., pp. 5, 26-39; see also Santa Rosa Press Democrat, Nov. 1, 2, 1927.

for the Taxpayers' Protective League raised other questions as to the feasibility of the bridge, not the least of which was the threat of earthquakes. The San Andreas fault, the cause of the disastrous 1906 San Francisco quake, was located only five miles west of the bridge site. Also, the opposition made it clear that they considered engineer Strauss an outsider who had come to San Francisco to sell the people a project which had been inaccurately and inadequately described.⁴⁰

In defense of their proposal, the Golden Gate Bridge Association asked Strauss to fly from Chicago and take the stand. Arriving on November 5th, Strauss appeared before Judge Luttrell and denied all claims of the opposition. With a self-confident demeanor which had characterized all his previous bridge appeals, the Chicago engineer stated that his cost estimate of \$27,000,000 was based on several years of careful study and experience. The amount of anticipated revenue for the bridge was arrived at only after a close analysis of the growth of auto-ferry traffic. The bridge income, Strauss emphasized, would give the bridge district a \$90,000,000 return over a forty-year period, more than sufficient to meet all outstanding obligations. As far as the rock foundations for the south pier were concerned, he confidently predicted that further geological studies would confirm his judgment as to their adequacy. The

40. Pope et al., Golden Gate Bridge, pp. 26-29.

earthquake hazard was a calculated risk that all San Francisco had to accept. An earthquake of the magnitude to destroy the bridge would also bring destruction to most of San Francisco.⁴¹

Following Strauss, many citizens of Sonoma County testified that the bridge would be of great benefit to the county and to the individual landowner and businessman. Opposing the viewpoint of the Taxpayers' League, the local real estate interests, retail businesses, and newspapers envisioned a new era in the economic growth of the entire North Bay region once the span was completed.⁴²

The Sonoma hearings ended in late November, and Judge Luttrell prepared to move on to Napa County. Before leaving, the Siskiyou County jurist stated that he would withhold decision on the protests until all cases had been heard. The arguments presented in the other four counties followed the same lines laid down in Santa Rosa. Twelve months later, in November 1928, all 2,300 cases had been presented.

In handing down his rulings, Judge Luttrell found the proposed bridge district valid, benefiting nearly all those holding property within its boundaries. He disallowed all protests from San Francisco, Marin, and Sonoma counties, while excluding a few properties in Napa and Mendocino

41. Santa Rosa Press Democrat, Nov. 5, 1927.

42. Ibid., Nov. 2, 3, 1927.

counties.⁴³ On December 2, 1928, Luttrell's rulings were filed in the state capital, and two days later Secretary of State Jordan issued a certificate of incorporation for the Golden Gate Bridge and Highway District.⁴⁴

Subsequently, Judge Luttrell's decisions were appealed to the California State Supreme Court on grounds that the Bridge Act of 1923 established illegal procedures. However, in Wheatley v. Superior Court (207 C 722; 1929), and its companion cases,⁴⁵ the supreme court upheld Luttrell's rulings and, as in the case of Dovle v. Jordan (1926), declared the bridge act to be constitutional. One of the companion cases was appealed to the United States Supreme Court, but the appeal was dismissed for want of a substantial federal question.⁴⁶

Summary

The incorporation of the bridge district in December 1928 brought to a close the official activities of the Golden Gate Bridge Association, the voluntary citizens' group which had been formed in January 1923 to find ways and means to construct a bridge. Progress had been slower than hoped

43. Ibid., Nov. 4, 1928.

44. Jordan to San Francisco Board of Supervisors, Dec. 4, 1928, San Francisco Board of Supervisors' files, City Hall.

45. Demster v. Superior Court, 207 C 795 (1929); Esaisa v. Superior Court, 207 C 796 (1929); Crawford v. Superior Court, 207 C 797 (1929).

46. Crawford v. Superior Court, 281 U. S. 692 (1930).

for, but in the five-year interval the state legislature, the War Department, and lastly the state courts had given the project their blessings. Newspapers, civic and business organizations, and an undetermined number of citizens had approved and were actively supporting the project. One important voice to ally itself with the bridge cause by 1928 was the Commonwealth Club of California. Earlier, in 1922, a study made by the Commonwealth Club stated that a Bay bridge would not be needed in the next twenty years. By 1925, however, the organization had completely reversed its stand and placed its membership solidly behind the movement for the immediate construction of a Golden Gate crossing.⁴⁷

During 1927-28, the opposition presented powerful arguments against the proposed bridge. Large landowners, particularly the lumber and ranching interests in Mendocino, Sonoma, and Napa counties objected strenuously to the inclusion of their properties. Many of them sincerely felt that the bridge was an unknown--if not an unknowable--quantity, which in all likelihood would place a heavy financial burden on their holdings.

*lumber
ranching
90%*

Of greater concern to the bridge supporters, however, was the opposition which came from the local engineers. The questions they raised concerning the south pier foundations and probable high costs could not be finally answered on

47. Commonwealth Club of California, "Trans-Bay Transportation," Transactions, XVII (San Francisco, June, 1922), 162; "Bay Bridges," Transactions, XX (San Francisco, Aug., 1925), 242.

the basis of existing information. The first task of the bridge district, following its organization, would be to find answers to these basic problems.

CHAPTER III

THE BONDS ARE VOTED

Introduction

There was considerable optimism among the bridge proponents when the incorporation papers were received from Sacramento in December 1928. The favorable rulings handed down by Judge Luttrell were interpreted as a complete victory, and the formal organization of the district could now go forward.¹

The burden of proof, however, clearly lay with the bridge proponents. In the wake of the sharp attacks on the project during the course of the protest hearings, it was imperative that a competent group of engineers be named at the earliest practicable date to undertake an exhaustive study of Strauss' plan. If, in the judgment of the bridge directors, the investigations confirmed the adverse findings of the Joint Council of Engineering Societies, the only course open would be to reject the project. On the other hand, if Strauss' proposal was found to be feasible, then the construction of the bridge would be recommended to the district.

1. Santa Rosa Press Democrat, Nov. 6, 1928.

Organizing the District

Candidates for the board of directors were many as the supervisors in each of the six counties hastened to appoint their respective members. Under the provisions of the 1925 amendment to the bridge act, half of the twelve-man board would come from San Francisco. Sonoma County was entitled to two members, and the remaining four counties--Marin, Napa, Mendocino, and Del Norte--were to have one director each.

In San Francisco three supervisors, one United States Congressman and two businessmen, were appointed. The best known of the group in terms of past and then current support of the bridge project was Congressman Richard J. Welch.² The other appointees--William P. Filmer and Carl A. Henry, both prominent San Francisco businessmen, and supervisors Warren Shannon, William P. Stanton, and Franck R. Havenner--were strong advocates of the district.³

In Marin County, James H. Wilkins and Thomas Allen Box, both remembered for their long association with the bridge movement, were widely mentioned as candidates. When the vote was taken, however, the Marin Supervisors favored the selection of a younger man, Robert H. Trumbull, a successful businessman and rancher who lived in the small

2. Who's Who in America, 1948-1949, p. 2627. Welch was a San Francisco Supervisor from 1919 to 1926. From 1927 to 1949 he was U. S. Congressman from the 5th California District.

3. San Francisco, Board of Supervisors, Proceedings, XXIII (1928), 2725.

community of Novato. In Sonoma County, the prominent bridge protagonist, Frank P. Doyle, was unanimously selected to fill one of the county's two posts. By the middle of January 1929, less than six weeks following the incorporation of the district, all six counties had completed their selections.⁴

The initial meeting convened in the San Francisco City Hall (which remained the official meeting-place during the construction period) on January 23, 1929. Immediately following the election of William Filmer of San Francisco as president and Robert Trumbull of Marin as vice-president, the directors turned to the important task of appointing top administrative officials. To these men would belong the day-to-day responsibility of conducting the final engineering surveys and, later, of building the bridge.

④ San Francisco Chronicle, Jan. 23, 1929. A complete list of the original board of directors is as follows: San Francisco--William P. Filmer (president), Carl A. Henry, Warren Shannon, William P. Stanton, Richard J. Welch, Franck R. Havenner; Marin--Robert H. Trumbull (vice-president); Sonoma--Frank P. Doyle, Joseph A. McMinn; Napa--Thomas Maxwell; Mendocino--A. R. O'Brien; Del Norte--Henry Westbrooke, Jr. Supervisor Havenner of San Francisco resigned his appointment prior to the first meeting of the directors and was replaced by Francis V. Keesling in September 1929. See San Francisco, Board of Supervisors, Proceedings, XXIV (1929), 1721-22.

In 1930 the board was increased to fourteen members. George T. Cameron, editor of the San Francisco Chronicle, and Harry Lutgens, editor of the San Rafael Independent, were named to the new positions. During the construction period other appointments were made to fill vacancies caused by resignations, retirements, and deaths. These included: Milton M. McVay, Del Norte County, who replaced Westbrooke in 1932; Hugo P. Newhouse, San Francisco, who replaced Cameron in November 1933; John P. McLaughlin, San Francisco, who succeeded Henry in December 1933; and William D. Haderer, San Francisco, who filled the vacancy created by the retirement of F. V. Keesling in 1936. See Joseph B. Strauss, Golden Gate Bridge (San Francisco, 1937), p. 33.

In view of the appeals pending before the California State Supreme Court arising out of the protest hearings, the appointment of legal counsel was considered first. For this important position the directors retained George H. Harlan, the same lawyer who had successfully guided the legal fortunes of the voluntary bridge organization since its inception in 1923.⁵ By April three other important places had been filled. Alan MacDonald, a partner in a local contracting and engineering firm with wide experience in railroad and ship building, was selected to serve as general manager of the entire enterprise. W. W. Felt, Jr. of Santa Rosa, for thirty-four years the county recorder and clerk of Sonoma and a charter member of the Golden Gate Bridge Association, was named secretary. John R. Ruckstell of San Francisco was appointed auditor.⁶

The last important position to be filled, that of chief engineer, proved to be a stumbling block for the directors. The most obvious candidate for the job was Joseph Strauss who, over a period of twelve years, had contributed freely of his time, talent, and money. Beginning with his conversations with City Engineer O'Shaughnessy in 1917, followed by the submission of his original plans in 1921, and then through the extended period of state and federal hearings and public debate, Strauss had aggressively contended for a bridge across the channel.

5. San Francisco Chronicle, Jan. 24, 1929.

6. Ibid., April 11, 1929.

Yet for all his qualifications and contributions, the famed engineer had become a liability to the movement. His self-confident and self-assertive personality had been offensive to a few people--particularly those who were opposed to the project. Members of the Joint Council of Engineering Societies, for example, looked upon him as a "visionary" and "irresponsible" promoter. During the protest hearings in 1927-28 this group had disparagingly referred to the "low order" of engineering talent which had been employed by the bridge proponents.

Realizing that Strauss' personal and professional qualifications were under attack, the bridge directors undertook a careful study of several other qualified candidates. O. H. Ammann, chief engineer, Port of New York Authority; Gustav Lindenthal, architect for Hell Gate Arch bridge over the East River in New York; and Charles E. Fowler, bridge engineer since 1887 and designer of the proposed 1915 San Francisco-Oakland crossing, were among the dozen-odd candidates considered. When the work of evaluating candidates was complete, however, the directors voted to continue the services of Strauss. His long association with the project, the tremendous zeal with which he approached the project, and his long record of bridge achievements made his selection logical, however unpopular.⁸

7. Pope et al., Golden Gate Bridge, p. 5.

8. San Francisco Chronicle, July 25, 1929; Aug. 16, 1929.

To assist and corroborate the work of the chief engineer, the directors named three consultants: O. H. Ammann, Leon S. Moisseiff, and Charles Derleth, Jr., the latter on the staff of the College of Engineering at the University of California, Berkeley. These three, along with Strauss, constituted a board of engineers responsible to the bridge directorate.⁹

Preliminary Surveys

Following his appointment in August 1929, Strauss proceeded immediately with the final engineering and traffic surveys. He employed the entire resources of his own bridge company, including manpower and facilities. In addition, Strauss hired a number of outside experts such as Andrew C. Lawson of the University of California, consulting geologist, and Sydney W. Taylor, Jr. of Berkeley, California, traffic engineer.¹⁰

The investigation into the controversial rock foundations was begun in the following November, when a Minneapolis firm was hired for \$30,000 to make borings at the site of the proposed piers and anchorages. Simultaneously, other phases

9. Golden Gate Bridge and Highway District, Vol. I: Report of the Chief Engineer with Architectural Studies (San Francisco, 1930), pp. 21-22.

10. Strauss, Golden Gate Bridge, pp. 34-36. In 1931, Strauss appointed Clifford E. Paine, vice-president of Strauss and Paine, Inc., as principal assistant engineer for the Golden Gate bridge. During the construction years, Strauss' company had four offices working full time on the project--two at the construction site, one in downtown San Francisco, and one in Chicago.

of the construction problem were attacked, including a restudy of the bridge alignment, the type of bridge to be built, the construction of approach roads, and a traffic analysis. By February 1930, the investigations were completed. In the following month a full report, encompassing all the projects which had been undertaken in the previous autumn, was submitted to the bridge directors. The bridge, said the board of engineers, was feasible economically and structurally.¹¹

Final War Department Approval

In view of the optimistic report from the board of engineers, the directors moved to submit the bridge plans to the War Department for final federal approval. This move was to be the last in a series of steps which had been outlined in the War Department's 1924 directive approving construction of a bridge across the Golden Gate.

The 1924 letter from the Secretary of War was a basic document in the legal fabric of the bridge movement. It not only gave the bridge promoters the authorization to proceed, it also held out the assurance of final approval once the plans had been worked out in detail. In the interval between 1924 and 1930, the district was organized, taxes levied, engineers engaged, and final investigations completed.

11. "Contract between the Golden Gate Bridge and Highway District and Joseph B. Strauss," September 1929; Strauss, "Report of the Chief Engineer: A Preliminary Report to the Golden Gate Bridge and Highway District, March 12, 1930," Keesling Papers.

In April 1930, therefore, the revised bridge plans were readied and submitted to the War Department.

As the directors awaited final approval, the federal agency suddenly announced that another hearing would be held on the petition for a bridge across the Golden Gate. This untoward development confirmed suspicions that some of the bridge officials had privately voiced for many months: viz., the long interval between the original approval and the submission of the final bridge plans, plus the growth of strong opposition from local engineering societies, had prompted Army authorities to order a review of the entire request.

War Dept

Once apprised of the War Department's decision to call for a new investigation, Bridge President William Filmer and legal counsel Harlan hurriedly left for Washington to protest the decision on grounds that it was a breach of the 1924 agreement. Following their arrival in the nation's capital, Filmer and Harlan, with the aid of California senators Hiran Johnson and Samuel M. Shortridge, prevailed upon the Army to rescind its order.¹²

The victory, however, was short-lived. Back in San Francisco a whispering campaign, as the News described it, was under way suggesting that the clearances of the proposed span were inadequate to permit passage of many of the largest ships afloat.¹³ As this agitation, promoted mainly by Bay

12. San Francisco Chronicle, May 15, 16, 1930.

13. San Francisco News, March 26, 1930.

area shipping interests, grew in intensity, the Army again expressed concern over the possibility that it might have been mistaken in approving the clearances as presented to them in 1924. Thus the War Department again reversed itself and called for a public hearing. In reopening the case, however, the government stated that the only issue to be discussed would be bridge clearances. All other questions relating to the feasibility of the bridge would not be entertained since they had been previously settled to the satisfaction of the Army.¹⁴

When the hearing opened on June 30, 1930 in San Francisco, the two Bay area shipping groups, the Pacific American Steamship Association and the Shipowners' Association of the Pacific Coast, entered their protests against the plan. If the bridge were built to Strauss' specifications, said the shippers, eight of the world's largest vessels would be denied access to San Francisco, thus reducing the effectiveness of the port. In rebuttal, witnesses for the bridge district asserted that Strauss' figures were minimum computations, and that during many hours of the day the clearance would be considerably higher. They also testified that the trend in ship building was away from the high-masted ships.¹⁵

14. "Agenda for Public Hearing on the Golden Gate Bridge," June 9, 1930, Keesling Papers; San Francisco Chronicle, June 8, 13, 1930.

15. San Francisco Chronicle, July 1, 2, 1930.

The hearings were completed by the first week in July, and for the remainder of the month the War Department reviewed the testimony. In August, the Secretary of War, Patrick J. Hurley, issued a ruling rejecting the protest of the local shipping industry and approving the clearances as proposed by the district. He gave the district permission to proceed with construction in accordance with the plans which had been submitted the previous April.¹⁶

With approval of the federal government the directors were finally in a position to give unqualified endorsement to the entire project. This they did in late August 1930, when they published a three-volume report on the final engineering and geological surveys and traffic studies. In this report, the directors recommended that the voters of the district approve a \$35,000,000 bond issue for construction.¹⁷

Board of Directors' Report

The publication of the directors' report was the beginning of a hard-fought campaign to win public approval for the multimillion-dollar bridge bond proposition. The

16. "Approval of Location and Plan of Bridge," Aug. 11, 1930, signed by Patrick J. Hurley, Secretary of War, and Maj. Gen. Lytle Brown, Chief of Engineers, U. S. Army, Keesling Papers. The shipping interests desired clearances of 225 feet at the piers and 250 feet at the center. The order from the War Department set clearances at 210 feet at piers and 220 feet at center. Heights were based on mean higher high water.

17. Golden Gate Bridge and Highway District, Vol. I: Report of the Chief Engineer; Vol. II: Traffic Analysis; Vol. III: Engineering Plans (San Francisco, 1930).

three-volume work presented exhaustive studies and, in the minds of the directors, convincing proof that a bridge could and should be constructed.

In the engineering portion of the document Strauss and the engineering board presented searching studies and analyses of all structural problems, particularly those which had been brought into focus by the Joint Council of Engineering Societies during the protest hearings in 1927-28. The most serious criticism leveled by the Joint Council had been against the rock foundations at the site of the proposed piers. To clear up this controversial point Strauss had hired a Minneapolis concern to make sixteen diamond-drill borings at the pier and anchorage sites. The results of this investigation, said the chief engineer, ". . . conclusively established the full sufficiency of the foundation conditions at the site of the piers and anchorages for this structure."¹⁸

The cost of construction was likewise carefully reviewed by the bridge engineers in view of opposition charges that the price would run upwards of \$100,000,000. Strauss' first estimate, made in 1921, was \$17,000,000--minus interest charges, administration costs, and contingencies. By 1927 this total had grown to \$27,000,000, but this time it included the engineering fees and interest on bonds.

18. Strauss, "Preliminary Engineering Report," March 12, 1930, Keesling Papers. The authority for this study was Professor Andrew C. Lawson, former Dean of the College of Mining, University of California, who made the report to Strauss.

In drawing up a revised cost sheet in 1930, Strauss drew upon the knowledge and experience of two members of the board of engineers, O. H. Ammann and Leon S. Moisseiff. Besides being consultants for the Golden Gate structure, both of these men were engaged in building the 3,500-foot George Washington suspension bridge across the Hudson--Ammann as chief engineer and Moisseiff as a consultant. Using the George Washington bridge (as had Pope, Wing, and Fogelstrom in 1927) as a basis for pricing the various units of work, the New York engineers arrived at a final cost estimate of \$32,815,000 for the Golden Gate span.¹⁹ This figure, said Strauss, included ". . . steel work, cables, foundations, fenders, anchorages, floor and sidewalks, railing architectural treatment, lighting, plazas, portals, pylons, toll houses, lateral roads--in other words, the facility complete in every detail, ready for traffic." In addition, the estimate provided for interest on bonds during the construction period, engineering and general expenses, interest for the first six months of operation and contingency items.²⁰

The second phase of the report stressed the economic and social aspects of the undertaking. From the outset, the bridge directors were keenly aware that one of the prime issues in the bond election would revolve around the subject of the "general prosperity." The fact that the nation's

19. Golden Gate Bridge and Highway District, Vol. I: Report of the Chief Engineer, p. 71.

20. Ibid., p. 68.

economy had undergone a drastic reversal since the time the district was incorporated in December 1928 made it necessary for everyone, proponents and opponents alike, to reassess the entire project. During the twenties when the Golden Gate bridge idea was evolving, prosperity was general. Each year the automobile industry established new production records and the stock market exuded confidence as well as profits. But by the fall of 1930, when the bridge bonds were submitted to the voters, prosperity had come to an abrupt halt--wages had fallen, unemployment had mounted, and the national production had sharply declined.²¹

In commending the bridge to the voters, the directors sought to convince the public that their tax dollars would not have to be used. Under the financial plan adopted, said the directors, the bridge district would lend its credit only, and reliance would be placed in the demonstrated ability of toll bridges to retire their bonds. From a study of the Bay area auto-ferry traffic curves since 1920 and extrapolated to 1935 (the estimated date of operation for the bridge), the bridge officials predicted that a daily average of 5,870 vehicles would cross the span. This volume would produce revenue sufficient to pay operating expenses and interest, to retire the bonds, and to build up a large surplus. At the expiration of the forty year bond debt, the bridge would be free.²²

(21) Marquis James and Bessie Rowland James, Biography of a

To minimize further the taxpayers' financial risk the directors made an unusual commitment.²³ They promised first to seek bids on all bridge contracts. If the total of all contracts came to more than the \$35,000,000 bond issue, no contracts would be awarded. Instead, the entire project would be resubmitted to the voters.²³

The directors' report noted many other economic reasons why the span should be built. The bridge would be a prime tourist attraction, bringing many thousands of tourists' dollars. The ferry system was described as inefficient and wasteful. Also, the 1930 census indicated that the rate of growth for the San Francisco Bay area during the twenties was much lower than that for Los Angeles.²⁴

This latter point--the loss of population leadership to Los Angeles--was particularly irritating to civic-minded citizens in San Francisco. At the end of the first decade of the twentieth century, San Francisco had a population of 417,000 as opposed to 319,000 for Los Angeles. By 1920 the balance of population had shifted in favor of the southern metropolis by 70,000 inhabitants. A decade later, the

Bank: The Story of the Bank of America (New York, 1954), pp. 305-306.

22. Golden Gate Bridge and Highway District, Vol. I: Report of the Chief Engineer, pp. 37, 63.

23. Ibid., p. 24.

24. Ibid., p. 32; San Francisco Chronicle, May 22, 23, 1920.

relatively small population advantage held by Los Angeles in 1920 had grown to a convincing 600,000 lead.²⁵

The reason for San Francisco's poor showing in 1930, said the bridge directors, was obvious. The accessibility of the Los Angeles basin had led to the construction of numerous highways into the area. Over these new highways an ever-increasing number of automobiles brought thousands of new residents and tourists into Los Angeles. As for San Francisco, she was "bottled up," without direct rail or highway connection to the east or north. The only link was the slow and faltering ferry service.²⁶

In summing up their reasons for urging the electorate to approve the bonds, the directors again referred to the deepening depression which confronted the Bay area. "The immediate starting of the Golden Gate bridge," said the directors,

is the contribution which San Francisco and the northern counties can make toward the revival of business prosperity, toward the furnishing of immediate work to thousands of their own people, toward the releasing of millions of dollars to be spent in the community. The completed structure will be an asset of immeasurable value, not alone to the community itself, but to the entire State of California.²⁷

25. U. S., Bureau of Census, Thirteenth Census of the United States: 1910. Population, II, 149, 151; *ibid.*, Fourteenth Census of the United States: 1920. Population, I, 95, 184; *ibid.*, Fifteenth Census of the United States: 1930. Population, I, 137, 144.

26. Golden Gate Bridge and Highway District, Vol. I: Report of the Chief Engineer, pp. 31-36.

27. Ibid., p. 35.

The Bond Campaign

As in the case of many general elections, a local issue oftentimes stirs up more discussion and debate than a national problem. Such was the case of Proposition 37, the bridge bonds. By this time the bridge idea had a long history during which many controversies had developed. Up to this point all the crucial contests had been decided in favor of the proponents. The state legislature, the courts, and the federal government had all overruled objections to the structure. Now the proposal was before the people. If a two-thirds "yes" vote was received by the bond proposition, ^{2/3} then a method of financing would be assured and construction could begin. Otherwise the entire project would be delayed indefinitely.

To carry the case for a Golden Gate bridge to the people, the district directors organized a special speakers' bureau with a full-time director. Armed with a \$50,000 campaign fund the bureau supplied several speakers to Bay area groups, in addition to purchasing radio time and placing advertisements in local newspapers.²⁸

Opposition to the bonds developed as soon as the bridge directors announced their intention of placing the bond issue on the November ballot. The local shipping industry renewed its attack on the project by urging that the

28. Golden Gate Bridge and Highway District, Board of Directors, Memorandum of Minutes, March 14, 1930; Sept. 16, 1930; Oct. 8, 1930, Keesling Papers. (Hereinafter cited as Golden Gate Bridge and Highway District, Memorandum of Minutes.)

vertical clearance requirement be raised to 250 feet. In letters to President Herbert Hoover, Secretary of War Hurley, Mayor James Rolph of San Francisco, and to other local, state, and federal officials the shipping interests pressed their point of view and in large advertisements in Bay area newspapers, the shippers predicted that if the Golden Gate bridge were built as planned it ". . . would destroy the effectiveness of the harbor and work serious harm to San Francisco and its dependent territory."²⁹ To support their contention, the shipowners cited the example of the Brooklyn bridge over New York's East River. This span, completed in 1883 at a height of 137 feet, was not ten years old when most of the new ships then coming into service were compelled to use the North River on the other side of Manhattan Island. Similarly, they said, it would not be long before several ships of the world's growing maritime fleet would be denied access to San Francisco Bay.³⁰

One dissenting voice among the prominent Bay area shipowners was Captain Robert Dollar, president of the Dollar Steamship Line. In an interview with two members of the bridge directorate, Dollar maintained that the clearance

29. San Francisco Chronicle, Sept. 23, 1930; Oct. 13, 1930; Nov. 3, 1930; Francis V. Keesling, Daily Calendar, Sept. 23, 1930, Keesling Papers.

30. "In this Golden Gate Matter, the Shipping Interests of San Francisco are not 'Serene, Indifferent to Fate!'" A brochure prepared by the Shipowners Association of the Pacific Coast and the Pacific American Steamship Association, San Francisco, 1930, Keesling Papers.

proposed by Strauss was sufficient for modern shipping. The ship executive was reluctant, however, to take an active part in the campaign owing to strong objections from his competitors. There also appeared to be pressure applied by officials of his own company not to do so.³¹

Supporting the position of the shipowners was a group of influential Bay area citizens, self-styled the "Taxpayers' Committee Against the Golden Gate Bridge Bonds." Eight former presidents of the San Francisco Chamber of Commerce, who had broken with the present chamber administration after the latter had passed a resolution supporting the bonds, took the lead in the formation of this organization. Setting up offices in downtown San Francisco, the Taxpayers' Committee adopted the slogan that a vote for the bond meant a vote for higher taxation. On the radio and in the newspapers, this group emphasized the growing weakness of the nation's economy which made costly projects increasingly hazardous to finance. They reiterated the charges made by the Joint Council of Engineering Societies in 1927 that the proposed pier foundations were founded on faulty rock formations and that the span would cost over \$100,000,000. Further, the Taxpayers' Committee stated that, contrary to the claims of the proponents, not all toll bridges were outstanding successes. Right here in the San Francisco Bay the San Mateo-Hayward

31. Keesling, Daily Calendar, June 26, 1930, Keesling Papers; Ukiah (Calif.) Republican Press, March 19, 1930; San Francisco News, Nov. 3, 1930.

bridge and the Dumbarton bridge both had lost money in their first years of operation.³²

Another organization to raise its voice against the bridge was the influential Commonwealth Club of California. In a report presented to the club in October 1930, the sections on Harbor Development and State Highways reversed the pro-bridge stand taken by the same committees in 1925. In their latest analysis of the Golden Gate project, the Commonwealth Club sections concluded that, while the bridge was desirable, it was an inopportune moment to begin construction. Several other public developments, such as the San Francisco-Oakland Bay bridge, should take precedence. Further, the Commonwealth Club report argued that the district planners had left too many questions unanswered. More investigations into the foundation problem as well as a closer study of probable bridge revenue in view of the worsening economic situation were needed.³³

Outside of the three organizations just mentioned, a few prominent citizens publicly opposed the bridge. Noteworthy among this group was M. M. O'Shaughnessy, the San Francisco city engineer. For a man who had once been one of the bridge's strongest supporters, O'Shaughnessy's opposition role at this time presented a paradox. From 1917 through the

32. San Francisco Chronicle, Oct. 13, 24, 28, 1930; Nov. 1, 1930.

33. Commonwealth Club of California, "The Golden Gate Bridge," Transactions, XXV (San Francisco, Oct., 1930), 293-319.

middle twenties, the city engineer could be seen and heard advocating the construction of a Golden Gate span. Towards the end of the decade, however, O'Shaughnessy began to entertain doubts as to the financial wisdom of the venture. The onslaught of the depression, plus the fact that the Hetch-Hetchy water project³⁴ had already cost many millions more than anticipated, brought him to oppose the bridge.³⁵ In addition to O'Shaughnessy, a few San Francisco citizens opposed the span on aesthetic grounds. Such a structure of steel and mortar, they said, would permanently disfigure one of Nature's most perfect pictures--the Golden Gate.³⁶

Supporters of the bridge movement were numerous and very active. The sources of strength were the same as before--the newspapers, business and civic clubs, local governing officials, and the majority of the motorists. The San Francisco Civic League of Improvement Clubs and Association, for example, called a membership meeting in September at which proponents and opponents of the proposed Golden Gate span were invited to present their arguments. After receiving new assurances from the War Department that the

34. Supra, p. 3.

35. San Francisco Chronicle, Sept. 19, 1930; San Francisco News, Oct. 13, 1930; May 16, 1931.

36. San Francisco News, Nov. 1, 1930. One prominent Bay area citizen who opposed the bridge on the grounds that it would mar the natural beauty of the area was Gertrude Atherton. Nearly ten years after the completion of the structure she still was of the same mind. See Gertrude Atherton, My San Francisco (New York, 1946), p. 48.

bridge clearances would permit the passage of all shipping, the league members voted to give the bridge bonds their full support.³⁷

The San Francisco Chamber of Commerce, after a prolonged internecine struggle between the "transportation interests" and the incumbent administration, came out in support of the bonds.³⁸ The local labor movement, represented in the San Francisco Labor Council, the Building Trades Council, and the Bay Counties District Council of Carpenters called Proposition 37 the most important issue on the November ballot. In their opinion, its passage meant work for a large number of unemployed laborers.³⁹

In addition to these groups, the California State Automobile Association, the San Francisco Motor Car Dealers' Association, the Redwood Empire Association, Marvelous Marin, and approximately twenty other prominent veteran, civic, and booster clubs in the six-county district contributed thousands of dollars in support of the campaign.

Throughout September and into October the bond campaign had followed the pattern of previous bridge debates,

37. Telegrams, James P. Sweeny, president, Civic Clubs, to P. J. Hurley, Secretary of War, Sept. 13, 1930; Hurley to Sweeny, Sept. 17, 1930, Keesling Papers; San Francisco Chronicle, Sept. 26, 1930.

38. "Report of the Bridge Committee of the San Francisco Chamber of Commerce on the Results of the Investigation of the Proposed Golden Gate Bridge," Oct. 2, 1930, Keesling Papers.

39. San Francisco Chronicle, Oct. 10, 1930; Santa Rosa Press Democrat, Oct. 29, 1930.

with such subjects as the economic and structural feasibility being argued most frequently. Towards the middle of October, however, a more explosive issue was injected into the campaign. At this time, newspapers and bridge officials began wondering out loud about the sources of support for the taxpayers' committee opposed to the passage of the bond proposition. Many of the bridge's backers suspected that the twenty-five names that appeared on the tax committee's political advertisements were merely a front for other interests. Some of the newspapers suggested that the power behind the Taxpayers' Committee Against the Golden Gate Bridge Bonds was the Southern Pacific-Golden Gate Ferries, the company that had controlled and operated the ferry lines across the Golden Gate since 1929. This conclusion led these same journals to accuse the Southern Pacific Company--the major stockholder in the ferry line--of masterminding the entire opposition.⁴⁰ Throughout the remainder of the election campaign, the newspapers belabored the railroad-ferry interest for obstructing the progress of the bridge.⁴¹

Up to the time of the bond election, the ferry companies and the Southern Pacific Company had said little on the subject of Bay bridge crossings. At the Santa Rosa

40. San Francisco Chronicle, Oct. 13, 1930; Nov. 3, 1930.

41. San Francisco Call-Bulletin, Oct. 24, 27, 1930; San Francisco News, Oct. 9, 13, 1930; Sausalito News, Oct. 17, 1930.

meeting in 1923, the president of the Golden Gate Ferry Company, H. E. Speas, had spoken in favor of a span across the channel. Two years later in 1925, the Southern Pacific went on record as opposed to the construction of the San Francisco-Oakland Bay bridge. Following these incidents, however, neither the ferry company nor the Southern Pacific had taken a public stand on the bridge issue.

The extent of the intervention of the railroad-ferry combination was not resolved during the course of the campaign or thereafter. Clearly, however, a tone of bitterness had crept into the discussions as the bridge supporters became daily more convinced that the Southern Pacific was covertly opposing the bridge. Said the Santa Rosa Press Democrat on the eve of the election: "No element, however wealthy, can stop the building of the bridge. They may delay but never prevent."⁴²

Caught in the middle of this campaign was the motorist who found the traffic jams at the ferry terminals the worst since the problem first developed in the early twenties. This in spite of the fact that the two ferry companies that had operated over the Golden Gate in the twenties--the Northwestern Pacific Railroad and the Golden Gate Ferry Company--had merged in 1929 in order to provide improved service.⁴³ On the Labor Day weekend preceding the November

42. Santa Rosa Press Democrat, Oct. 31, 1930.

43. Harlan, Sausalito News, Feb. 27, 1941. The new line was

election, for example, over 86,000 vehicles were ferried across various parts of the Bay. On the final night of this three-day weekend, an outsized traffic jam developed on the Marin side, with cars backed up approximately fifteen miles from the ferry slip at Sausalito. It was well past midnight before the last weekend tourist was returned to the Hyde Street terminal in San Francisco.⁴⁴

The electorate gave the bridge district an overwhelming victory with a margin of better than three to one. In Marin and Sonoma counties the vote for the bonds was eight to one, which was an indication of the widespread enthusiasm for the project in the northern counties. In Santa Rosa, the night following the election, an impromptu "victory celebration" was held as a crowd estimated at 5,000 assembled to hear speeches by the chief engineer, Strauss, and Santa Rosa's own bridge director, Frank P. Doyle. Construction of the bridge and employment for a large number of workers, said Strauss, were only a very few months in the future.⁴⁵

Summary

Sustained by court decisions, approved by the federal government, and supported by public opinion, the Golden Gate Bridge and Highway District by 1930 had emerged as

called the Southern Pacific Golden Gate Ferries, Ltd., a subsidiary of the Southern Pacific Company.

44. San Francisco Chronicle, Sept. 3, 1930.

45. Santa Rosa Press Democrat, Nov. 5, 6, 7, 1930; San Francisco Chronicle, Nov. 6, 1930. The final count was 145,657 in favor of bonds; 46,954 against.

an effective public agency, prepared to proceed with the construction of the bridge. Since 1923, when the bridge act was passed, the state legislature had enacted into law two amendments. In both instances important changes were effected to meet the particular requirements of the proposed bridge district. This friendly attitude on the part of Sacramento was further manifested when, in 1929, the legislature passed a validating act in which all the proceedings relative to the formation of the district (the 1924 agreement with the War Department and the act of incorporation of 1928) were acknowledged and approved.⁴⁶

Likewise, the state and federal courts and the national government gave the district their unqualified support during the formative period. The courts declared the district constitutional and Washington, through the War Department, approved the bridge plans and also authorized the construction of approach roads across the military reservations which surrounded both bridgeheads.⁴⁷

46. Statutes of California, 48 Legis., Reg. sess., Chap. 87, p. 165. In all, three amendments to the 1923 Bridge Act were passed. The first, in 1925, gave San Francisco one-half of the membership on the board of directors and provided for the formation of a district made up of non-contiguous territory (Del Norte County). See Statutes of California, 46 Legis., Reg. sess., Chap. 387, pp. 714-22. The second, in 1927, made it mandatory to name the counties which were to constitute the district. Also, the district could sue or be sued by its corporate name. See ibid., 47 Legis., Reg. sess., Chap. 344, pp. 574-75. The last change, in 1931, explicitly authorized the use of tax money to pay the interest or principal on bonds during the construction period. See ibid., 49 Legis., Reg. sess., Chap. 70, pp. 77-80.

47. Santa Rosa Press Democrat, Oct. 29, 1930.

The continuous chain of victories, however, did not leave the district without problems. The depression, beginning to be severely felt in the Bay area, remained uppermost in the minds of many leaders. Also, the shipping and railroad-ferry interests, in spite of setbacks, remained adamant in their opposition to the project.

CHAPTER IV

VESTED INTERESTS

Introduction

The Golden Gate bridge movement of the 1920's culminated in the passage of the bond issue in November 1930. During the 1920's, resistance to the span had been forming, becoming more determined as the decade drew to a close. This resistance fully crystallized in 1931 and 1932 as the railroad-ferry monopoly sought to prevent the building of the bridge. The main issues were the financial losses the ferry companies would incur should the bridge be built and the alleged threat to the district taxpayers now that the voters had approved the \$35,000,000 bond issue.

Calling for the Bids

In the wake of the convincing bond victory, the directors moved quickly to make arrangements for the letting of contracts and marketing the bonds. To oversee construction and expenditure of funds, the board of directors established a building committee with Director Francis V. Keesling of San Francisco, chairman.¹ In accordance with their

1. Golden Gate Bridge and Highway District, Memorandum of Minutes, Nov. 13, 1930; Filmer to Keesling, Dec. 12, 1930, Keesling Papers.

campaign pledge not to exceed the \$35,000,000-bond ceiling, the building committee called upon Strauss to draw up a complete set of plans for all units of work. Bids would then be invited and the total cost determined.

Originally Strauss had planned to have the bridge drawings completed by January 1931 and to have construction begin the following spring. Several large Eastern manufacturing firms had expressed an eagerness to bid on the prime bridge contracts for steel superstructure and cables as soon as they were advertised.² By January, however, Strauss was convinced that asking for bids would have to be delayed in view of the enormous task of drawing up all the plans in advance of construction. In addition, the adequacy of the south pier foundation was again questioned.³

The foundation problem proved to be one of the thorniest issues that the directors had to face--past, current, and future. This problem, originally broached by the Joint Council of Engineering Societies of San Francisco in 1927, had been settled to the satisfaction of most bridge directors and a majority of the voters. But the rumblings of disbelief persisted. In view of this continued criticism, the board of directors authorized another foundation study.⁴

2. Strauss to Moisseiff, Nov. 28, 1930; Moisseiff to Strauss, Dec. 8, 1931, Keesling Papers.

3. Board of Engineers to Board of Directors, Golden Gate Bridge and Highway District, Jan. 21, 1931, Keesling Papers.

4. Golden Gate Bridge and Highway District, Memorandum of Minutes, Jan. 22, 1931, Keesling Papers.

To carry out this new investigation, a committee consisting of Professor Andrew Lawson, consulting engineer for the district, and two prominent West Coast geologists, Allan Sedgwick of the University of Southern California and Robert A. Kinzie of San Francisco, was formed.⁵

Strauss was confident that the new borings would confirm his belief in the sufficiency of the foundations; thus he proceeded to draw up plans based on his original pier locations. By the middle of March his bridge drawings were complete, and bids were called for in April. June 17, 1931 was set for the opening of the bids.⁶ As the June deadline approached, however, it was apparent that the three geologists were not in accord as to their foundation findings. In May, Robert Kinzie informed the building committee that the results of the new borings indicated that the rock formations were not strong enough to meet construction requirements. Professors Lawson and Sedgwick, meanwhile, had arrived at the opposite conclusion.⁷

Many directors feared that this controversy over the bridge foundations would overshadow the original purpose of the June 17 meeting. Particularly were they apprehensive concerning the reaction of prospective bidders to this

5. MacDonald to Kinzie, Jan. 29, 1931, Keesling Papers; San Francisco Chronicle, Feb. 12, 1931.

6. Golden Gate Bridge and Highway District, Board of Engineers, Minutes, March 18-20, 1931, Keesling Papers.

7. Kinzie to Keesling, May 7, 1931; Keesling, Daily Calendar, May 7, 11, 1931, Keesling Papers.

divergence of opinion among the experts. Some anxiety was also expressed over the attitude of George Cameron, bridge director and editor of the San Francisco Chronicle. Cameron had been responsible for the appointment of Kinzie to the board of geologists investigating the foundations.⁸

The June 17 meeting began with presentation of the geologists' findings. In the majority report, Sedgwick and Lawson stated that the latest borings fully supported previous findings as to the adequacy of the foundation rock for the south pier. As expected Kinzie dissented vigorously. Rejecting the Kinzie statement, the directors approved the majority report and proceeded to open the bids. The sum of the lowest qualified bids on each of the eleven contracts came to nearly \$3,000,000 less than the estimate presented to the voters in November 1930.⁹

The meeting ended on an optimistic note. Fears that contractors would refuse to bid on the project as a result of Kinzie's unfavorable findings never materialized. The Chronicle gave extensive coverage to the Kinzie dissent and expressed some doubts as to the feasibility of the structure. Within a matter of days, however, the Chronicle resumed its strong defense of the project and supported the directors' decision to proceed with this great civic undertaking.¹⁰

8. Keesling, Daily Calendar, May 14, 27, 1931; June 5, 10, 1931, Keesling Papers; San Francisco News, June 11, 1931.

9. Golden Gate Bridge and Highway District, Memorandum of Minutes, June 17, 1931, Keesling Papers.

10. George Cameron, in his dual capacity as bridge director

This would have been the end to the story of the original contract bids except for one unusual episode which occurred prior to the opening of the bids in June. Entirely unsolicited by the building committee, a large engineering firm proposed that it undertake the construction of the entire bridge, including the disposition of the \$35,000,000 bond issue. In urging their offer, the company pointed out that the bridge directors could avoid many of the pitfalls encountered in negotiating separate contracts and selling the bonds piecemeal.¹¹

The building committee studied the plan and heard further explanations from company representatives. From the outset, however, they were not favorably disposed to a single, lump-sum offer. Much preliminary work, reasoned Keesling's committee, such as the preparation of plans and advertisements for bids, had been accomplished already. Also the roles of many administrative officials employed by the district would have to be redefined. Lastly, in view of the declining prices of materials and labor, it was generally accepted that the bridge could be constructed for

and editor of the Chronicle, was a target of much abuse during the so-called Kinzie affair. Some of the bridge directors, particularly chairman Keesling of the building committee and a few of the local newspapers, became quite exercised over the adverse publicity the bridge received in the columns of the Chronicle. See Keesling, Daily Calendar for months of May and June 1931; San Rafael Independent, June 19, 20, 1931.

11. B-L Engineering Company to Board of Directors, April 22, 1931; May 20, 1931, Keesling Papers. The B-L Engineering Company was composed of H. M. Byllesby and Company of Chicago and New York, Loveland and Company of San Francisco and Chicago, and Loveland Engineers, Inc., of San Francisco.

considerably less than the \$35,000,000 figure. From every vantage point, the building committee concluded, the district would profit by proceeding according to construction plans. On the basis of the committee's recommendation, the bridge directors turned down the bid, thus bringing to a close the incident of the dramatic offer.¹²

Marketing the Bonds

Intimately joined with the problem of letting construction contracts was the need to market the bonds. A committee charged with the responsibility of preparing the bonds for sale was appointed in November 1930.¹³ To assist this committee on financial policies and procedures, two bond specialist firms were hired, one from the East coast and one from the West coast.¹⁴

After studying the requirements of the district, the bond committee decided to offer \$6,000,000 in the initial sale, with smaller blocks to follow as the need arose. In

12. Keesling to Filmer, May 12, 1931, Keesling Papers; San Francisco Chronicle, May 21, 1931. The only voice raised in support of the offer was the Marin Board of Supervisors.

13. Golden Gate Bridge and Highway District, Memorandum of Minutes, Nov. 13, 1930, Keesling Papers.

14. Ibid., Dec. 10, 1930. The Western firm was Orrick, Palmer, and Dahlquist of San Francisco. The Eastern company was Masslich and Mitchell of New York. Chester B. Masslich was not unknown to some of the bridge officials. In 1916, the Eastern bond consultant had come to San Francisco on behalf of a buyer who was interested in the Marin Municipal Water District bonds. Masslich's opinion, in support of the legality of these bonds, played a significant role in promoting the successful sale of the securities. See Harlan to Keesling, Feb. 13, 1930, Keesling Papers.

querying various financial houses throughout the nation, however, it became apparent that resurgent criticism of the foundations plus worsening economic conditions had made the bridge bonds unattractive from an investor's point of view.

Because of this noticeable resistance on the part of the investment houses, Masslich and Mitchell, the Eastern bond consultants, suggested to the committee that a court test was needed to remove doubt as to the legality of the bonds. There had to be the positive assurance that, if the bridge failed, the taxpayer would be responsible for redeeming the investor's dollar.¹⁵

This suggestion, first made in January of 1931, brought forth a prompt rejection from the directors. To bring the matter before the courts at this juncture might possibly delay the bridge for many months, if not years, since it would give the opposition an opportunity to interpose legal objections.¹⁶

The date set for opening bond bids was July 8, some three weeks after the opening of bids on the work contracts. As the date drew near, pressure to bring about a legal test case mounted. The directors, however, remained adamant and optimistically predicted that several bond bids would be forthcoming, the demand for a favorable court ruling

15. Keesling, Daily Calendar, Jan. 29, 1931, Keesling Papers.

16. Ibid., Feb. 2, 3, 1931; March 18, 1931.

notwithstanding.¹⁷ To give further substance to their stand, the directors pointed to the latest amendment to the bridge act. In this statute, passed in March 1931, the State validated all steps taken by the district in connection with the issuance of bonds. In addition, the act specifically authorized the levying of taxes within the bridge district to pay principal and interest on the bonds during construction as well as after completion.¹⁸

Contrary to their prognostications, only one offer was made when the directors opened the bids in July. The offer, submitted by a San Francisco financial house, stated plainly that before they would agree to market the \$6,000,000 bond issue, it would be necessary to obtain a ruling from the California State Supreme Court upholding the legality of the bonds. In addition, they reserved the right to call in engineers of their own choosing to study the pier foundation problem. The bid also provided for the cancellation of the offer by the investment company any time before delivery of the bonds. This last proviso was necessary in view of the weakening bond market.¹⁹

The terms of the offer were unacceptable to the directors, thus the bid was rejected. A few days later, a

17. San Francisco Chronicle, June 20, 24, 1931; San Francisco Examiner, July 7, 1931.

18. Statutes of California, 49 Legis., Reg. sess., Chap. 70, pp. 77-80.

19. Golden Gate Bridge and Highway District, Memorandum of Minutes, July 8, 1931; Keesling, Daily Calendar, July 8,

second offer was tendered, this time by an investment syndicate headed by Bankamerica Company of California. The terms of the bid were almost identical to the first offer, with the proviso for a court ruling remaining basic to the signing of a firm contract. In face of this solid wall of resistance from the financial houses, the directors had no choice but to seek court approval of the bonds. Thus, the directorate accepted the Bankamerica offer and directed the district secretary, W. W. Felt, to endorse the bonds over to the syndicate. By pre-arrangement with the board, Felt refused to do so; whereupon, the district asked for a writ of mandamus to compel the secretary to fulfil his official duties.²⁰

The Litigation is Renewed

In the case of Golden Gate Bridge and Highway District v. Felt (214 C 308; 1931), the last phase of the legal battle was joined. During the next twelve months the railroad-ferry interests challenged the legality of the bonds and the right of the district to levy and collect taxes. Also, they again raised the question of the constitutionality of the Bridge Act of 1923.

The constitutionality of the bridge district had been clearly established in the earlier court decisions beginning

1931, Keesling Papers; San Francisco Chronicle, July 9, 1931.

20. San Francisco Examiner, July 9, 1931; Golden Gate Bridge and Highway District, Memorandum of Minutes, July 16, 1931, Keesling Papers. The bond syndicate consisted of Bankamerica Company, R. H. Moulton Company, and the American Trust Company.

in 1926 with Doyle v. Jordan. In 1929, the California State Supreme Court in the case of Wheatley v. Superior Court had reaffirmed the validity of the bridge district. In the case now pending before the courts, the district sought legal confirmation of those portions of the Bridge Act of 1923 which gave them the right to levy taxes and to sell bonds.

Amici Curiae

Bridge President Filmer hoped that the case would be adjudicated swiftly and that a decision would be reached by early September 1931, in time to save the bids on the contracts and bonds.²¹ The first indication that the bridge district would become involved in extended litigation came in August when a San Francisco law firm appeared before the court in behalf of "unnamed taxpayers" requesting that the suit be dismissed. When, in September, it was discovered that the Southern Pacific-Golden Gate Ferries headed the list of ninety-three unnamed taxpayers, several other organizations entered petitions protesting the maneuver. By the time the case came up for trial in November, the number of amici curiae (friends of the court) had grown to five. The ferry company sought to oppose the bridge district; the remainder--the city and county of San Francisco, the San

21. Under terms set down by the directors in July 1931, the district had six months in which to sign a contract with the lowest qualified bidder. On the other hand, the bond bid submitted by the syndicate headed by Bankamerica had to be approved by the district within four months, by November 16, 1931. See Golden Gate Bridge and Highway District, Memorandum of Minutes, July 16, 1931, Keesling Papers.

Francisco Chamber of Commerce, the Metropolitan Water District of Southern California, and Los Angeles County--appeared in behalf of the bridge district.²² The interest of the Southern California groups had been prompted by the fact that the 1912 enabling act making possible the establishment of water districts was similar in language to the Bridge Act of 1923. Thus, reasoned the Metropolitan Water District of Southern California, if the bridge bonds were declared illegal, the precedence would have been established for overthrowing the constitutionality of their bond issue.²³

In opening arguments before the California State Supreme Court, the ferry company charged that the action brought by the bridge directors against W. W. Felt was fictitious and collusive and therefore should be summarily dismissed.²⁴ The ferry company also challenged the legality of the bonds and the right of the district to levy taxes.

The statutory changes brought about by the 1931 amendment passed by the state legislature made substantial changes in the conditions authorizing the sale of bonds and the levying of taxes. These changes, said the ferry company, invalidated the bonds. Finally, they questioned the legality of the

22. San Francisco Chronicle, Aug. 21, 1931; San Francisco Call-Bulletin, Aug. 29, 1931; San Francisco Examiner, Nov. 26, 1931.

23. Marin Journal, Dec. 10, 1931.

24. The San Francisco legal firm representing the ferry company was McCutcheon (Edward J.), Olney (Warren Jr.), Mannon (J. M. Jr.), and Greene (A. Crawford).

district by presenting evidence which indicated that the number of signatures on the petition, which in 1925 brought San Francisco into the district, was insufficient.

In a sweeping eight-to-one decision the California State Supreme Court ruled against the ferry company. A re-
count of the signatures on the petition from San Francisco revealed that there were fewer names than required by law. However, said the high court, this irregularity could no longer be argued since subsequent judicial decisions had removed all doubts as to the constitutionality of the district. In reference to the amendment of 1931, which specifically authorized the district to levy taxes for the payment of principal and interest during the construction period, the change did not alter the conditions under which the bonds had been authorized. Finally, stated the majority decision, the bridge district was a quasi-municipal corporation, erected to benefit the entire state; thus under the provision of the bridge act, it had the power to assess a general tax.²⁵

With the decision in the Felt case, every important provision of the enabling act had been reviewed by the California State Supreme Court and found to be valid. Taking the only course remaining to them the opposition, on November 28, filed an appeal in the Federal District Court of Appeals in San Francisco asking that the directors be

25. Golden Gate Bridge and Highway District v. Felt, 214 C 308 (1931).

restrained from selling the bonds. Grounds for the suit lay in challenging the validity of the taxing power of the district under the due process clause of the United States Constitution. The suit was entered in the name of the Garland Company of San Francisco. The Southern Pacific-Golden Gate Ferries was not mentioned.²⁶

Railroad-Ferry Interests Attacked

By the time the appeal was announced, the public was much less interested in the legal principles espoused than in the names and motives of the opposition. From the outset of the court action in the summer of 1931, the pro-bridge forces had maintained that the Southern Pacific Company and two of its subsidiaries--the Northwestern Pacific Railroad and the Southern Pacific-Golden Gate Ferries--were responsible for financing and directing the case against the bridge.

In 1931, the Southern Pacific was only two decades removed from an era in which her officials and her treasury had exercised a controlling influence over California politics. In 1910, mainly through the efforts of Hiram Johnson, the Southern Pacific was forced to abolish its political slush fund and to withdraw from the political arena. Even so, their monopoly on local rail and ferry transportation in the San Francisco Bay area remained absolute. North of the Golden Gate, for example, the Northwestern Pacific supplied Marin and other North Bay counties with rail transportation.

26. San Francisco Examiner, Nov. 29, 1931.

Since 1929, the Southern Pacific-Golden Gate Ferries held a monopoly on the ferry route across the channel.²⁷

After the bond election in November 1930, many bridge proponents felt that the Southern Pacific interests were operating covertly to disrupt the proceedings of the bridge district in order to protect their investments. Thus, when the "unnamed taxpayers" petitioned the courts in August 1931 to have the bridge district's suit dismissed, many newspapers openly attacked the railroad-ferry group. The San Rafael Independent and the Ukiah Republican Press charged that the Southern Pacific-Golden Gate Ferry Company was attempting to destroy the bridge district.²⁸ The San Francisco News, in a front-page letter to the Southern Pacific, asked the company to admit to complicity in this latest maneuver.²⁹ The Sausalito News charged that the anti-bridge litigation of the ferry company and the Northwestern Pacific were prolonging the depression in the Bay region, since their stand had forced postponement of construction.³⁰

Public indignation towards the railroad-ferry interests mounted rapidly following the November announcement that

27. Wilson and Taylor, Southern Pacific, pp. 119-20, 172, 197-98.

28. San Rafael Independent, Aug. 14, 1931; Ukiah Republican Press, Aug. 16, 1931.

29. San Francisco News, Aug. 17, 1931.

30. Sausalito News, Aug. 21, 1931. In the same editorial the News suggested that the Southern Pacific-Golden Gate Ferries should change the motto on their ferries from "We Care a Great Deal What Our Patrons Think of Us," to "The Public be Damned!"

the decision of the California State Supreme Court would be appealed through the federal courts. Most of the business groups, civic organizations, and booster clubs that had supported the bridge in the past entered the fray. The San Francisco Chamber of Commerce, for example, in addition to hiring legal counsel to help defend the district in court, distributed broadsides in which they condemned the legal machinations of the Southern Pacific.³¹ The Motor Car Dealers' Association of San Francisco passed a resolution condemning the railway company, charging that the Southern Pacific had already cost the taxpayer several hundreds of thousands of dollars in litigation and lost bond premiums. This unhappy set of circumstances, concluded the resolution, placed the ". . . Southern Pacific, the Southern Pacific-Golden Gate Ferries, Ltd., and the Northwestern Pacific in the light of public enemies."³²

In December, the public sought additional ways and means to retaliate against the "bridge busters' brigade"--as one newspaper referred to the railroad-ferry interests. Early in that month a group of citizens organized the Golden Gate Bridge Association with the avowed purpose of directing a mass boycott against the Southern Pacific.³³ Frank C.

31. "A Statement from the San Francisco Chamber of Commerce: The Golden Gate Bridge," Aug. 26, 1931, Keesling Papers.

32. San Francisco Chronicle, Dec. 2, 1931.

33. This organization was not connected with "Bridging of the Golden Gate Association" formed in 1923 at Santa Rosa.

MacDonald, president of the San Francisco Labor Council and a strong proponent of the bridge, was elected chairman of the group. Many civic leaders, particularly from the North Bay counties, joined the movement.³⁴

This wave of anti-Southern Pacific feeling came to a climax at a public meeting called by the California State Automobile Association to hear both sides of the argument. Instead of being a fact-finding meeting, however, it turned into a "Southern Pacific baiting bee," the great majority of the people present being avid bridge supporters. When a resolution was introduced condemning the Southern Pacific, the chairman refused to entertain it, stating that it was beyond the scope of the meeting. Amid cries of nearly 400 bridge supporters protesting the ruling, the chairman abruptly adjourned the gathering. As he stepped down from the rostrum, his place was promptly taken by MacDonald, the newly appointed head of the Golden Gate Bridge Association, who gaveled the meeting back to order.

By the conclusion of the gathering, resolutions had been passed and sent to Governor James Rolph and other state and local officials asking them to use their influence to persuade the Southern Pacific to withdraw their legal objections to the bridge. As far as implementing a boycott, however, the bridge association failed to make any headway at this time or in the months to follow. The depression, the

34. San Francisco Chronicle, Dec. 3, 4, 8, 1931; Santa Rosa Press Democrat, Dec. 3, 1931; Marin Journal, Dec. 10, 1931.

fact that the Southern Pacific had a virtual monopoly over rail transportation in California, placed the businessman and average citizen in a position of complete dependence on the railroad. The individual stood to lose considerably more than the large corporation.³⁵

Railroad-Ferry Interests Reply

Officials of the railroad and ferry companies had not publicly expressed themselves on the controversy. As the charges against the railroad-ferry interests became more pointed, however, the directors of the transportation companies presented their arguments to the public. Paul Shoup, president of the Southern Pacific, issued a statement early in December 1931 categorically denying the charge that his company or the Northwestern Pacific was a party to the present litigation before the federal court, or had even supported it. Instead, he placed the responsibility on the Garland Company, in whose name the present suit had been appealed, and on the minority interests within the Southern Pacific-Golden Gate Ferries.³⁶

A short time later, S. P. Eastman, president of the ferry company, came forward with his view of the entire controversy. He denied any collusion between his company and

35. San Francisco Chronicle, Dec. 11, 1931; Santa Rosa Press Democrat, Dec. 11, 1931.

36. San Francisco Chronicle, Dec. 5, 1931. The Southern Pacific owned 51% of the stock in the Southern Pacific-Golden Gate Ferries.

the Garland Company. However, he did state that his company was opposed to the bridge, giving as his reason that the taxpayers in the district were ultimately responsible for the

bonds. He went on to observe that if the Golden Gate bridge were placed under the California Toll Bridge Authority, thereby relieving the district taxpayers of direct responsibility, he would ". . . firmly recommend to my board of directors and other interested taxpayers that all litigation immediately cease."³⁷

The bridge directors were prompt to refuse Eastman's quid pro quo. To place the bridge under the Toll Bridge Authority would mean that funds would be raised through the sale of revenue bonds, instead of bonds secured by the taxing power of the district. At that time, revenue bonds were a drug on the market; thus to put the bridge under the state would mean that construction would be delayed indefinitely. Such a move, said the directors, would undoubtedly prolong the profits of the ferry company, but it could hardly be considered in the interests of the general public.³⁸

Mounting anti-Railroad-Ferry Attacks

In spite of assurances from the presidents of both the railroad and the ferry companies that their organizations were not partisans favoring the litigation, public suspicion

37. Ibid., Dec. 14, 1931.

38. Keesling to Burkhardt, Dec. 19, 1931, Keesling Papers; San Francisco Chronicle, Dec. 22, 1931; Marin Journal, Dec. 24, 1931.

of their activities continued to grow. In Marin County, where anti-Southern Pacific sentiment was running especially high, a group of citizens sponsored and incorporated a new ferry company to run competition with the existing line across the Golden Gate.³⁹ In San Francisco, the Board of Supervisors also took direct action. On December 22, 1931, they ordered the full force of their legal machinery into the battle on the side of the bridge district. In particular, the city attorney was directed to investigate the franchise of the ferry company to determine whether or not there had been any violations which would be cause for revoking their license.⁴⁰

Simultaneous with these developments came the suggestion from the newly formed Golden Gate Bridge Association and a leading newspaper editor that legal proceedings be initiated against the Southern Pacific in order to recover punitive damages resulting from the delay in selling the bonds.⁴¹

In an atmosphere charged with threats and recriminations, the possibility of bringing the matter to a quick, amicable solution grew dimmer with each passing day. Neither side showed a disposition to back down. From the mayor's

39. Marin Journal, Jan. 7, 1932; Feb. 4, 1932; San Rafael Independent, Dec. 11, 1931.

40. San Francisco Chronicle, Dec. 22, 1931; San Francisco, Board of Supervisors, Proceedings, XXVI (1931), 3380-83.

41. Golden Gate Bridge and Highway District, Memorandum of Minutes, Dec. 16, 1931; W. N. Burkhardt, editor of the San Francisco News, to Keesling, Dec. 29, 1931, Keesling Papers.

office in San Francisco, Angello J. Rossi proposed that the two sides meet face to face in an effort to negotiate a solution.⁴²

The matter reached a crisis when the San Francisco supervisors passed a resolution demanding that the ferry company either spend several hundred thousand dollars in improving and extending their Hyde Street ferry slip in San Francisco or relocate the slip. The ferry company regarded this maneuver as unglossed bribery and, in a letter to Mayor Rossi, President Eastman stated his reaction to the implied threat of the supervisors. The litigation, said Eastman, would be drawn out indefinitely if San Francisco persisted in its plan to force the ferry company to make a choice between improving or removing its Hyde street terminal. If the threat were withdrawn, however, he promised to do everything possible to expedite the present litigation. Thus, again, the Southern Pacific-Golden Gate Ferries indicated that its relationship to the present appeal before the federal courts was more than that of a sympathetic bystander.⁴³

The meeting proposed by Mayor Rossi was held early in February. In the exchange which took place in the mayor's office, representatives of the Board of Supervisors received a promise from ferry officials to speed up the legal machinery. In return, the supervisors agreed to shelve their

42. San Francisco Chronicle, Dec. 18, 1931.

43. Ibid., Jan. 26, 1932.

resolution to force the removal of the terminal. The ferry company, however, did not renounce their right to appeal, which meant that the litigation could continue for months, if not years.⁴⁴

The trial before the Federal District Court in San Francisco opened on February 16, 1932 with the Garland Company and the Del Norte Company plaintiffs, and Bridge President Filmer as defendant. During the course of the trial, President Eastman of the Southern Pacific-Golden Gate Ferries took the stand where, under cross-examination, he admitted to considerably more than a community of interest with the plaintiffs. Eastman stated that his company had been responsible for the present litigation, although not officially a party to it. He recalled that he had written the Garland and Del Norte companies at the time the counties were taking first steps towards formation of the district. Hearing that the companies were opposed to the district, Eastman sought (and was given) permission to employ a lawyer in their behalf if and when the occasion arose.

Such a situation developed following the decision of the California State Supreme Court in November 1931 overruling the protests of the ferry company. Rather than risk further public displeasure by appealing the verdict in the name of the Southern Pacific-Golden Gate Ferries,

44. Ibid., Feb. 4, 1932; San Francisco News, Feb. 3, 1932; Keesling, Daily Calendar, Feb. 3, 1932, Keesling Papers.

Eastman financed the appeal in the name of the Garland and Del Norte companies.⁴⁵

The admission of complicity ignited another storm of protest against the railroad-ferry monopoly. Observed the San Francisco News: "Tattered, flimsy, and transparent, the last rag of the disguise donned by the Southern Pacific interests has been torn away and the company steps out into the open at last as the instigator and author of the suits that have blocked the beginning of work on the Golden Gate bridge."⁴⁶

The Bridge Waits

The delay between the court hearing in February 1932 and the handing down of the judgment was a long and extremely critical period for the bridge district. The danger lay not only in the possibility of an adverse decision but also in the lack of working capital. The \$470,000 that had been raised through taxes levied in 1929 and 1930 was exhausted. The additional foundation study made in early 1931, followed by the extended litigation, completely consumed these tax funds. By April 1932, the district was in debt to the extent of \$245,000, with regular monthly expenses running approximately \$4,400.⁴⁷

45. San Francisco Chronicle, Feb. 20, 1932.

46. San Francisco News, Feb. 20, 1931.

47. San Francisco Examiner, April 20, 1932. (Information in this article was supplied by district auditor, John R. Ruckstell.)

During the spring of 1932 many bridge officials began to question the ability of the district to continue operations. Chief Engineer Strauss, for example, with his large staff of highly paid aids and consultants, was faced with a payroll he could not meet; the Chicago engineer had given up all outside business to concentrate on the Golden Gate span, and he had no prospect of other income.⁴⁸

To meet this financial crisis, the directors proposed two differing remedies. The first, and most obvious, was to exercise their taxing powers and call for a third assessment. This they did in July 1932, much to the dismay of San Francisco officials who thought the move would be very unpopular in view of the worsening economic situation and the excessive tax demands imposed by the Hetch-Hetchy project. A second solution called for an appeal to the federal government for financial assistance through the recently established Reconstruction Finance Corporation. If the latter plan were successful, then the tax levy could be rescinded.⁴⁹

As the directors were studying the possibility of federal aid, the district court handed down its decision. The ruling held that the rights of the Garland and Del Norte companies under the United States Constitution had not been violated. The district was within its legal rights to levy taxes and to sell bonds.⁵⁰

48. Strauss to Filmer, March 22, 1932, Keesling Papers.

49. San Francisco Examiner, April 21, 1931; Keesling, Daily

The ruling, however, appeared to be a Pyrrhic victory. As the directors were considering steps to resume negotiations for the work contracts and sale of bonds, the Southern Pacific-Golden Gate Ferries announced that they would appeal the verdict. They would take it to the United States Supreme Court, if need be.⁵¹ This announcement was the occasion for another avalanche of anti-Southern Pacific opinion. The Ukiah Republican Press pleaded,

We poor taxpayers are footing the bills both going and coming. We are called upon to pay the bridge and highway district an extra tax on account of the delay in getting the bridge started and at the same time contributing to the fat fees the lawyers of the railroad and ferry companies are [being paid] in order to prolong the time when the bridge will be built.

Everytime we buy a railroad or ferry ticket or pay a freight bill we are contributing toward the fight against us on the bridge. We can't help it. We are hog-tied, as it were. We pay if we win and we pay if we lose.⁵²

Suddenly, the ferry company announced that the appeal would be dropped. In a carefully prepared statement, the ferry president recounted his company's past and present attitude toward the bridge. The project to span the Golden Gate, said S. P. Eastman, was an ill-founded and ill-advised

Calendar, June 8, 1932, Keesling Papers.

50. Garland Co. and Del Norte Co. v. Filmer, 1 F Supp 8 (1932).

51. San Francisco Chronicle, July 17, 1932; San Francisco News, July 18, 1932.

52. Ukiah Republican Press, July 27, 1932. For other anti-Southern Pacific opinion see Marin Journal, July 21, 1932; San Francisco Chronicle, July 22, 1932.

scheme which would be a great burden on the taxpayer. It was for this reason alone that the ferry company had opposed the bridge. However, he continued, in light of the frequently expressed allegation that his company was opposing the bridge because of the financial benefit it would bring, the Southern Pacific-Golden Gate Ferries had decided to abandon plans to appeal.

In this decision, the ferry company received the wholehearted support of the Southern Pacific. However, officials of the railroad company again stated that the Southern Pacific was not then and never had been a party to the anti-bridge litigation.⁵³

Irrespective of declared or undeclared intentions, the tension was visibly relieved when the ferry company announced its decision to drop the legal proceedings. The accusations which had been heaped on the Southern Pacific and the Southern Pacific-Golden Gate Ferries the past months suddenly ceased, and the bridge officials and the general public looked forward hopefully to an early beginning of bridge construction.

Summary

The last stage of the court struggle had been marked by frequent denunciations of the Southern Pacific Company, the Southern Pacific-Golden Gate Ferries, and, to a lesser

53. San Francisco News, Aug. 10, 1932; San Francisco Chronicle, Aug. 10, 1932.

extent, the Northwestern Pacific Railroad for their opposition to the project. The newspapers, bridge officials, and the general public were convinced that the railroad-ferry monopoly was interested mainly in their own investment and put the interests of the Bay area second. Such a conclusion came all the easier in view of Southern Pacific's past domination of state politics.

Throughout the extended period of litigation the Southern Pacific maintained that it never was a party to the suits. Instead, the railroad company placed the full responsibility on the minority interests in the Southern Pacific-Golden Gate Ferries. Why, as the majority stockholder, the Southern Pacific could not have overruled the decisions of the minority group was never explained. It was this obvious anomaly which prompted much of the anti-railroad campaign. For their part, officials of the ferry company contended that the Golden Gate bridge would be a burden to the taxpayer and sought, unsuccessfully, to have the pro-bridge decisions of the lower courts overturned.

All contract negotiations came to a standstill, awaiting a final outcome of the court cases. As months passed with no further action taken towards construction, the district grew financially weaker; by the time the Federal District Court's verdict was handed down in July 1932, the bridge district had a deficit of over \$200,000.

The unswerving perseverance of the bridge officials during the extended trial period supplied the bridge movement

with the needed impetus and leadership. Throughout this aggravated period of delay there was never a serious suggestion, by the bridge officials or supporters, that the project be disbanded or delayed. Instead the bridge lawyers aggressively contested and countered every move of the opposition. In view of the latest pro-bridge court decision, the next challenge to the bridge leadership was to re-establish the district's credit and find a way to finance construction.

CHAPTER V

THE CONSTRUCTION PERIOD, 1933-1937: FINANCING

Introduction

The last phase of the litigation, which centered around the right of the district to levy taxes and float bonds, underscored the lasting importance of the money problem. Throughout the twenties the financial plan for the bridge was one of the strong selling points of the bridge proponents. According to the promoters, a small levy would be made on each taxpayer for the first two years following the incorporation of the district; then revenue from the sale of bonds would eliminate the need for additional taxation. After the bridge was opened, continued the promoters, revenue from the tolls would be more than adequate to meet the needs of interest, bond retirement, and administration costs.

For the first two years, beginning in 1929, the prescribed pattern was followed quite closely. Taxes were levied and final engineering surveys were completed. Beginning in 1931, untoward events altered the construction schedule. The need to make additional foundation studies, plus the renewed litigation in July 1931 diverted funds that were required to complete the pre-construction planning. Of greater import was the fact that the economic

collapse which began in 1929 was beginning to be seriously felt on the West coast.

The Golden Gate Bridge and a Reconstruction Finance Corporation Loan

The bridge directors' decision in 1932 to seek a loan from the Reconstruction Finance Corporation was but another example of a growing nation-wide movement on the part of localities and states to turn to the federal government for financial aid. The directors realized that their new tax assessment of July 1932 was unpopular, particularly in San Francisco where Mayor Angello J. Rossi had expressed strong opposition. Further, the additional monies raised by the new levy would provide only a short term solution to their problems. What was really needed, concluded the directors, was a financial plan encompassing the entire construction program.¹

The Reconstruction Finance Corporation was signed into law by President Herbert Hoover in January 1932. Its original purpose was to lend money to railroads, banks, agricultural agencies, and private industry needing emergency support as a result of the depression. In June, the benefits of the agency were extended to self-liquidating projects, owned and operated by public bodies. The Golden Gate Bridge and Highway District, a quasi-municipal corporation established under the authority of the California State

1. San Francisco Examiner, April 21, 1932; Keesling, Daily Calendar, June 8, 1932, Keesling Papers.

Legislature, was a publicly owned, self-liquidating project.²

When Director (also Congressman) Richard J. Welch informed the district in the spring of 1932 that the law establishing the Reconstruction Finance Corporation might be amended to include projects such as the Golden Gate span, Chairman Francis Keesling of the building committee went to Washington to join Welch in preliminary loan negotiations. Following a meeting with General Charles G. Dawes, head of the Reconstruction Finance Corporation, the two bridge officials returned to San Francisco optimistically predicting that a loan would be forthcoming.³ To increase the probability of a grant, Eastern firms holding tentative contracts with the district were urged to make their views known in Washington.

The submission of the formal application for federal aid followed the court decision in July upholding the right of the district to levy taxes and sell bonds. In the request for funds, the district asked that the Reconstruction Finance Corporation purchase the entire bond issue of \$35,000,000.⁴

2. U. S., Financing the Construction of Self-Liquidating Public Projects Through the Reconstruction Finance Corporation (Washington: U. S. Government Printing Office, 1932).

3. Keesling, Daily Calendar, May 23, 1932; Welch to Strauss, May 28, 1932, Keesling Papers; San Francisco News, July 24, 1932.

4. San Francisco News, Aug. 18, 1932.

The San Francisco-Oakland Bay Bridge
and an RFC Loan

Until mid-summer 1932, prospects for government help appeared encouraging, since the Golden Gate project seemed pre-eminently qualified under the provisions of the Reconstruction Finance Corporation. These hopes suffered a sharp setback, however, when it became known in July that proponents of the San Francisco-Oakland Bay bridge had applied for a similar grant.

This was not the first instance in which the interests of these two huge Bay area projects had crossed. In 1921, both bridges had competed for public attention and support. In that contest the Golden Gate span emerged victorious as plans for the Bay bridge failed to materialize.⁵ The years to follow witnessed the continued progress of the Golden Gate project while plans for a Bay crossing languished. In 1926 and 1927 San Francisco sought War Department approval for the Bay bridge, but the Navy withheld consent on grounds that any bridge within the Bay would be a danger to fleet mobilization.⁶

In 1929, when Herbert Hoover succeeded to the Presidency, the plan for a Bay crossing underwent a renaissance. Hoover, a long time friend and resident of the Bay region, was sympathetic toward efforts to build the bridge and, as

5. Supra, pp. 19-21.

6. Robert Ridgway, Arthur N. Talbot, John D. Galloway, Report of Board of Engineers: Transbay Bridge (San Francisco, 1927), p. 70.

Secretary of Commerce (1921-1928), had vainly attempted to get military authorities in Washington and civilian officials in San Francisco to reconcile their differences.⁷

President Hoover announced--jointly with Governor C. C. Young of California--the appointment of a committee to solve the problems associated with locating and designing a Bay bridge. This committee, made up of federal, state, and military officials, began an immediate study. Their report, presented to the President and Governor in August of 1930, stated that a Bay bridge was feasible and recommended that the project be approved. Following federal consent to construct the span, the California Legislature, in 1930, appropriated \$650,000 to cover initial construction surveys. In the following year, the San Francisco-Oakland Bay Bridge division of the California State Department of Public Works was organized.⁸

Under the California Toll Bridge Authority established in 1929, the Department of Public Works was empowered to issue revenue bonds to finance the Bay bridge. This type of financing had been successfully employed by the Port of New York Authority in the construction of many of New York's larger bridges. Since 1929, however, the bond market, particularly in reference to revenue bonds, had collapsed,

7. Herbert Hoover, The Memoirs of Herbert Hoover, Vol. II: The Cabinet and the Presidency, 1920-1930 (New York, 1952), pp. 251-52.

8. San Francisco Daily Commercial News, San Francisco-Oakland Bay Bridge Edition, 1936.

leaving the Bay bridge project without visible means of raising the necessary capital. With the birth of the Reconstruction Finance Corporation and the granting of funds to self-liquidating projects, the state saw its opportunity to rescue the Bay bridge from almost certain financial oblivion. Thus Sacramento applied for a loan in July 1932.⁹

In view of President Hoover's active interest in the project, the San Francisco-Oakland Bay bridge project was in a favored position to receive federal aid. Hoover repeatedly referred to the Bay bridge as an ideal example of a reproductive public works which should qualify for federal aid under the Reconstruction Finance Corporation Act.¹⁰ In addition to this encouragement, the board of engineers, which had been appointed by the White House to process loan applications, was headed by Professor Charles D. Marx, friend and former teacher of the President while the latter was a student at Stanford University. Marx had served on the Hoover-Young Bay Bridge Commission in 1929-30, and had vigorously endorsed the Bay crossing. This endorsement, said the Golden Gate bridge officials, undoubtedly would influence Marx's decision.¹¹

In October, the local duel for federal favor ended when the Reconstruction Finance Corporation officials in

9. San Francisco Daily Commercial News, loc. cit.

10. Hoover, The Memoirs of Herbert Hoover, II, 251-52.

11. Keesling to Rickey, White House, Washington, D. C. Aug. 9, 1932, Keesling Papers; San Francisco Chronicle, Aug. 12, 13, 1932; San Francisco Examiner, Aug., 1932.

Washington announced the approval of a loan for the construction of the Bay bridge. In December the federal government purchased \$61,400,000 of bridge bonds, supplemented by an additional \$10,000,000 in December. Construction began in May 1933.¹²

President Hoover's long interest in the project and appointment of Professor Marx as chairman of the board of engineers help to explain why the Bay bridge was selected in preference to the Golden Gate. But there were other significant factors. The Bay bridge, if constructed, would be of direct benefit to a much larger segment of the Bay area's population. In 1930 the population of San Francisco was 635,000, while in Alameda County, where the eastern terminus of the bridge would be located, there were 475,000 residents. In contrast to Alameda, Marin County, which would contain the north entrance to the Golden Gate span, had only 42,000 inhabitants in 1930.¹³

Another deciding factor was the difference in the types of bonds to be floated for the respective bridges. In the midst of a deepening depression, Reconstruction Finance Corporation officials considered the Golden Gate bridge securities (which were general obligation bonds authorized by the electorate and backed by the taxing power of the district) more marketable than the Bay bridge securities, which had

12. San Francisco Daily Commercial News, loc. cit.

13. U. S., Bureau of Census, Fifteenth Census of the United States: 1930. Population, I, 131.

to rely exclusively on revenue obtained from tolls for redemptions.

Although it appeared to be the most direct solution to their financial problems, federal aid was not the only course pursued. Selling the bonds privately still appeared possible, and as the prospects for aid from Washington dimmed the bridge directors concentrated on negotiations with private financial houses. The deposit on the original bond bid by Bankamerica Company in July 1931 had been returned in the following November. After the court decision in July 1932, the directors advertised for new bids on the initial \$6,000,000 block of bonds.¹⁴ In all, approximately sixty bond houses were invited to make offers. When the bids were opened, two offers had been received, and of the two only one met the requirements outlined by the district. This offer, from a syndicate headed by the Bankamerica Company, provided for the purchase of the entire \$6,000,000 issue plus the payment of \$200,000 in advance.¹⁵ The unexpected promise of immediate working capital injected new life into the bridge project. This optimism, however, was premature. In New York, Masslich and Mitchell, the bond consultants for the bridge district, ruled that the bond offer was illegal

14. Keesling, Daily Calendar, Aug. 17, 1932; Keesling Papers; San Francisco Chronicle, Nov. 17, 1931.

15. Bankamerica Company, Syndicate Manager (Bankamerica Co., Blyth and Co., Dean Witter and Co., Weeden and Co., R. W. Pressprich and Co.), to Board of Directors, Aug. 31, 1932, Keesling Papers.

since it authorized an interest yield of more than five percent, the limit permitted by the Bridge Act of 1923.¹⁶

The opinion of the bond consultants created another impasse, threatening again to delay construction. In seeking ways and means of keeping the Bankamerica offer alive, some of the directors proposed that the contractors absorb the discount on the bonds. This plan was quickly vetoed by the two largest bridge contractors.¹⁷ This avenue closed, the directors returned to the Bank of America to discuss their financial dilemma. In November the California banking firm made a new bid. In this revised offer, Bankamerica suggested that the original tender to buy \$6,000,000 in bonds be approved subject to a court ruling as to the legality of the interest rate. In the meantime, the syndicate offered to purchase immediately \$3,000,000 worth of securities at the approved rate of five percent, with a second \$3,000,000 lot in March 1933, also at five percent. The second purchase would be canceled if the original \$6,000,000 bid were declared legal.¹⁸ This offer was accepted quickly in its entirety by the district. In November 1932 the proceeds from the first bond sale were placed on account with the Bank of America and in December a friendly suit was instituted

16. Keesling, Daily Calendar, Aug. 31, 1932; Sept. 1, 1932; Oct. 10, 1932, Keesling Papers.

17. Ibid., Nov. 4, 1932; San Francisco Chronicle, Nov. 4, 1932.

18. San Francisco Chronicle, Oct. 25, 27, 1932; Nov. 1, 1932.

for the purpose of determining the legality of the original bid.

The Bank of America and the Depression

The decision of the Bank of America to raise its bond bid so that construction could begin was another chapter in the amazing story of an extraordinary financial institution. By the fall of 1932, capital for investment purposes had virtually disappeared throughout the nation. National income for 1932 was down to \$41,000,000,000, about one-half of the 1929 figure. The number of unemployed wage earners had reached an estimated thirteen to fifteen million. The nation's banks--the bulwark of the economy--were closing their doors at an alarming rate. The lack of effective national leadership following the presidential election in November 1932 added to the deteriorating situation.¹⁹

The economy of the San Francisco Bay area was, by and large, a carbon copy of the national scene. In Marin County, for example, unemployment in July 1932 had reached a critical stage. The number of persons on relief had risen sharply and local officials appealed to the more fortunate citizens for immediate contributions.²⁰ Across the Golden Gate in San Francisco, Frank C. MacDonald, chairman of the State Building Trades Council, estimated that there were 50,000 jobless in the Bay area.²¹

19. James and James, Biography of a Bank, pp. 346-47.

20. Marin Journal, July 28, 1932. Articles in the Marin

As on the national scene, effective leadership in California public life was absent. Governor James Rolph was no match for the exigencies of the time, and city officials in the Bay region found it difficult to take remedial action since local taxes already were considered too high. In the California business realm, leadership and confidence also were lacking until A. P. Giannini unveiled his plan for recovery and prosperity.²²

A. P. Giannini, founder and chairman of the board of directors of the Bank of America, National Trust and Savings Association, had an unorthodox solution for California's (and the nation's) economic woes. Beginning in 1932, Giannini launched his "Back to Good Times" campaign, coining such slogans as "Keep Your Dollars Moving," "California Can Remove the Nation's Blue Glasses," and the like. He issued several statements in which he expressed confidence in the courage and resourcefulness of the American people to meet the existing crisis. In particular, said Giannini, "I have unbounded faith in the people and resources of California. A movement such as ours, can give the momentum so necessary to complete restoration of public confidence and normal business conditions."²³ As a practical illustration of his

Journal for the last six months of 1932 describe the economic scene in that county.

21. San Francisco Chronicle, Nov. 23, 1932.

22. Robert G. Cleland, California In Our Time: 1900-1940 (New York, 1947), pp. 209-10.

23. James and James, Biography of a Bank, pp. 356-57.

philosophy, the Bank of America, in 1932, purchased numerous local bond issues, the largest of which was the \$6,000,000 Golden Gate bridge offer.²⁴

When the bond consultants declared Bankamerica's initial bond bid illegal, Giannini invited Director Keesling to talk over the financial problem with bank President Will F. Morrish. At this meeting the groundwork was laid for the new Bank of America bid which contained the five percent interest rate authorized by the Bridge Act of 1923.²⁵ The decision to take the entire \$6,000,000 issue at the lower interest rate, said President Morrish, was motivated by the desire ". . . to expedite the bridge building and put men to work, thus alleviating the unemployment situation over the winter."²⁶

The sale of the bridge bonds in the fall of 1932, however, occurred during the "banking crisis"--that period between the presidential election in November 1932 and the inauguration in the following March. After the fall elections, the drain on banks throughout the country grew in intensity. Giannini and other California financial experts watched the situation closely, particularly in Southern California where many transplanted Midwesterners lived. It was Sacramento, however, where the bank panic first struck.

24. Ibid.

25. Keesling, Daily Calendar, Oct. 31, 1932; Nov. 3, 1932, Keesling Papers.

26. San Francisco Chronicle, Nov. 4, 1932.

There, on January 7, 1933, the California National Bank and its saving affiliate failed to open. This event precipitated a full-fledged run on all Sacramento banks, including the five branches of the Bank of America.

To meet this emergency, Giannini transferred, in a matter of hours, \$13,000,000 in cash from San Francisco to Sacramento. With money on hand to meet withdrawal demands, public confidence was gradually restored. After a few days, the panic weakened, then died out, leaving all the Bank of America branches still in business. All of the other banks, too, survived.

The month of February turned out to be the worst month in the history of American banking. As the rate of withdrawals continued to climb, banks in state after state were forced to close their doors. By March 4, when Franklin D. Roosevelt took office, the nation faced an economic-political crisis in many respects comparable in gravity to that which faced Lincoln in 1861 when he succeeded to the White House. To meet the banking emergency, Roosevelt proclaimed a banking holiday, beginning on March 6.²⁷

Up to this point the Bank of America had weathered the economic storm and it had succeeded in keeping all of its branches open. With the declaration of the national bank holiday, however, Giannini ran into an unexpected problem in the form of an adverse financial report from the

27. James and James, Biography of a Bank, pp. 362-64.

Twelfth Federal Reserve District to the United States Secretary of the Treasury. On the basis of this unfavorable report the Treasury Department issued an order prohibiting the reopening of the Bank of America on March 13, the date solvent banks in the twelfth district were scheduled to resume business. Refusal to permit the fourth largest bank in the United States to continue operations at that time would have given California and the nation a tremendous psychological and financial setback; as far as the bridge district was concerned, it meant that all cash balances would be frozen, leaving the district unable to meet current obligations.²⁸

Fortunately, the original order from the Treasury Department was not allowed to stand. Through the intercession of California senators Hiram Johnson and William Gibbs MacAdoo and publisher William R. Hearst, plus the tireless persistence of Giannini himself, the Treasury Department was persuaded that the adverse report submitted by the Twelfth Federal Reserve District was based on financial statements over twelve months old and did not reflect the true status of the Bank of America. With only a few hours remaining before the March 13 deadline, the closure order was rescinded and the Bank of America opened its doors for business.²⁹

28. On March 2, 1933, proceeds from the second \$3,000,000 bond installment were deposited in the main office of the Bank of America in San Francisco. Keesling, Daily Calendar, March 2, 1933, Keesling Papers.

29. James and James, Biography of a Bank, pp. 369-74.

The reopening of the Bank of America made possible the continuation of the bridge construction program under way since January 1933. In April, the California State Supreme Court issued a ruling upholding the right of the district to sell bonds at a rate which would give the purchaser a yield of more than five percent.³⁰ Following the court decision, negotiations were renewed with the bond syndicate, headed by Bankamerica, for the purpose of disposing of additional issues. Shortly, an agreement was drawn up between the district and the investment houses in which the latter agreed to market the remaining \$29,000,000 in bonds at par value. By the end of 1933, \$9,000,000 in bridge bonds had been transferred to this group.³¹

South Pier and Sale of Bonds

In spite of Giannini's optimistic statements about the return of prosperity, the economic situation remained critical. In December 1933, the Bank of America informed the district that there was no possibility of further bond purchases except at a heavy discount. At this moment the district had approximately \$1,500,000 cash on hand, sufficient to meet obligations for the next two months. Faced with the immediate need to raise more capital, the directors turned again to Washington for aid. This time they sought

30. San Francisco Chronicle, April 13, 1933; Keesling, Daily Calendar, April 12, 1933, Keesling Papers.

31. W. W. Felt, Jr., "The Golden Gate Bridge" (San Francisco, n.d.), p. 3, Keesling Papers.

funds through the Public Works Administration, a federal agency which had been established in 1933 to provide work for the growing army of unemployed wage earners through an extensive program of public works.³²

By now it was obvious that the south pier was the weakest link in the entire project, a fact that became all the more apparent as the bridge district officials undertook their second attempt to obtain federal aid. Construction work on the south pier, which began early in 1933, was located 1,100 feet offshore in sixty-five feet of water. In this storm-swept location, the builders had to cope with heavy ground swells, a tidal current of up to seven knots, and a high-velocity cross-wind. By the end of the year two mishaps, both caused by heavy seas, had put the pier construction far behind schedule. During this troublesome period, two allegations concerning the south pier gained currency. One was that the site of the pier was in truth a steep slope and not the generally level area as depicted by the bridge engineers. The other allegation was that divers had discovered a large cavern in the vicinity of the site which would substantially weaken the pier foundations. Some credence was given these rumors when the bridge directors announced in December 1933 that a revised construction plan for the south pier at an additional cost of \$330,000 had been approved.³³

32. San Francisco Chronicle, Dec. 28, 1933; San Francisco

By January 1934, at the time the directors were preparing the application for a Public Works Administration grant, a full-fledged row over the safety of the south pier was under way within the board of directors and in the press. Defending the project, the district engineers--Strauss, Ammann, Moisseiff, and Lawson--disputed the claims of the opposition, pointing to numerous engineering surveys which had confirmed the adequacy of the pier foundations. To most of the directors the entire argument represented a last-ditch effort on the part of the opposition to subvert the bridge project. Chairman Keesling of the building committee called the bridge opponents traitors to San Francisco--diehards who refused to let progress take its course.³⁴ Another director, A. R. O'Brien, stated his position with equal candor:

Every member of the board of directors knows, full well, his job is a thankless one. When they have built the greatest bridge in the world and traffic is flowing over it, probably not one will ever get a bit of credit for what they did, but that should not make a particle of difference.

The thing the board of directors of the Golden Gate bridge must do now is not to let the bridge enemies run them off their feet.³⁵

Regardless of their personal feelings on the matter, the directors called for another study of the foundations--the third since the district was formed in 1929. On

News, Dec. 29, 1933, Baumberger to Reed, Jan. 30, 1934, Keesling Papers.

33. San Francisco Chronicle, Aug. 15, 1933; San Francisco News, Dec. 14, 1933; San Francisco Examiner, Dec. 17, 1933.

34. San Francisco Examiner, Jan. 11, 1934.

35. Ukiah Republican Press, Jan. 17, 1934.

January 2, 1934 an outside engineering concern was hired to send divers down to inspect the site. Three weeks later a report was submitted to the district in which the south pier site was given a clean bill of health. No caverns or steep declivities were located, and in strong language the engineering report denounced the persistent rumors of faulty pier foundations.³⁶

Following the receipt of this favorable engineering study, the directors forwarded their loan application to the district office of the Public Works Administration in Los Angeles, and General Manager Reed traveled to Washington personally to present the district's case.³⁷ In March 1934, Senator Hiram Johnson and Representative Richard Welch forwarded word that at least a portion of the district's request would be awarded.³⁸

Many local engineers and scientists, however, were still not convinced that all was well with the bridge. One such scientist was Bailey Willis, emeritus professor of geology at Stanford University. In April 1934, Willis unleashed a sweeping denunciation of the entire bridge project, with special emphasis on the weak foundations for the south pier. In a letter to state Public Works Administration officials

36. San Francisco Chronicle, Jan. 21, 1934; San Francisco News, Feb. 9, 1934; Keesling, Daily Calendar, Feb. 3, 4, 1934, Keesling Papers.

37. Golden Gate Bridge and Highway District, Memorandum of Minutes, Jan. 3, 1934; San Francisco News, Feb. 16, 1934; San Francisco Chronicle, Feb. 22, 1934.

38. San Francisco Examiner, March 23, 1934.

considering the district's application for a loan, the Stanford authority stated that according to information supplied him by the U. S. Coast and Geodetic Survey the south pier was being constructed on a steep slope in an area where slides were common. In time, the weight of this massive concrete pier would cause another slide which would, according to Willis, ". . . block the entrance to San Francisco harbor, change the tidal prism and consequently the level of tides, and would seriously affect the future of the city, as well as cause the loss of the bridge." His solution, involving untold millions, was to excavate the foundation of the pier down to the floor of the channel, some 348 feet below sea level.³⁹

Willis followed up his initial attack with a visit to Washington where Public Works Administration officials were quick to respond to his charges. They informed the bridge directors that before any loan could be approved, Willis' statements would have to be investigated by federal officials. Further, Senator Johnson, a valued friend of the bridge since 1916, served notice that he had serious doubts as to the future safety of the bridge and could not wholeheartedly support their money request.⁴⁰

39. Golden Gate Bridge and Highway District, Investigation of Criticism of the Foundation by Dr. Bailey Willis (San Francisco, 1934), p. 5.

40. Senator Hiram Johnson to Filmer, May 1, 1934; Filmer to Johnson, May 10, 1934, Keesling Papers; San Francisco News, April 21, 1934.

The need for funds in the spring of 1934 appeared particularly urgent to the directors, and, therefore, they looked for ways to prove to Washington that Willis' allegations were groundless. In May, Director Keesling went to the nation's capital where he, along with Congressman Welch, sought to present the other side of the pier foundation question. Keesling spent five days in Washington in a fruitless attempt to meet with high government officials. When he left, he was convinced that if the district's welfare was to be properly and adequately cared for it would be necessary to have a counsel permanently assigned in Washington.⁴¹

As the summer months passed, Willis' attacks continued. In September, he sent a telegram to the bridge directors asking them to halt construction immediately.⁴² Not receiving any satisfaction, Willis turned to the bond syndicate and requested that its members reconsider their plan to buy additional bridge bonds.⁴³

In view of the Stanford professor's persistent and determined effort, the directors decided on one final attempt to win full exoneration for their project. An open hearing was conducted in October at which time Professor

41. Keesling, Daily Calendar, May 31-June 4, 1934, Keesling Papers.

42. Willis to Board of Directors of Golden Gate Bridge and Highway District, Sept. 19, 1934, Keesling Papers.

43. Willis to Charles Blyth of Blyth and Company, San Francisco, Oct. 11, 1934, Keesling Papers.

Willis was asked to present his analysis of the pier foundations. Willis accepted the invitation. Again he repeated his contention that the south pier was being constructed on a slippery incline on the "edge of an abyss."⁴⁴ In answer to questions from the district engineers, however, Willis admitted that he had never made a personal inspection of the site and had not availed himself of the recent engineering studies made by the district or outside companies. Instead, he had based his observations on data obtained from an outdated U. S. Coast and Geodetic Survey map. In some instances, the bridge engineers charged, Willis' contour drawings of the channel were as much as sixty feet in error.⁴⁵

In spite of a tactical victory for the bridge proponents, the hearings did not change the status of the district's application before the Public Works Administration. Washington officials were inclined to accept the veracity of Willis' charges and, after eight months of negotiations, they turned down the district's request for federal funds.

44. San Francisco Examiner, Oct. 9, 1934.

45. Andrew C. Lawson and Allan E. Sedgwick to Board of Directors, Nov. 13, 1934, Keesling Papers. The motive for Willis' attacks was never clearly established. He certainly must have been aware of the foundation problem for many years, since it had been debated publicly on previous occasions. His friendship with members of the Joint Council of Engineering Societies of San Francisco suggests that he may have been influenced by their long-standing antagonism to the Golden Gate bridge. Some support for this view can be found in the fact that Willis displayed a clay model of the Golden Gate bridge and channel before the Joint Council in 1934.

46. Palo Alto (Calif.) Times, Oct. 10, 1934; San Francisco

The Bond Syndicate Returns

During the furor over the south pier and the application for a loan from the Public Works Administration, the bridge directors had been in close contact with the bond syndicate, headed by Bankamerica. Fortunately for the district, members of the syndicate had not perceptibly been swayed by the anti-bridge arguments and had even participated in a public information campaign to present a complete picture of the construction problems.⁴⁷

Early in January 1934, when it appeared certain that district funds would be exhausted before federal aid arrived, Director Francis Keesling approached President Will Morrish of the Bank of America and asked that the syndicate agree to dispose of a small offer so that construction would not be interrupted. This request followed by only a few weeks the statement by Bankamerica that future bond purchases could only be made at a heavy discount. In this short interval, however, the bond market had shown signs of strengthening. Consequently, in February, the syndicate purchased \$1,500,000 worth of bonds at a price only slightly lower than the last purchase made in 1933.⁴⁸

Examiner, Oct. 24, 1934; San Francisco News, Dec. 12, 1934. See also Keesling to Ray Lyman Wilbur, president, Stanford University, Nov. 1, 1934, Keesling Papers.

47. Keesling, Daily Calendar, March 12, 1934, Keesling Papers.

48. Ibid., Jan. 18, 1934; Golden Gate Bridge and Highway District, Memorandum of Minutes, Feb. 21, 1934, Keesling Papers; San Francisco Chronicle, Feb. 22, 1934.

Two months later, in April, when Willis' allegations further undermined the bridge's reputation, the bond houses stepped forward with another timely purchase. Throughout the remainder of 1934 while the district awaited the outcome of their federal application, the syndicate bought other small offers, sufficient to enable the builders to make steady progress.⁴⁹

In January 1935, a block of bridge bonds was sold at a premium for the first time. Thereafter, the pressure on the district to seek federal aid for bridge work faded, and the bonding houses confidently bought the remaining bridge securities. By the time the last bonds were sold in 1937, the district had received \$34,613,000 net for \$35,000,000 face value. The average interest rate on the par value of the entire bond issue was only 4.34%, well below the five percent authorized.⁵⁰

Summary

No other phase of the bridge construction was of greater moment than the timely disposal of the bonds at an acceptable price. The great depression and arguments concerning the reliability of the south pier foundations made the job of financing extremely difficult and at times threatened to halt construction.

49. Golden Gate Bridge and Highway District, Memorandum of Minutes, April 11, 1934; May 29, 1934; Dec. 12, 1934, Keesling Papers.

50. San Francisco Chronicle, Jan. 17, 1935; Golden Gate

Giannini's "Back to Good Times" campaign in 1932,
followed by the Bank of America's purchase of the bridge
district's original bond offering, also in 1932, ushered in
the construction period. From that moment forward, the bond
syndicate made timely purchases which enabled the bridge
district to continue construction without interruption.

Commenting on the significance of the role played by
the Bank of America and the other members of the bond syndi-
cate, John R. Ruckstell, treasurer of the bridge district,
observed that the purchase of bonds in the fall of 1932 gave
the district the necessary financial recognition in a world
stricken by an economic collapse. "The public" continued
Ruckstell, "now saw that the bridge would be built; the tax-
payers' earlier confidence in the enterprise was now con-
firmed; unemployment looked forward to large relief; merchants
could foresee business improvement; and San Francisco was now
to become one of the most prominent centers of revived activ-
ities on a large scale in the United States."⁵¹ In a similar
statement, the financial editor of the San Francisco Chron-
icle credited the Bank of America with a daring financial
investment which not only proved to be profitable to the
syndicate, but contributed materially to the recovery of the
Bay region.⁵²

Bridge and Highway District, Third Annual Report of Opera-
tions, 1939-1940 (San Francisco, 1940), p. 6.

51. "Financing the Golden Gate Bridge," by J. R. Ruckstell,
May 10, 1935, Keesling Papers.

52. San Francisco Chronicle, June 27, 1934.

Federal aid for the bridge failed largely because of the uncertainties surrounding the construction plans for the south pier. Attacks on the San Francisco pier footings began in 1927 and, to a greater or lesser extent, have continued to the period of this writing. The most celebrated bridge antagonist in this regard, Bailey Willis, was blamed directly for the failure of the district in 1934 to obtain a Public Works Administration loan.⁵³

Bailey Willis

53. Keesling to Ray Lyman Wilbur, Nov. 1, 1934, Keesling Papers. Although no federal funds were used to build the bridge itself, small sums were later given to aid the district in the construction of feeder roads. The Works Progress Administration in 1935 granted approximately \$150,000 for the Sausalito lateral on the Marin side. A smaller sum was appropriated for the San Francisco approaches. See San Francisco News, Nov. 27, 1935.

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CHAPTER VI

CONSTRUCTION PERIOD, 1933-1937:

BUILDING THE BRIDGE

Introduction

The low bids which were submitted in June 1931 came to a total of \$24,455,000, two and two-thirds millions less than Strauss' 1930 estimate.¹ Not until the bond litigation had been resolved, however, was it possible to sign firm contracts. Accordingly, agreements were entered into with each of the prime contractors whereby the district had the option of accepting any or all low bids within a six-month period, beginning with July 1931. In return, the district pledged to sell a specified amount of bonds. In January 1932, these arrangements were extended for another six months. By the following July, with the outlook for an end to the legal battle more remote than ever, the directors released all bidders and awaited the California State Supreme Court's decision.²

1. San Francisco Chronicle, June 17, 18, 1931. Strauss' 1930 estimate for bridge construction was \$27,165,000. See Golden Gate Bridge and Highway District, Vol. I: Report of the Chief Engineer, p. 71. The total of the low bids submitted in June 1931 was \$24,455,000, or \$2,710,000 less than the 1930 figure.

2. Golden Gate Bridge and Highway District, Memorandum of Minutes, Jan. 13, 1932, Keesling Papers; San Francisco Examiner, Aug. 10, 1932.

Less than a month following the release of the contractors, the litigation suddenly was resolved and the way cleared for construction. However, instead of asking the successful bidders to renew their former offers--and they all expressed a willingness to do so--the building committee decided to ask for new bids on all but one of the eleven prime contracts. The drop in commodity prices and labor costs, reasoned the directors, probably would be reflected in lower bids.³

The new offers, which were opened on October 14, 1932, confirmed the committee's estimate of the changes which had taken place in the nation's economy. The latest cost figure for bridge construction dipped to \$23,850,000, two-thirds of a million less than the previous bid.⁴ The only contract which had not been readvertised was for the structural steel. Here, McClintic Marshall Corporation, a subsidiary of Bethlehem Steel Company,⁵ had offered to supply all the steel for the towers and suspended structure for ten and one-half million dollars. Although over a year old, the price was considered reasonable, thus the district entered into negotiations with the steel firm in the hope that they would be willing to extend their original offer.⁶

3. San Francisco Examiner, Aug. 10, 1932; San Francisco News, Sept. 22, 1932.

4. San Francisco Examiner, Oct. 15, 1932. The exact total was \$23,843,904, or \$668,939 less than the June 1931 figure.

5. Hereafter the name of the parent company, the Bethlehem

During the months of November and December details of the various contracts, including the steel agreement, were worked out between representatives of the individual companies and the district. By January 1933, all major contracts had been awarded and signed.⁷

Ground-Breaking Ceremonies

The official ceremonies marking the beginning of construction took place in San Francisco on February 26, 1933. Not since the Panama Pacific Exposition in 1915, which celebrated the opening of another famous avenue of transportation--the Panama Canal--had any event generated so much public interest and enthusiasm. Approximately 200,000 people were on hand to witness the colorful parade up Market Street and the ground-breaking ceremonies at Crissy Field. Units of the Army and Navy, official dignitaries from British Columbia and Mexico, delegations from several Western states, and numerous local civic groups and business organizations participated in the festivities. A message from President Hoover and speeches by Mayor Rossi and Governor

Steel Company, will be used.

6. Golden Gate Bridge and Highway District to McClintic Marshall Corporation, Aug. 17, 1932, Keesling Papers. Keesling suggested another reason behind the building committee's reluctance to readvertise the steel bid--the possibility of price collusion between Bethlehem and United States Steel Corporation, the only two companies capable of filling the order. See San Francisco News, Sept. 22, 1932.

7. San Francisco Chronicle, Nov. 5, 1932; San Francisco Examiner, Jan. 12, 1933.

Rolph heralded the project as one of the last links in a great Pan-American highway which someday would stretch from Alaska to South America.⁸

TABLE II
BRIDGE CONTRACTS, SUCCESSFUL BIDDERS, AMOUNTS⁹
October 1932

Contracts	Bidders	Amounts
Steel Superstructure	McClintic Marshall Corp.	\$10,424,000
Steel Cables, Suspenders & Accessories	John A. Roebling's Sons Company	5,855,000
San Francisco Pier and Fender & Marin Pier	Pacific Bridge Company	2,235,000
Anchorage & Piers of Approach Spans	Barrett & Hilp	1,859,855
Steel Superstructure, S.F. & Marin Approaches	J. H. Fomeroy & Co., and Raymond Concrete Pipe Company	934,800
Presidio Approach Road	Eaton & Smith	996,000
Paving of Main Span	Barrett & Hilp; Pacific Bridge Company	555,000
Electrical Work	Alta Electric & Mechanical Company	154,000
Sausalito Approach Road	59,780 ^a
	Total	<u>\$23,843,435</u>

^aNo contract awarded at this time. Eventually constructed as a WPA project, with contributions from the district.

8. San Francisco News, Feb. 27, 1933; San Francisco Call-Bulletin, Feb. 27, 1933; San Francisco Chronicle, Feb. 27, 1933.

9. San Francisco Chronicle, Oct. 15, 1932; Strauss, Golden Gate Bridge, p. 48.

Changes in Bridge Design, 1917-1937

The construction site for the bridge had been the object of intense study by the chief engineer, Joseph Strauss, since 1917; the year City Engineer M. M. O'Shaughnessy first broached the idea to him. The design, alignment, location of piers, and the principal dimensions all had been carefully planned and plotted by Strauss in the ensuing years.

In his 1921 proposal to San Francisco, the chief engineer placed the bridge between Fort Point on the San Francisco side and Lime Point on the Marin side. Subsequent studies confirmed the validity of this alignment, since it was the narrowest point in the channel and provided the best location for the construction of the approach roads. The span design was to be a combined cantilever-suspension bridge with a center span of 4,000 feet and two side spans of 1,320 feet each. The center span would have a vertical clearance of 200 feet. To support the two twenty-inch cables, from which the suspended structure would be hung, two massive steel towers, each extending 950 feet into the sky, would be constructed. The bridge would be eighty feet wide, sufficient for two transit lines, four vehicular lanes, and two pedestrian walks.¹⁰

By 1932, additional geodetic surveys and engineering studies, plus advancements made in the science of bridge

10. Strauss and O'Shaughnessy, Bridging the Golden Gate, p. 9. See p. 35 for a picture-drawing of Strauss' original design.

building itself, prompted Strauss to make some modifications and deletions. The most significant change was to substitute a full suspension design for his original cantilever-suspension plan. In this regard, Strauss was one of the last eminent bridge authorities to acknowledge the progress which had been made in the science of metallurgy and the art of building long-span bridges. By 1920, many prominent bridge experts had stated that a 5,000-foot suspension span was possible. However, Strauss steadfastly opposed this view until the latter part of the twenties, at which time he reversed his earlier plans and called for the construction of a clear suspension span. L
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Another change was in the location of the two main piers. Foundation borings made in 1930 confirmed earlier assumptions as to the adequacy of the rock formations in the general area of the pier sites. However, soundings taken at the latter date revealed mistakes in earlier recordings regarding the slope of the channel floor on the Marin side. Instead of a shelf extending channelward some 1,300 feet, as reported in 1921, the north shore sloped off rapidly. Consequently, the length of the center span had to be extended from 4,000 feet to 4,200, with the south pier located 1,100 feet offshore and the north pier on the water's edge.

Other significant modifications of the original drawings included the lowering of the total tower height from 950 to 746 feet; increasing the size of the cables from twenty to thirty-six inches; widening the bridge from eighty

to ninety feet; and removing the rapid transit feature making room for a six-lane highway. To conform with federal requirements, the vertical clearance of the center span was raised from 200 feet to 220 above high water.

One important addition to the design, made by Strauss, called for the erection of pretentious portals at both ends of the bridge. As drivers approached the San Francisco entrance, they would pass through a massive portal structure dominated by two immense terminal pylons located on either side of the bridgehead. Overhead, spanning the distance between the two pylons, would be a monumental gilded wrought iron gate bearing the inscription "Golden Gate Bridge." The Marin portal, while imposing, was to be less elaborate. This idea never materialized and it was later abandoned in favor of more functional entrances.¹¹

Construction

With the letting of the contracts in the winter of 1932-33, the chief engineer and his staff made final plans for a construction schedule. This schedule was dependent on the manufacture and timely arrival of the 75,000-ton steel order from the East coast mills of Bethlehem Steel Company. In negotiations with officials of the ~~steel company~~, a plan was evolved whereby the Eastern mills manufactured the required items far in advance of the need. Once fabricated, they were loaded into cargo vessels and shipped via the

11. Golden Gate Bridge, Vol. I: Report of the Chief Engineer, pp. 47-57.

Panama Canal to San Francisco where they were unloaded and stored in Alameda, at a plant formerly occupied by the Bethlehem Shipbuilding Corporation. As the various fabricated pieces, shapes, and plates were required for construction, they were transferred by barge to the bridge site.¹²

TABLE III
CONSTRUCTION SCHEDULE, 1933¹³

<u>Unit of Work</u>	<u>Date of Completion</u>
Marin pier	September 1, 1933
San Francisco pier and fender	April 1, 1934
Anchorage base blocks and anchor blocks	October 1, 1934
San Francisco and Marin steel towers .	January 1, 1935
Cables	January 1, 1936
Anchorage weight block	June 1, 1936
Stiffening trusses and floor steel . .	June 1, 1936
Concrete pavement	December 1, 1936
Open for traffic	January, 1937

The basic structural divisions were the piers, anchorages and towers, cables, and the floor system. The Marin pier, the first major unit to be built, presented no unusual construction problems in itself. Before work could begin,

12. Letters, G. H. Blakeley, president, McClintic Marshall, to Filmer, April 24, 1933, Keesling Papers; F. A. Strouce, general manager, Bethlehem Steel Company, to author, June 28, 1956. Steel for the Golden Gate bridge was produced in four mills located in the following cities: Bethlehem, Steelton, and Pottstown, Pennsylvania, and Sparrows Point, Maryland. The last mentioned plant was a tidewater mill in the Chesapeake Bay from which ships could be loaded directly.

13. Strauss, Golden Gate Bridge, pp. 122-23.

however, it was necessary to build a 1700-foot access road down the side of a steep hill to the water's edge. Work on this project began in December 1932, and the road was ready for use by the following March.

The next step was to erect a U-shaped cofferdam out from the shore, enclosing the pier site. Then the water was pumped out, the site excavated, and the pier begun. By mid-1933, six months after work on the access road had started, the pier was completed and officially accepted by the district.¹⁴

Across the channel, on the San Francisco side, work on the south pier had been slowed by the need to develop special plans to meet the extraordinary conditions found there. The exposed nature of the site--the open sea, the swift tidal current, the prevailing winds, and the general agitated conditions of the water--required the adoption of unique construction techniques and procedures.

Strauss' original plan called for the erection of a 1,100-foot access trestle from the shore from which a large concrete fender-wall was to be constructed around the pier foundation. Inside this fender-wall, a pneumatic caisson¹⁵

14. San Francisco Chronicle, June 30, 1933. For a careful, detailed description of each stage of construction--the construction procedures and techniques, material used, and the problems encountered--see Strauss, Golden Gate Bridge, pp. 78-246. An adequate account, but of less value since it was written before the bridge was completed, is found in E. Cromwell Mensch, Golden Gate Bridge (San Francisco, 1935).

15. Pneumatic caisson: A watertight chamber used for underwater construction work.

was to be placed and used to excavate the site and construct the pier.

Twin disasters, however, forced Strauss to modify these plans. The first change was made as a result of a storm in November 1933 in which several hundred feet of the access trestle were swept away.¹⁶ Work on a new, stronger structure was begun immediately and by March 1934 it was completed to the site of the proposed pier. Large metal fender frames were then lowered from the trestle to the channel floor and filled with concrete. This operation was repeated dozens of times until the fender ring, except for one end, had been raised to its pre-planned height of fifteen feet above water. Through the opening in the fender, the pneumatic caisson was towed and moored.¹⁷

At this point a second disaster beset the bridge builders. Before the fender ring could be closed and work commenced on the pier, high winds and heavy seas caused the caisson to strike the walls of the fender with great force. The possibility that this battering action would destroy the caisson and at the same time do considerable damage to the fender forced the engineers to remove the caisson. This operation accomplished successfully, Strauss abandoned the caisson construction concept, closed the fender, and poured concrete directly into the pier base.¹⁸

16. San Francisco News, Dec. 14, 1933; San Francisco Chronicle, Dec. 14, 1933.

17. San Francisco News, Oct. 9, 1934.

18. San Francisco Chronicle, Oct. 10, 1934.

By December 1934, the pier surface had been raised to within thirty-four feet of the water level. At this point, with the concrete fender-wall serving as a cofferdam, the sea water was pumped out and the remainder of the pier erected under dry-land conditions. In January 1935, workers completed the Herculean task. The final dimensions of the San Francisco pier were impressive: from an average depth of sixty-five feet below the surface, the pier had been raised to forty-four feet above the water; at its base, the pier enclosed an area of 155 by 300 feet--approximately the size of a football field.¹⁹

Construction of the steel towers began first with the Marin spire, then with the San Francisco tower. The function of the two towers was to support the 4,200-foot center span and the two 1,125-foot side spans through the use of two thirty-six-inch (diameter) steel cables. In addition to the weight of the structural members, the towers had to be capable of withstanding the weight of cars and trucks and the force of wind and earthquake. To ensure the required strength and stability, each tower was constructed of prefabricated steel sections called "cells." These cells were piled, box-like, one on top of the other and riveted together. Fewer and fewer cells were used as the tower tapered to its height of 690 feet.²⁰

19. Ibid., Dec. 4, 1934; Jan. 10, 1935.

20. Strauss, Golden Gate Bridge, pp. 90-105.

Steel for the largest steel unit ever assembled began arriving from the East in March 1933. Work on the Marin tower commenced in June 1933 and was finished in May 1934.²¹ The delay in the San Francisco pier construction postponed the erection of the south tower by about eight months. After the first steel cells were riveted into place in January 1935, however, work progressed rapidly and the tower was ready for cables by the end of the following June, only six months behind schedule. Each tower contained over 22,000 tons of carbon silicon steel and some 600,000 field-driven rivets.²²

As soon as the towers were finished, the cable contractor, John A. Roebling's Sons, began the challenging task of spinning the cables. Design specifications called for two cables, each 7,650 feet in length from anchorage to anchorage. Each contained over 27,000 wires arranged in what Strauss called the conventional hexagonal cross-section. In the last step, the thirty-six-inch cables were compressed into a circular shape, then bound with a wire rope.²³

Again, the unprecedented dimensions of the span, coupled with the seaward exposure of the site required new solutions to the problem of stringing the cables. The wire

21. San Francisco Chronicle, March 28, 1933; San Francisco Examiner, May 5, 1934.

22. San Francisco Chronicle, Aug. 3, 1935.

23. Each cable was made of 27,572 wires, grouped into 61 strands of 452 wires each. Strauss, Golden Gate Bridge, pp. 106-107, 151-72.

for the cable had been drawn and galvanized in Roeblings' Trenton, New Jersey, plant. From there it had been shipped by water through the Panama Canal to a tidewater reeling plant in the San Francisco Bay.

The stringing operation was accomplished through the use of four separate spinning carriages, two working from each anchorage. Following the installation of the construction cables, upon which the carriages traveled, spinning began. As one carriage left its anchorage base and proceeded up and over the tower and down to the center of the main span, it was met by another carriage bringing wire from the opposite anchorage. The bights were exchanged, and each carriage returned to its respective starting point. In August 1935, the first wire rope was successfully strung between the two towers. Spinning continued from that date forward without incident, and by May 1936 both of the 7,650-foot cables were completed.²⁴

The floor of the bridge was erected on steel stringers hung from the main cables. A considerable amount of study had been devoted to building the bridge floor, since pressures from the prevailing winds and seasonal storms would cause a considerable amount of sidesway plus some up and down motion. The bridge engineers determined that the center section should be constructed to withstand a downward deflection of eleven feet and a maximum upward motion of six feet.²⁵

24. San Francisco Chronicle, Aug. 3, 1935; May 21, 1936.

25. Strauss, Golden Gate Bridge, p. 73.

The building of the suspended structure began on June 18, 1936. Barges loaded with the various fabricated units were towed to the site from Alameda and the steel placed on specially built platforms at the base of each tower. Thence, the steel members were lifted to the road-bed level and were carried out to the construction scene. Crews worked outward from both towers, and, in November 1936, the two groups met at mid-channel. This spectacular achievement was marked by special ceremonies, as Bay area newspapers heralded the bridge "that couldn't be built."²⁶ This event, as in the case of all previous stages of bridge construction, had been covered in great detail by the papers. For a depression-minded public, the Golden Gate bridge and its counterpart, the Bay bridge, were symbols of progress and of better times to come.

Paving the roadbed, completing the side spans, and applying the innumerable finishing touches, all took place in the first few months of 1937. Opening day for traffic was set for the latter part of May, some five months after the date envisioned by Strauss in 1932.²⁷

Approach Roads and Traffic Reservoirs

Building the approach roads was of no less importance than the bridge itself, if the span were to fulfil its

26. San Francisco Chronicle, Nov. 19, 1936; Ukiah Republican Press, Nov. 25, 1936.

27. San Francisco Chronicle, Jan. 27, 1937; April 27, 1937.

primary purpose of providing an uninterrupted flow of vehicles. Furthermore, the Golden Gate span had been conceived and justified as a toll bridge, which meant that feeder roads, strategically placed to tap traffic reservoirs, would be of signal importance to the financial success of the structure.

The prospects of funneling traffic across the Golden Gate appeared unlimited. With San Francisco serving as the regional capital of a large portion of the West coast, the area tributary to the Golden Gate bridge, according to the bridge officials, included much of the region west of the Sierra Nevada and the Cascades. The engineers divided this vast hinterland into three general areas, or potential reservoirs, from which cars and trucks could be diverted to the Golden Gate bridge. The first, and most important, was the traffic carried by the ferries between San Francisco and Marin counties. This trade included both the daily commuters and the extensive holiday and weekend travelers into the Redwood Country. In addition to the anticipated annual increase in this traffic, experts predicted that the opening of the span would stimulate the purchase of automobiles in the Bay area, resulting in more holiday excursions on the part of city dwellers.

The traffic reservoir next in importance was the Sacramento to San Francisco route. Up to 1933, travel originating in the Central Valley of California, as well as trans-continental movement over United States highway routes 40

and 50, entered the Bay area via the Carquinez Straits, down the East Bay shore route to Oakland, and thence by ferry to San Francisco. To interrupt this well-established pattern, the bridge engineers proposed that the state develop a new highway system between Sacramento and the Marin bridgehead of the Golden Gate crossing. This highway would provide the traveler with a shorter route to San Francisco than presently in use. Also, the approach would be one of great scenic beauty, attracting an untold number of out-of-state visitors.

The last source--the through travel north and south on the coast--was much harder to evaluate. Lack of knowledge as to present and future road and highway conditions in the states of Oregon and Washington, said the traffic engineers, plus the uncertain role that the projected Pan American highway would play in the total travel scheme, made it difficult to extrapolate figures. This source, however, was considered an important potential revenue-producer and figured prominently in the vehicular forecasts.²⁸

Ferry statistics for the twenties; traffic checks; local, state, and national population trends since 1900; and a close study of other toll bridge projects formed the basis for estimating the number of vehicles which would cross the Golden Gate span. In 1937, the year the bridge was scheduled to open, the district experts estimated that 2,460,000

28. Golden Gate Bridge and Highway District, Vol. II: Traffic Analysis, pp. 18-20.

vehicles would use the span. The net income from tolls would amount to approximately \$600,000.²⁹

TABLE IV
BRIDGE DISTRICT INCOME STATEMENT, 1936³⁰
(Estimate)

<u>Sources of Revenue</u>	<u>Amount</u>
Vehicles (2,456,600 at 84.3¢ ea.)	\$2,200,310
Rapid transit passengers (5,380,500 at 4.7¢ ea.)	256,340 ^a
Concessions	35,000 ^a
	<hr/>
Gross Income	\$2,491,650
Operating Expense and Interest	1,900,000
	<hr/>
NET INCOME	<u>\$ 591,650</u>

^aWhen the projected traffic revenues were computed in 1932, the rapid transit and small business concessions were included in the estimate. Except for one restaurant, the transit and other concessions were deleted.

Building the Marin Approach

Three main approach roads to the bridgeheads were planned--two on the San Francisco side and one in Marin County. All were planned as four-lane roads. In the original contracts of 1932, the district budgeted for only one approach, on the San Francisco side. The other city approach was made the responsibility of San Francisco as a part of its own road construction program. Responsibility for building

29. Ibid., p. 23; Appendix A, p. 23.

30. Ibid.

the Marin access (Waldo grade) was assumed by the California State Highway Department.

Of the three approach highways, the Marin road presented the greatest problem, chiefly because of its cost and the fact that state and bridge district officials were in disagreement as to when and how to proceed. In July 1930, the State Highway Commission passed a resolution in which it agreed to finance and build the Waldo approach at an estimated cost of \$2,500,000. In December 1932, as bridge construction got under way, the highway commission reaffirmed its pledge. By the end of 1934, however, with bridge construction well advanced, the state still had not included the project in the highway budget.³¹

After 1932, bridge officials, newspapers, and civic organizations urged the state to begin building, since it was imperative that the road be ready for traffic when the span opened.³² In the state capital, meanwhile, times and attitudes had changed. From the first flush of enthusiasm for the project expressed in 1930, Sacramento had steadily retreated. Lack of funds in a deepening depression and heavy demands from other counties for highway and road improvements

31. Golden Gate Bridge and Highway District, Vol. I: Report of the Chief Engineer, pp. 100-101; file, "Approach Road, Marin," Keesling Papers.

32. Strauss to Earl Lee Kelly, State Highway Commissioner, Sept. 3, 1932; Strauss to John W. Howe, secretary, California Highway Commission, Jan. 4, 1934; James Reed to John W. Howe, June 13, 1934; Redwood Empire Association to Earl Lee Kelly, Nov. 16, 1934, Keesling Papers.

played a part in this changed attitude. To strain relationships further, the charge of "politics" was exchanged between directors of the bridge district and state highway officials.³³

Finally, in late 1934, the highway commission announced its intention of including the Waldo project in the next biennium budget (1935-1937). As the commission prepared to do so, however, the California State Legislature suddenly reduced the highway allocation by \$6,000,000, thereby eliminating, at least temporarily, prospects for state financing of the Marin approach. Seeking another solution to this problem, State Highway Commissioner Earl Lee Kelly turned to the federal government and the newly established Works Progress Administration, a federal agency which provided funds for public projects. In his request for federal aid for California, Kelly included a request for \$1,700,000 which would be used to construct a three-lane highway to the Marin bridgehead.³⁴

Kelly's announcement that the highway commission was pressing for the construction of a three-lane rather than a four-lane passage raised a storm of protests. A three-lane approach feeding into a six-lane bridge, said bridge officials,

33. San Francisco News, Dec. 8, 1934.

34. John W. Howe to W. W. Felt, secretary, Golden Gate Bridge and Highway District, Dec. 13, 1934; Clarence W. Morris, attorney, State Department of Public Works, to Felt, Sept. 13, 1935, Keesling Papers. San Francisco Chronicle, Sept. 14, 1935.

was unthinkable; many accused the highway commissioner of deliberately trying to undermine the success of the bridge.³⁵

Undisturbed by these verbal jarrings, Kelly followed through with his plan. Meeting with bridge leaders, he outlined the requirements for a Works Progress Administration loan. In the first place, the district would have to agree to make the span free once all indebtedness had been paid. Secondly, the federal government required that the state be given equal voice in the administration of the bridge during the period the bonds were being retired. In order for the district to meet these two conditions, said Kelly, the Bridge Act of 1923 would have to be amended. Since this could not be done prior to 1937 (when the next legislature convened), it would be necessary for the district to pass resolutions stating their intention of going to Sacramento and asking that these changes be made. In forceful language, the highway commissioner made it clear that the federal grant was the district's only hope. "If," Kelly concluded, "your Board does not see fit to enact these resolutions making this bridge ultimately free and enforcing the law making it free, we will go to the Legislature in 1937 and advocate that the bridge become free and that proper legislation be enacted to bring about the desired result."³⁶

35. Ukiah Republican Press, Sept. 18, 1935; San Francisco News, Oct. 15, 1935; Nov. 15, 25, 1935; Keesling, Daily Calendar, Oct. 18, 1935, Keesling Papers.

36. "Proposition submitted by Earl Lee Kelly, State Director of Public Works, to Directors, Golden Gate Bridge and Highway District in San Francisco, Nov. 20, 1935," Keesling Papers.

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There was never any doubt as to the answer the directors would give, although one of their strongest champions, the San Francisco Chamber of Commerce, urged that Kelly's plan be accepted. After all, said the Chamber, a three-lane road was better than no road at all and the latter prospect seemed a very real one in view of the money problems facing the state as well as the district.

The directors repeated their stand that the State Highway Commission was committed to construct the approach, a Works Progress Administration loan notwithstanding. The directors vehemently stated that they would never agree to a three-lane road nor consent to a plan giving the state equal voice in the bridge administration. This latter proposition, said Director Keesling, was not only contrary to the bridge act, but was opposed to the wishes of the voters who, in 1930, authorized the bridge directors to supervise and direct the construction of the \$35,000,000 project.³⁷

The majority of local officials, newspapers, and business and booster organizations sided with the bridge directors in this controversy. Mayor Rossi and the San Francisco Board of Supervisors sent letters to Kelly in which they contended that the state should fulfil its promises to the district. Kelly's reply to Rossi indicated a willingness to retreat from his earlier stand. He reaffirmed the state's

37. Keesling to George T. Cameron, editor, San Francisco Chronicle, Nov. 25, 1935, Keesling Papers; San Francisco News, Nov. 21, 1935.

pledge to construct an "adequate and fitting" road; if federal aid were not feasible money could, perhaps, be made available through readjustments in the state highway construction program.³⁸

The consistently strong support given the bridge directors in this contest with the State Highway Commission finally forced Kelly to capitulate on the entire issue. Within three weeks of his all-or-nothing ultimatum to the bridge officials, the highway commissioner announced that the state would finance a four-lane approach rather than attempt to force the district to accept state control in order to qualify for federal aid.³⁹

When the bridge opened in May 1937, the Waldo approach and one of the two San Francisco approaches were ready for traffic. Feeder roads had not developed as expected. The new highway from Sacramento to the Golden Gate bridge, envisioned by the district, remained in the planning stages with no indications that the highway commission would approve it. The San Francisco approach was also in need of additional access roads in order to tap a greater percentage of the motorists residing on the San Francisco Peninsula.

The Golden Gate Bridge and Business

The awarding of millions of dollars in bridge contracts had extraordinary economic meaning for the workers and

38. San Francisco News, Nov. 18, 30, 1935; San Francisco Chronicle, Nov. 18, 30, 1935; Ukiah Republican Press, Dec. 4, 1935.

39. San Francisco Examiner, Dec. 12, 1935.

businessmen in the Bay area, as well as to those in the steel centers in the East. The potential rehabilitating effects of these contracts were apparent to everyone.

In San Francisco, industry and labor leaders urged and pleaded with the bridge directors to award the contracts within the district whenever possible.⁴⁰ The San Francisco Building Trades Council went so far as to suggest that all structural steel be fabricated in the district; the San Francisco Chamber of Commerce requested that the directors set aside the accepted business practice of awarding contracts to the lowest, qualified bidder, if the choice were between two low bids in which the higher of the two was located within the district.⁴¹

The bridge directors, members of the local business community themselves, wanted to funnel money into the local economy. But their freedom to do so was strictly limited.
The fact that the West coast was industrially dependent upon Eastern steel mills was the most obvious reason why the largest contracts--structural steel and cables--had to be placed in the East. The ten and one-half million dollar steel order was awarded to the Bethlehem Steel Company in Pennsylvania.

40. Harry W. Wernse, Richmond Industrial Commission, to Golden Gate Bridge and Highway District, Aug. 28, 1931; George W. Gerhard, president, Civic League of Improvement Clubs and Associations of San Francisco, to Golden Gate Bridge and Highway District, Oct. 21, 1932, Keesling Papers; San Francisco News, Sept. 19, 1932.

41. Golden Gate Bridge and Highway District, Memorandum of Minutes, July 29, 1931, Keesling Papers.

In reply to demands by the San Francisco Labor Council and others to produce the steel units in plants within the Bay area, the steel company clearly stated the problem which faced it and the district. The character of the work involved in a project as large as the Golden Gate bridge, said a Bethlehem official, required unusual facilities and workmanship. There were only a few plants in the country--all in the East--where these conditions existed. Therefore it was necessary that substantially all the steel fabrication be performed in the East.⁴²

Bethlehem Steel Company had one small plant in the Bay area. From this mill in South San Francisco, a token order of approximately 500 tons, consisting of handrails and portal bracings, was produced. The remainder of the 75,000-ton order, however, came from Bethlehem's mills at Pottstown and Steelton, Pennsylvania, where the fabricating work was accomplished, and at Bethlehem, Pennsylvania and at Sparrows Point, Maryland, where plates and shapes were milled.⁴³

The letting of the cable contract further illustrated the economic urgency of the times. From the date the original bids were submitted in June 1931 to October 1932, when new bids were invited, the low bidder for the cables was the American Cable Company of Monessen, Pennsylvania. Throughout

42. G. H. Blakeley, president, McClintic Marshall Corporation, to Filmer, April 24, 1933; Blakeley to Filmer, May 9, 1933, Keesling Papers.

43. F. A. Strouce, general manager, Bethlehem Steel Company, to author, June 28, 1956.

this interval, the cable company and the citizens of Monessen hopefully waited for the bridge construction to begin. When the bridge district sought federal aid to meet their financial need, civic leaders of Monessen wrote to the Reconstruction Finance Corporation in Washington imploring them to approve the loan. The greatly depressed industrial and commercial conditions existing in their community, said Monessen's leading citizens, had resulted in widespread unemployment and numerous business failures. If, however, the Reconstruction Finance Corporation granted the bridge district a loan, the American Cable Company could begin work on the multi-million-dollar bridge order. The influx of new capital into Monessen's sagging economy would mean the creation of new jobs for thousands of the city's unemployed wage earners.⁴⁴

The bridge district failed to receive a federal loan and the American Cable Company was later released from its bid. In calling for new cable bids in the fall of 1932, the building committee had to decide among three low offers: one from the San Francisco Bay area and two from the East.

The low bidder from the West was the E. H. Edwards Company of San Francisco. A small concern compared to the size of the cable contract, the Edwards Company stated emphatically that it could perform the work. Furthermore, the San Francisco company asserted that it desperately needed the business. "Like many other local plants at the present

44. Carl Woodward, Mayor of Monessen, Pa., et al., to Reconstruction Finance Corporation, Aug. 8, 1932, Keesling Papers.

time," said an official of the company, "this one is idle, and it would be pitiful and wrong to permit it to remain so if possible to prevent it."⁴⁵ In deciding against the Edwards Company, however, the building committee faced the economic fact that, in spite of its claims, the San Francisco concern lacked the facilities, skilled workmen, and available raw materials adequately to complete the \$6,000,000 cable contract.

The two Eastern firms submitting low bids were John A. Roebling's Sons and the Columbia Steel Company. In considering these two bids, the building committee was under pressure from the San Francisco Chamber of Commerce, civic organizations, and newspapers to award the contract to Columbia. Columbia's bid was actually \$31,000 higher than that of Roebblings'; however, the former had a plant at Pittsburg, California, on the San Francisco Bay, where much of the wire could be manufactured with local labor. With the prospect that much of the multi-million dollar contract would be spent locally, the Chamber and other local interests sought to have the building committee waive the usual business procedure of awarding the contract to the lowest, qualified bidder and, instead, give it to Columbia.⁴⁶

John A. Roebling's Sons, apprehensive over the prospect of losing the contract, was quick to point out to the

45. Bill Worden, E. H. Edwards Company, to Keesling, Oct. 20, 1932, Keesling Papers.

46. San Francisco Chronicle, Oct. 20, 1932; San Francisco

bridge directors and the San Francisco Chamber of Commerce that it had maintained a San Francisco office for more than sixty years. Up to 1930, this local office had employed an average of one hundred workers. To reassure local interests that a large portion of the cable contract would find its way back into the Bay area economy, Roebling promised to construct a new Bay area plant and spend at least fifty percent of the contract locally.⁴⁷

In signing a contract with Roebling's Sons, the bridge district awarded the contract to the lowest, qualified bidder. The district also acknowledged the famed cable company's wide experience in making and spinning cables for suspension bridges.⁴⁸

The letting of the remaining bridge contracts afforded additional examples of the keen and sometimes desperate competition among members of the business community, many of whom faced bankruptcy because of the depression.⁴⁹ When

News, Oct. 20, 1932; San Francisco Business, XXII, No. 44, Oct. 26, 1932.

47. F. W. Hammond, John A. Roebling's Sons of California, to Board of Directors of Golden Gate Bridge and Highway District, Oct. 20, 1932; Hammond to Keesling, Oct. 21, 1932, Keesling Papers.

48. For an account of the building of the Brooklyn bridge, which established the name of Roebling in the annals of the bridge-building profession, see David B. Steinman, The Builders of the Bridge: The Story of John Roebling and His Son (New York, 1950).

49. An example of this competition was revealed in a letter from Henry J. Kaiser, representing Bridge Builders, Inc. In this letter Kaiser sought to refute rumors that Bridge Builders was financially weak and incapable of carrying out any contract. See Kaiser to Keesling, Nov. 1, 1932, Keesling Papers.

all the contracts had been signed, West coast industry received approximately \$7,500,000 of the \$24,000,000 in construction contracts. The remainder went to Bethlehem Steel Company and Roebling's Sons.⁵⁰

The Golden Gate Bridge and Labor

Bay area labor shared common cause with Bay area business in seeking a share of the monies spent on bridge construction. In 1930, far in advance of asking for bids, Frank C. MacDonald, president of the State Building Trades Council of California, and Bay area union leaders met with bridge officials to discuss working standards. All construction work, said the labor officials, should be based on an eight-hour day, Monday through Friday work week. Salaries paid should be based on the prevailing wage scale at the time contracts were signed. Also, union members should have job priority over non-union workers.⁵¹ Another basic cornerstone in labor's fair employment platform was the demand that only workers resident of the bridge district for one or more years be hired.⁵²

50. Supra, p. 133.

51. Frank C. MacDonald to Keesling, with inclosures, April, 1931, Keesling Papers. Other labor leaders present were Thomas Doyle and F. P. Nicholas, Building Trades Council of San Francisco; R. R. Corrie, Hoisting and Portable Engineers; Louis Dressler, Bridge and Structural Iron Workers; and Walter Ames and William Burke, Brotherhood of Painters.

52. Golden Gate Bridge and Highway District, Memorandum of Minutes, July 29, 1931, Keesling Papers.

Bridge officials accepted in principle the standards for working conditions enunciated by labor spokesmen. Three years later, in 1933, following the signing of contracts, bridge chiefs and labor leaders met and reaffirmed the main tenets of the earlier discussion. The forty-hour week, prevailing wage scales, and the one year local residence requirement for workers were all enforced during the construction period.⁵³

Throughout the building period there were no serious violations of this labor-management agreement. A few workers were discharged because they could not document the residence requirement; some out-of-district workers were hired to fill key skills. In the latter instance, it was clearly established by the contractors that it was necessary to hire skilled workers from the East to perform certain construction jobs.⁵⁴

The most urgent problem that faced the union leaders during the construction period concerned the alleged failure of some of the contractors to perform all the work they had agreed to do within the district. This issue came to a climax following the signing of the steel contract with Bethlehem Steel Company.

53. Keesling to MacDonald, April 23, 1931, Keesling Papers; San Francisco Chronicle, Jan. 31, 1933.

54. Golden Gate Bridge and Highway District, Memorandum of Minutes, July 26, 1933, Keesling Papers; San Francisco Chronicle, June 15, 1933, Jan. 13, 1934; San Francisco News, March 21, 1934.

In March 1933, Bethlehem announced to the bridge directors that it would be necessary to move its San Francisco storage facility to a plant in Alameda, on the Oakland side of the Bay.⁵⁵ San Francisco labor leaders, supported by newspapers and business groups seeking to prevent such an untimely development, protested the impending move. Alameda, they reasoned, was outside of the district and had contributed nothing financially to the bridge. San Francisco, on the other hand, had paid approximately eighty-five percent of the \$465,000 in bridge tax levies. Bethlehem's local base of operations should remain in San Francisco, said the union officials, where district labor could be hired at prevailing wage scales.⁵⁶

As the number of protests opposing the move increased, the board of directors, in May, appointed a special committee to survey Bethlehem's San Francisco facility to determine whether or not the move was justified. At the same time, a payment of \$400,000 due to the steel company

55. San Francisco News, March 9, 1933.

56. Golden Gate Bridge and Highway District, Memorandum of Minutes, April 12, 1933, Keesling Papers. The gravity of this situation was underscored by the number of San Francisco business and labor organizations which joined together to oppose Bethlehem's impending move. Included were: Industrial Association of San Francisco; Central Council of Civic Clubs; Civic League of Improvement Clubs; Down Town Association; San Francisco Labor Council; Association of Machinists; Boiler Makers and Iron Workers Union; San Francisco Chamber of Commerce; San Francisco Real Estate Board; Motor Car Dealers of San Francisco; and the San Francisco Junior Chamber of Commerce. See San Francisco Chamber of Commerce et al. to McClintic Marshall Corporation, June 2, 1933, Keesling Papers.

was withheld pending the report of the special committee. Apprised of the rising tide of local opinion against the impending change, Bethlehem officials met with bridge administrators to explain their reasons in detail.

Because of the size of the order, the steel company stated, six to eight acres would be needed to store the steel. Also the site would have to be adequately equipped with railroads and wharfare to unload the steel from ships and, in turn, reload on barges for re-shipment to the construction area. The only facility in the Bay region owned by Bethlehem that met those requirements was the Bethlehem Shipbuilding plant located in Alameda.⁵⁷ In spite of vigorous opposition, Bethlehem's San Francisco operation was moved to the new site. As a compromise, however, Bethlehem agreed to hire only district labor.⁵⁸

It was difficult to measure the number of jobs created by the bridge project. By the end of 1933, an average of 415 workers were employed directly at the construction site. In March 1936, at the height of the construction activity, the average number of workers approached 1,000.⁵⁹ Not included in these figures were the factory workers in the East and West where bridge contracts were being performed.

57. G. H. Blakeley, president, McClintic Marshall Corporation, to Filmer, April 24, 1933; Blakeley to C. E. Paine, April 28, 1933, Keesling Papers.

58. Golden Gate Bridge and Highway District, Memorandum of Minutes, June 10, 1933, Keesling Papers.

59. San Francisco Chronicle, Dec. 4, 1933; March 9, 1936.

Also not considered in the statistics were the additional employees hired by the small Bay area vendors who benefited by the general rise in business activity.

Labor statistics, however, were only a part--perhaps the least significant part--of the bridge story. Of immeasurable importance was the impact of the construction activity on the local citizen's frame of mind. The newspapers repeatedly referred to the San Francisco-Oakland Bay bridge and the Golden Gate span as "scenes of tremendous activity."⁶⁰ Labor leaders and business executives pictured San Francisco, from 1933 to 1937, as one of the chief centers of revived business activity in the United States.

Summary

In the space of four and one-half years, labor, capital, and the bridge engineers combined to construct a suspension bridge which today (1958) remains the longest of its kind in the world. The engineering problems were, in many instances, unprecedented. The south pier, constructed in sixty-five feet of water exposed to the open sea, and the stringing of the cables presented unusual challenges.

Throughout the building period there were no strikes. The violent waterfront upheaval in the summer of 1934, which witnessed the rise of Harry Bridges' Longshoremen's Association, did not affect work on the Golden Gate.⁶¹ Labor,

60. Ibid., March 9, 1936.

61. A vivid account of this strike is given in Walter M. Camp, San Francisco: Port of Gold (New York, 1947), pp. 445-65.

caught in the crush of the nation's worst depression, eagerly sought the job openings which developed when building began. Similarly, Bay area business was revitalized by spending approximately \$90,000,000 in the construction of the two Bay bridges.

CHAPTER VII

CONSTRUCTION PERIOD, 1933-1937:

STEWARDSHIP AND POLITICS

Introduction

One of the most apparent differences between the Golden Gate bridge and the San Francisco-Oakland Bay span during the construction period lay in the administration. The State Toll Bridge Authority built the Bay bridge and construction was directed by paid employees responsible to the state. On the other hand, stewardship of the Golden Gate span was vested in a board of directors selected by each of the six counties. This board, consisting of professional people, businessmen, and labor leaders, was responsible to the taxpayers of the district.

Local Stewardship: The Board of Directors

None of the directors had any practical experience in bridge construction, but all were well qualified to exercise considered judgment in the expenditure of money, hiring of administrative officials, letting contracts, and the like. William P. Filmer, president of the board of directors, had been a resident of San Francisco for fifty-six years at the time he took office in 1929. Since 1900 he had been president of a local printing firm, a position which had been

handed down from father to son. As the chief administrator of bridge affairs throughout the construction period, Filmer brought to the directorate a well-grounded and practical business approach which stood the district in good stead during the tempestuous depression days.¹

Next to Filmer, Francis V. Keesling of San Francisco held the most important post on the board of directors--that of chairman of the building committee. Keesling was graduated from Stanford University in 1898 and in the same year was admitted to the California State bar. Early in his career, he became active in politics and in 1910 sought, unsuccessfully, the Republican nomination for governor. In 1914 he was named chairman of the Republican State Central Committee for a two-year term. After 1916, Keesling concentrated on his career as a lawyer and insurance executive--pursuits that brought him many rewards and successes. When he was appointed to the directorate in the fall of 1929, Keesling was president and general counsel for a large West coast life insurance company.

Appointed chairman of the influential building committee in the fall of 1930, Keesling displayed an extraordinary desire to learn and understand the job before him. In 1929, he visited New York where, in company with O. H. Ammann of the Port of New York Authority, he inspected the 3,500-foot George Washington suspension bridge, then under

1. George F. M. Nellist, ed., Pan Pacific Who's Who (Honolulu, 1941), p. 219.

construction. In later years, Keesling returned frequently to the East coast, monitoring the contracts held by Bethlehem Steel Company and Roebling's Sons, and visiting Washington officials from whom he sought federal funds. Keesling's wide range of personal contacts, particularly in California, combined with an unusual capacity for long hours of work, made him one of the most valuable members of the board of directors. Also, the control he exercised over the letting of millions of dollars in contracts made him one of the most influential.²

Robert H. Trumbull, a rancher from Marin County, was vice-president of the board. As a businessman and citizen living in the town of Novato, Trumbull early espoused an interest in the possibilities of a Golden Gate crossing. In 1919, he represented this North Marin community at the San Rafael public meeting held on behalf of a bridge. Trumbull was also a charter member of the Golden Gate Bridge Association organized in 1923 at Santa Rosa. During the construction period his most significant contribution came as chairman of the bond committee charged with marketing the bridge securities.

Congressman Richard J. Welch was elected to the directorate by the San Francisco Board of Supervisors in December 1928. His association with the project dated from 1918 when, as a San Francisco supervisor, he introduced a

2. Who's Who in America, 1948-1949, p. 1318; Keesling, Daily Calendar, 1929-1936, Keesling Papers; interview with Francis V. Keesling, Jr., August 1955.

resolution proposing that the city investigate the possibilities of a Golden Gate span. During the early twenties he was chairman of the supervisors' bridge committee and, as such, played an important role in the successful attempt to win War Department approval in 1924. Elected United States Congressman in 1927 from San Francisco, Welch was unable to attend most of the board meetings. While in the nation's capital, however, he conscientiously served as a representative of the district before the various federal agencies from whom the district sought financial aid.³

Frank P. Doyle, a prominent banker and civic leader from Santa Rosa, was also a charter member of the Golden Gate Bridge Association. Along with Trumbull, he was one of the few North Bay citizens present at the 1919 San Rafael meeting. During his tenure on the board of directors, he served on the bond and auditing committees.

A. R. O'Brien of Mendocino County, owner-editor of the Ukiah Republican Press, was the most colorful and outspoken figure on the directorate. Through the columns of his newspaper, he waged an unrelenting fight against all opponents of the bridge. His wrath struck hard at the Southern Pacific Company and the Southern Pacific-Golden Gate Ferries for their part in the anti-bridge litigation during 1931 and 1932.⁴ Harry Lutgens, like O'Brien, exercised an influence on bridge affairs that extended far beyond the

3. Who's Who in America, 1948-1949, p. 2627.

4. Supra, p. 101.

meetings of the directorate. As editor of the San Rafael Independent, a newspaper which had supported the project since 1916, Lutgens kept his readers well informed on problems and progress of the span. As a member of the building committee, he worked closely with Chairman Keesling in the monumental task of planning and monitoring bridge construction.

Directors Warren Shannon and John F. McLaughlin were both prominent figures on the San Francisco labor scene. McLaughlin, elected to the board of directors in 1934, had served as president and secretary of the Brotherhood of Teamsters local. Both Shannon and McLaughlin were active in obtaining favorable wage scales and working conditions for union labor employed on the Golden Gate bridge.⁵

Stewardship of the Golden Gate span was not an easy task. The work load was heavy and the outside pressures many. In addition, each director had to care for his own business. Beginning in 1929, the newly appointed board met once a month in the San Francisco City Hall. By the time construction got under way in 1933, regular board meetings had increased to two per month, with each session taking an afternoon or longer. In addition, there were numerous subcommittee gatherings which accounted for several more hours of each director's time. None of the board members received

5. San Francisco News, Jan. 3, 1934; Golden Gate Bridge and Highway District, Fourteenth Annual Report of Operations, 1950-51 (San Francisco, 1951), p. 11.

a salary, although each was paid a twenty-dollar fee for each meeting attended, plus travel expenses.

The extent of the demands made on the time and energies of the individual directors is indicated by a twenty-four-hour entry made in F. V. Keesling's daily calendar. This record, kept by the chairman of the building committee from the fall of 1929 until his retirement from the board in 1936, ran the gamut of activities of the Golden Gate project. In the pre-construction years, seldom more than a week would elapse without an entry concerning a conference, telephone conversation, or the like. As the building period approached, the entries became more frequent and lengthy. After construction commenced in the fall of 1932, Keesling's calendar was filled with memoranda and notes of appointments and conferences. The entry for January 4, 1934, affords an example of a typical day in Keesling's bridge-building experience:

"BLDG. COMMITTEE: In conference with Reed [general manager] at the Manger [restaurant]. Discussed engineering organization and audit of demands for fees. Necessity of consideration of the effect of deduction of cost of inspection and pay and expense of consultants.

South Pier. Reviewing recent discoveries by diver Hanson, of the Pacific Bridge Company, concerning the location of crevasses approximately 250 feet northeast of the fender site. Necessity of investigation to determine penetration and slope at that point. Inspection being organized by Reed. This the first information received by me.

"ADMINISTRATIVE: Telephone conference with Filmer [board president] relative to dinner for conference on Bridge District matters.

"BLDG. COMMITTEE: In conference with Reed and Felt [bridge secretary] relative to data to be transmitted to Lutgens and Maxwell.

McClintic-Marshall. Mr. E. D. Hill called to inquire concerning prospective program by reason of possible political activities, bond market and budget. Informed him relative to plans for application to government for financing balance of bond issue and approximate time of filing the application. Communication with Reed relative to ascertaining definitely the proper agency with which to file application in order to avoid delay."

Politics: Finn-Hirschberg Machine

The heavy work load was not, at all times, the most trying aspect of being a bridge director. Like any public trust, the directors had to be responsive to the demands of various special groups as well as public opinion in general. Dividing between politically motivated charges and those arising from the general populace was a continuing challenge.

The most publicized charge of "politics" involving the bridge district came in 1931 and 1932 at the time the railroad-ferry interests brought suit to prevent the construction of the bridge. Simultaneous with this front-page battle, however, was a subterranean political tug-of-war within the district itself. Subtle, the issues and personalities involved were sometimes difficult to define, but the impact on bridge affairs was unmistakable. This latter political struggle centered around the San Francisco Board of Supervisors and its alleged effort to control bridge policies.

Two names most frequently mentioned in this contest for power were Thomas F. Finn, long-time sheriff of San Francisco City and County, and Abraham "Murphy" Hirschberg, real estate operator and confidant of politicians in and out of city hall. Born and raised in the city by the Golden Gate, Finn was elected to the state senate around 1900 on the Democratic ticket. While in Sacramento he championed the cause of labor. In 1910, Finn left the state legislature and returned to San Francisco where he was elected sheriff of the county of San Francisco, an office he held until 1927.⁶ During his tenure as sheriff, he was repeatedly commended by grand juries for his efficient and fair administration.

By 1920, Finn was widely regarded as a power in both local and state politics, naming candidates and doling out patronage, although, by this time, he had changed his political allegiance from the Democratic to the Republican party. His influence was particularly strong in San Francisco where he controlled the Republican County Committee which nominated a number of candidates to the board of supervisors. In 1927, Finn's political power began slowly to decline. Opposed by Mayor James Rolph, Finn was defeated in the race for sheriff; never again did he hold public office.

Finn's control over the San Francisco County Republican Committee and the Board of Supervisors, however, continued throughout the remainder of the twenties and into the thirties. Since the county supervisors appointed the bridge

6. In 1914 Finn was defeated for a two-year term.

directors, he was able to extend his influence into the bridge district's deliberations.⁷

Finn's continued influence in Republican circles following his defeat in 1927 was largely the work of Abraham Hirschberg. A controversial figure, Hirschberg never held a political office, nor did he have any official standing in the community. Yet, for a period of fifteen years, from 1925 to about 1940, the name Hirschberg ". . . popped up in the center of various political matters with great regularity" as Thomas Finn's representative.⁸

Hirschberg achieved considerable success as a San Francisco real estate broker prior to World War I. Following his return from the war, he expanded his interests to include politics. His influence over W. N. Burkhardt, publisher of the San Francisco News, brought Hirschberg to the attention of Finn, who was in need of newspaper support. Finn took Hirschberg into his organization and, following Finn's forced retirement from politics in 1927, Hirschberg moved into the front office of the Finn political machine. For the next ten years, Hirschberg was in and out of the city hall and the financial district, advising, questioning, or "passing the time of day" on political matters with city officials

7. San Francisco Chronicle, Jan. 6, 7, 9, 14, 1938; interview with Earl C. Behrens, political editor of the Chronicle, Aug. 19, 1957; Keesling, "Biographical Sketch of Abraham Hirschberg and Thomas Finn," Keesling Papers; Justice B. Detwiler, ed., Who's Who in California: A Biographical Directory, 1928-1929 (San Francisco, 1929), p. 673.

8. San Francisco Chronicle, Sept. 21, 1932.

and business leaders. Many of these conversations concerned the Golden Gate bridge.

The first political skirmish involving the Finn-Hirschberg combination came in 1928, at the time the counties were selecting candidates for the bridge directorate. Unlike the other counties, San Francisco selected three of its own members to serve on the board. Two of the appointees, Warren Shannon and W. P. Stanton, were dominated by Finn, while the third, Frank Havenner, vigorously opposed this political faction.

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When the action of the supervisors was made public, a storm of protest arose in the northern counties as well as in San Francisco. Director-elect Frank P. Doyle of Sonoma County, speaking for the interests of the rural counties, stated that he would fight attempts at "big city" domination. He expressed the hope that the appointments would not be allowed to stand.⁹

In San Francisco, meanwhile, Supervisor Havenner accused Supervisor Shannon of consorting with Hirschberg in drawing up a list of candidates acceptable to the Finn machine. Shannon acknowledged that Hirschberg had conferred with him prior to the naming of directors, but he vehemently denied the charge that Hirschberg had urged the nomination of particular candidates. Havenner replied by suggesting that all three supervisors step down from their newly-appointed positions, a recommendation that was warmly

9. Ibid., Dec. 28, 1928.

endorsed by Mayor Rolph and the northern counties. Havenner resigned. Stanton and Shannon, however, refused to follow and, instead, took their seats on the directorate.¹⁰

Following this initial hassle over political influence, the board of directors settled down to the more immediate tasks involved in building a bridge. Drawing up final plans and specifications, carrying on the litigation with the Southern Pacific interests, and seeking voter approval of the bonds required the wholehearted cooperation of each director. It was through unity that these goals were achieved. Towards the end of 1932, however, criticism of the general manager, Alan MacDonald, developed among some of the bridge directors. Basis for the attacks was MacDonald's associations with Hirschberg.

MacDonald came to the bridge district well recommended, a construction engineer who had built such San Francisco show places as the Hotel Mark Hopkins and the Fox Theater. He also was associated with Six Companies, the firm that was building the Hoover Dam. Several months prior to the start of construction of the Golden Gate bridge, MacDonald had been seen in the company of Hirschberg which led some observers to believe that the general manager was friendly with the Finn organization. In addition, some of the directors accused MacDonald of meddling in bridge business which did not fall within his province.¹¹

10. San Francisco, Board of Supervisors, Proceedings, XXIV (1929), 203, 205.

11. San Francisco Chronicle, June 9, 1935.

In September 1932, the fiery director from Mendocino County, A. R. O'Brien, brought the matter into the open by introducing a resolution stripping the general manager of many of his powers. MacDonald, O'Brien charged, was an associate of Hirschberg, and had supplied the San Francisco politician with confidential bridge information. One result, stated the Mendocino editor, was that Finn had maneuvered himself into a position where he would receive the lion's share of the lucrative surety bond business.¹²

O'Brien's motion was warmly debated throughout the fall of 1932, with the main discussion centering on the alleged influence of the Finn organization in bridge affairs. The News took up cudgels for MacDonald, while the Chronicle, Examiner, and other San Francisco newspapers publicized the alleged machinations of former Sheriff Finn and his political ally, Abraham "Murphy" Hirschberg.¹³

Caught in the swirl of political controversy, MacDonald's effectiveness as general manager began to decline rapidly. At a time when crucial bridge business--such as the sale of bonds and the signing of construction contracts--was being negotiated, the debate threatened to undo the hard-won victories that the district had achieved in the courts and at the polls. This point was dramatized in a letter from

12. Ibid., Sept. 22, 1932; San Francisco Examiner, Dec. 25, 1932. Every contractor was heavily bonded to ensure performance of contract.

13. San Francisco News, Sept. 19, 22, 1932; San Francisco Chronicle, Sept. 21, 1932; San Francisco Examiner, Dec. 23, 1932.

President Morrish of the Bank of America. The present lack of effective management, Morrish said, posed a serious threat to Bank of America's large investment in bridge bonds. He asked that immediate remedial action be taken. Such action was implied in another resolution introduced by O'Brien asking that MacDonald resign. Before the matter could come up for a vote, MacDonald offered his resignation, giving as his reason the desire to return to private engineering practice.¹⁴

Other than O'Brien, the newspapers and the remainder of the directors considered MacDonald a capable engineer, devoted to his job. He had the misfortune, however, of having been caught in the political cross-currents involving the Finn-Hirschberg machine. This made him expendable. The News and directors Shannon and Stanton maintained throughout that a great injustice had been committed. Particularly, they were grieved at the role played by the Hearst press (Examiner) in promoting the anti-MacDonald, anti-Finn campaigns. The News vigorously denied the Examiner's charge that Finn had received \$100,000 in surety bond premiums. Instead, the figure was much closer to \$10,000, and no unethical practice was involved.¹⁵

In January 1933, James Reed, a former Naval officer

14. San Francisco Examiner, Dec. 15, 1932; San Francisco Chronicle, Dec. 22, 29, 1932; Keesling, Daily Calendar, Dec. 21, 1932, Keesling Papers.

15. San Francisco News, Dec. 29, 1932; Keesling, Daily Calendar, Dec. 30, 1932, Keesling Papers.

with ship-building experience, was appointed to fill MacDonald's position, and for the next few weeks the political controversy faded into the background. Urgent construction problems demanded immediate solutions. In the spring of the year, however, the political truce was broken when the Finn-Hirschberg forces made a dramatic move to increase their influence on the board of directors.

State Assemblyman Patrick J. McMurray of San Francisco introduced a bill in April to increase San Francisco's bridge representation by five members. The purpose of the bill, said the pro-Finn San Francisco News, was to give San Francisco a greater voice in bridge affairs--one commensurate with her responsibilities. As the directorate now stood, San Francisco appointed only one-half of the membership, while paying eighty-five percent of the taxes levied by the district. Furthermore, there were indications, continued the News, that several of the present directors from San Francisco were too sympathetic to the northern counties. By adding new members from San Francisco, these disadvantages could be eliminated.¹⁶

As far as the district supporters were concerned--and this included most of the Bay area newspapers and a host of civic and business organizations--the effort to increase San Francisco's representation had the odor of bad politics. On the board, itself, President Filmer and Director Keesling

16. San Francisco News, April 19, 21, 1923.

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were adamantly opposed to the legislation and they labored feverishly behind the scenes to bring about the bill's defeat. Through letters, telephone calls, and personal contacts, these two directors sought to build up a flood of opposition. The response was immediate. In San Francisco, six major civic and business groups addressed a letter to the California State Legislature urging defeat of the McMurray bill. Its passage, they said, would be detrimental to the best interests and orderly administration of the district's affairs.¹⁷ The Examiner and Chronicle also opposed the bill; and, in Southern California, Keesling was successful in enlisting the aid of some state senators. The concerted efforts of the bridge supporters were sufficient to bring about the bill's defeat, but by the narrow margin of only one vote.¹⁸

During the years 1934 to 1936 the political struggle polarized, with the Finn-Hirschberg organization on one side and directors Keesling and Filmer on the other. During this interval, Keesling and Filmer dominated bridge policy making, in spite of the fact that the Finn-Hirschberg faction

17. San Francisco Chamber of Commerce et al. to Members of the Legislature of the State of California, May 2, 1933, Keesling Papers. Other signatories included the Civic League of Improvement Clubs, Down Town Association, Junior Chamber of Commerce, Motor Car Dealers Association, and the Real Estate Board.

18. Keesling, Daily Calendar, April 18-May 2, 1933, Keesling Papers; San Francisco Chronicle, April 26, May 3, 1933; San Francisco Examiner, April 21, 26, 1933; San Francisco News, May 5, 1933.

increased its representation on the directorate.¹⁹ The climax to the political tug-of-war came in December 1936, at the expiration of Keesling's second term of office. Up for renomination, the Finn-Hirschberg machine sought to replace the popular building committee chairman with another candidate.²⁰

Keesling's original appointment to the directorate in the fall of 1929 reportedly had been satisfactory to the Finn group. At the expiration of his first term in December 1932, the San Francisco Board of Supervisors unanimously re-elected him for another four years. From this point on, however, friction developed between Keesling and Finn, maturing in the open battle over his succession to office in 1936.²¹

One source of irritation to Keesling's political adversaries was the tight rein he maintained on affairs of the building committee. Keesling closely guarded and guided the signing of contracts, disbursement of funds, and the hiring of personnel. Furthermore, Hirschberg disapproved many of Keesling's administrative decisions, specifically charging him with missed opportunities to reduce costs, paying extravagant wages to the general manager, and failure to obtain more federal aid. He was also disappointed with Keesling's steadfast refusal to channel bridge jobs to the

19. San Francisco News, Jan. 3, 1934.

20. San Francisco Chronicle, Dec. 4, 1936.

21. J. S. Dunnigan, clerk, San Francisco Board of Supervisors, to Golden Gate Bridge and Highway District, Dec. 19, 1932, Keesling Papers.

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their support of the district's requests for federal aid. But with so many other demands on their time, they could not "hand carry" the requests through the maze of government agencies. On this account, the district's applications were frequently turned down.²⁴

As the debate over Keesling's reappointment grew in intensity, praise for his business-like administration came from nearly every segment of San Francisco's economic and political life. Besides the large business groups (whose support was not unexpected), labor organizations came to his aid. Appearing before the San Francisco Board of Supervisors in December 1936, the president of the San Francisco Labor Council denied rumors that Keesling had been unfair to labor. The wage-hour agreements between the district and the unions, said the labor official, had been very favorable to the workingman, and it was Keesling who was largely responsible for the district's acceptance of these working standards.²⁵

On December 4, 1936, the San Francisco Supervisors voted to replace Keesling with Frank C. Sykes, member of the California State Board of Prison Directors. Shortly thereafter, the Civic League of Improvement Clubs obtained a court injunction preventing the seating of Sykes, on grounds that the candidate had been improperly nominated. Before a final

24. Keesling to Adolph Uhl, San Francisco supervisor, Dec. 11, 1936, Keesling Papers.

25. San Francisco Chronicle, Dec. 14, 1936.

ruling could be handed down, however, Sykes declined the appointment. Keesling supporters hoped that Syke's action would redound to their favor. But such was not the case. On December 14, by the same one-vote margin which had unseated him earlier in the month, Keesling was replaced by another Finn nominee, William D. Hadelor, an executive in a local grocery chain store business.²⁶

"It is a sad commentary," said President Filmer commenting on the effort to replace the building committee chairman, "that the services of Francis V. Keesling as a director of the Golden Gate bridge should be subjected to attack manifestly to serve political purposes. It is a poor reward for long, diligent and effective service, largely as a result of which the Golden Gate bridge will ever be an impressive example of a public project carried to completion honestly and efficiently."²⁷

The Political Feud Ends

The retirement of Keesling from the bridge directorate, followed in six months by the completion of the bridge, brought the political struggle to a close. Keesling returned, briefly, to deliver the dedicatory address on May 28, 1937.²⁸ President Filmer left the district following the selection of a candidate to replace General Manager Reed, who resigned

26. San Francisco Chronicle, Examiner, News, Dec. 4-15, 1936.

27. San Francisco Chronicle, Dec. 15, 1936.

28. Ibid., May 29, 1937.

in July. Now that the bridge was completed, Filmer was anxious to withdraw from a position to which he had given so generously and ably.²⁹

On the other side of the controversy, Thomas Finn died suddenly in January 1938. His death brought to a close one of the most colorful political careers in San Francisco's history. Abraham Hirschberg, Finn's controversial associate during this period, withdrew from the political arena. During the forties he was prominent in California horse racing as a stable owner. At the time of this writing he still is active in the real estate business in San Francisco.³⁰

Several members of the board of directors and administrative staff remained with the district while others followed Filmer and Keesling into retirement. Robert Trumbull continued to serve as vice-president of the district until the end of his third term in December 1940, at which time he retired. Harry Lutgens, editor of the San Rafael Independent, resigned his position in November 1938. Director A. R. O'Brien retained his position on the board throughout the Second World War. In 1945, the Ukiah editor was elected bridge president. His passing in January 1947 brought to a close a career which, since 1928, had been intimately associated with the growth and success of the Golden Gate Bridge District.

29. San Francisco Examiner, July 28, 1937.

30. San Francisco Chronicle, Jan. 6, 1938; interview with Earl C. Behrens, Aug. 19, 1957.

Director Frank P. Doyle's constructive tenure as a director of the bridge district came to a close in August 1948, when he passed away at the age of eighty-five. His twenty years of continuous service, in addition to his earlier efforts in behalf of a Golden Gate crossing, won for him, along with James Wilkins, the accolade of "father of the Golden Gate bridge." Congressman Richard Welch continued to hold his membership on the directorate while representing San Francisco in Washington. As he had done during the construction period, Welch continued his liaison activities in the nation's capital on behalf of the bridge district. His most notable accomplishment in this regard was the introduction and passage of a federal statute reducing the number of non-revenue crossings on the Golden Gate span. When he died in 1949, he had served on the board twenty-one years--the longest term of any member.

Thomas Maxwell, last member of the original board of directors to serve in that capacity, died in July 1950. His tenure had not been continuous, since he had resigned in 1941 and was reappointed in 1949. Hugo D. Newhouse, a director since December 1933, and president of the district from 1941 to 1943, succumbed in June 1946. John P. McLaughlin, appointed in January 1934, died in office in July 1950.³¹

On the administration side important changes took place immediately following the opening of the bridge. Chief

31. Golden Gate Bridge and Highway District, Annual Report of Operations, 1942-1951 (San Francisco).

Engineer Strauss resigned after submitting his final report. Strauss' interest in the bridge spanned a twenty-year period, beginning in 1917. That the bridge was planned, approved, and finally constructed was due largely to the tireless persistence of this one man. The chief engineer passed on in May 1938, one year after traffic began to flow across the span. During his career, Strauss had constructed 500 bridges throughout United States, Canada, and Europe.³²

General Manager James Reed, like Strauss, resigned shortly after the bridge was completed. As overseer of the construction phase since January 1933, Reed had the responsibility of coordinating and supervising the plans and policies as promulgated by the directors. The district's first auditor, John R. Ruckstell, resigned in 1935 and was replaced by Roy S. West, who served until 1942. Sydney R. Taylor, traffic engineer since September 1920, died in office in 1944. W. W. Felt, Jr., secretary of the district and oldest employee in terms of service, retired in April 1945. He had held office since March 1929.³³

Summary

Stewardship of the Golden Gate bridge was the responsibility of a group of business and professional men who were chosen for their ability and integrity. None had any bridge

32. San Francisco Examiner, July 28, 1937; New York Times, May 17, 1938.

33. Golden Gate Bridge and Highway District, Annual Report of Operations, 1942-1951 (San Francisco).

building experience; but most were endowed with an above average business ability which, along with a sense of civic pride, brought to fruition a long-standing dream of the Bay area.

In spite of the fact that eighty-five percent of the district's population resided in San Francisco, the northern counties retained a large measure of control over bridge affairs. This was possible since seven of the fourteen directors came from the north. Also, some of the San Francisco members, particularly Keesling, were partial to the outlying areas.

The Finn-Hirschberg forces sought to place its own nominees on the board of directors to gain a measure of control over the disbursement of funds and the filling of administrative posts. They were only partially successful. The opposition of directors Keesling and Filmer, the metropolitan newspapers--particularly the Chronicle and Examiner-- and the collective voices of numerous business and labor groups effectively parried these political thrusts.

CHAPTER VIII

THE COMPLETED STRUCTURE

Introduction

The Golden Gate bridge was a fitting addition to California's galaxy of superlatives. It was the world's longest, highest, and handsomest suspension bridge and San Franciscans spared neither time nor money to let the world know of their great achievement. Indeed, Bret Harte's dictum that San Francisco was "serene, indifferent to fate" had an unfamiliar ring in a city that appeared determined to have the largest celebration since the Pan-Pacific Exposition in 1915 or the bridge ground-breaking ceremonies in 1933.

The official opening of the bridge to traffic had been eagerly anticipated for several months by an enthusiastic populace. The newspapers, their pages filled with pictures and feature stories on the bridge, reflected this mood. One journal compared the forthcoming occasion with the completion of the first transcontinental railroad in 1869, another with the opening of the Panama Canal in 1913.¹ And when the Golden Gate Bridge Fiesta commenced on May 27, 1937, a carnival spirit pervaded the city. Representative

1. San Francisco Chronicle, April 26, 27, 1937; San Francisco Examiner, April 27, 1937.

headlines from San Francisco newspapers described the event in these words:

SAN FRANCISCO OPENS GOLDEN GATE BRIDGE TODAY:
CARNIVAL JOY RULES

SAN FRANCISCO GREET'S GAY FIESTA THRONGS
IMMENSE CROWDS IN FULL PARTY ARRAY JAM STREETS
GREATEST ARMADA IN FORT: NAVY JOINS FIESTA FUN
MIGHTY BRIDGE BACKDROP OF SPECTACLE

May 27 was pedestrian day. The great interest that the people of the Bay area had evinced in the bridge from the day they overwhelmingly approved the bonds in 1930 to the conclusion of construction was strikingly demonstrated in this event. A crowd estimated at 200,000 thronged across the span admiring, praising, and enjoying. May 28 marked the opening of the bridge to motor traffic. Top-hatted dignitaries, including official emissaries from Canada and Mexico, governors from eleven Western states, high-ranking officers of the Army, Navy, and Marine Corps, Governor Frank M. Merriam of California, Mayor Angello J. Rossi of San Francisco, bridge officials, plus hundreds of other representatives from communities far and near were on hand to participate.

The dedicatory ceremonies began in mid-morning under ideal weather conditions. In a brief speech, Chief Engineer Strauss presented the span to President Filmer of the bridge district. Filmer, in turn, presented the bridge to the people of the district and, in a larger sense, to all future users. Former Director Francis Keesling delivered the

principal address. During the progress of the ceremonies, approximately 500 planes from units of the 42-ship armada sent by the United States Navy flew overhead. At twelve o'clock noon, upon receipt of a telegraphic signal from President Franklin D. Roosevelt in the White House, traffic began to flow across the bridge.

The bridge carnival which had begun on May 27 continued for several days. Pageants, parades, dances, and the customary quota of "Fiesta Queens" were everywhere in evidence. Hollywood stars including Al Jolson, Victor Young, George Jessel, Buck Jones, and Victor McLaglen were present to add lustre and to give of their talents. By the time the celebration came to an end on June 2, most observers agreed that few events in San Francisco's history had aroused more interest or brought forth greater public participation than the opening of the \$35,000,000 structure that now swung across the Golden Gate.²

Final Cost of Bridge

Termination of the construction period and adjusting extra compensation claims were not completed until 1939. The overall bridge cost (excluding the \$467,000 in tax levies spent on surveys, litigation, and bond election) came to just under \$35,000,000. This figure was considerably higher than the 1932 estimate owing to unforeseen construction

2. For complete coverage of this event see San Francisco Chronicle, News, Call-Bulletin, and Examiner, May 27-June 2, 1937.

problems, particularly in reference to the south pier, which raised the construction cost by \$4,000,000.³ The total cost of the project is summarized below:

TABLE V
GOLDEN GATE BRIDGE--FINAL CONSTRUCTION COST⁴

RECEIPTS:

Sale of bonds (par value)	\$35,000,000.00
District tax levies (1929-30 and 1930-31)	467,367.75
	\$35,467,367.75
Total construction funds	\$35,467,367.75

EXPENDITURES:

Preliminary expenses, including surveys, election, etc.	\$ 161,824.84
Administration, including litigation	736,798.97
Financing, including bond discount, interest during construction, etc.	4,819,963.05
Engineering, including inspection	2,077,663.53
Construction	27,606,733.75
Preliminary Maintenance and Operation	50,501.51
	\$35,453,485.65
Total disbursements	\$35,453,485.65
UNEXPENDED BALANCE	\$ 13,882.10

After the bridge was opened, the main obligations of the district were interest on bonds, bond retirement, and maintenance and operation. The schedule of maturities called for the first bonds to be retired in 1942, and each year thereafter until 1971, at which time the bridge would be clear. In addition to the \$35,000,000 face-value securities,

3. Golden Gate Bridge and Highway District, Vol. I: Report of the Chief Engineer, p. 68; supra, p. 133.

4. Golden Gate Bridge and Highway District, Second Annual Report of Operations, 1938-1939 (San Francisco, 1939), p. 10.

accrued interest in the amount of \$39,000,000 would have to be paid. Thus, by the time the last bonds were redeemed in 1971, the bridge would have cost nearly \$74,000,000.⁵

The first few years of operation were a testing time as the directors waited to see whether or not the revenue predictions would hold true. Throughout the twenties, Strauss and others had promised the voters that there would be sufficient revenue to pay for all bridge expenses. In their report to the district in 1930, the directors reaffirmed these pledges.⁶ The opponents, on the other hand, had charged that the bridge would be a millstone around the taxpayer's neck during the forty years that the bonds were being retired.⁷

At the end of the third fiscal year (June 30, 1940), the district revenues and expenditures were only on a slightly better than break-even basis. During the first fiscal year (July 1, 1939 to June 30, 1938), seventy-eight percent of a normal year's obligation was collected. The second year saw this percentage rise to ninety-three percent. The third year witnessed a small surplus.⁸ The reasons for this slow financial start were in evidence from the beginning of operations; the most obvious was that the predictions of

5. See Table VI, p. 191.

6. See Chap. III.

7. Pope et al., Golden Gate Bridge, pp. 26-39.

8. Golden Gate Bridge and Highway District, Third Annual Report of Operations, 1939-1940 (San Francisco, 1940), p. 6.

TABLE VI

SCHEDULE OF MATURITIES AND INTEREST ON DISTRICT BONDS

Bonds Outstanding and Interest Paid	Bonds Maturing Each Year	Total Bonds for Period	Total Interest for Period	Total Principal and Interest
1937-1941	none	none	\$ 6,078,000	\$ 6,078,000
1942-1946	\$ 200,000	\$ 1,000,000	7,509,000	8,509,000
1947-1951	400,000	2,000,000	7,203,750	9,203,750
1952-1956	800,000	4,000,000	6,596,500	10,596,500
1957-1961	1,200,000	6,000,000	5,547,000	11,547,000
1962-1966	1,600,000	8,000,000	4,071,500	12,071,500
1967-1971	2,800,000	14,000,000	1,821,000	15,821,000
Total	(Bonds) \$35,000,000	(Int.) \$38,826,750	(Prin. & Int.) \$73,826,750	

Source:

Golden Gate Bridge and Highway District, Tenth Annual Report of Operations, 1946-1947.

Income made in the 1930's were based on an average toll of eighty-four cents per vehicle. When the bridge opened, however, the automobile toll began at fifty cents per car with higher rates for heavier vehicles. Thus, instead of the anticipated receipts of \$2,320,000 for 1937-1938, the actual revenue amounted to just under \$1,600,000.⁹

Another factor contributing to low initial income was ferry competition. At this juncture in the bridge's history (1937-1940), the loss of automobile and truck traffic to ferries was keenly felt.¹⁰ Prior to 1937, the ferry toll for a single trip was sixty cents per car plus fifteen cents per occupant. On March 1, 1937, anticipating the opening of the bridge, owners of the Southern Pacific-Golden Gate Ferries lowered this rate to fifty cents per passenger car. On August 11, the fare was again dropped to thirty cents one way (with five passengers) and fifty cents round trip.¹¹

For one year the Southern Pacific-Golden Gate Ferries competed with the Golden Gate bridge at these uneconomical rates. The number of units carried by the ferries fell off sharply; they managed, however, to retain a substantial number of their regular commuters. By the summer of 1938, the ferry company found it impossible to continue operations at

9. Golden Gate Bridge and Highway District, First Annual Report of Operations, 1937-1938 (San Francisco, 1938), p. 12; Vol. II: Traffic Analysis, 1930, p. 23.

10. San Francisco Chronicle, Sept. 23, 1937; Ukiah Republican Press, Nov. 24, 1937.

11. Golden Gate Bridge and Highway District, First Annual Report, 1937-1938, p. 9.

a profit--the fare was too low for the number of units serviced. Since May 1937, the monthly traffic average for the ferries had declined from 125,000 vehicles to less than 70,000 by July 1938. In face of a growing deficit, the Southern Pacific-Golden Gate company on July 25, 1938 suspended its auto-ferry operation.

The end of regular auto-ferry service brought about an immediate upswing in bridge revenue, although the Northwestern Pacific Railroad continued to operate a passenger ferry service across the Golden Gate which included carrying a limited number of automobiles. In 1939, due to a sharp decrease in revenue traffic, the Northwestern Pacific also petitioned the State Railroad Commission for permission to abandon service between San Francisco and Sausalito. Approval of the request was withheld until February 1941, at which time an interurban bus service was substituted for the regular passenger ferry service. The last scheduled ferry crossed the Golden Gate on February 28, thus bringing to a close a service which had been continuous since 1868.¹²

Of greater concern and longer duration than the ferry competition was the loss of income to non-revenue vehicles. Under the provision of the original War Department grant in 1924, Army and Navy vehicles were to have free transit over the span. Later, this agreement was defined to include all Army and Navy military personnel, active and retired, their

12. Golden Gate Bridge and Highway District, Second Annual Report, 1938-1939, pp. 4-9.

dependents, and civilians employed by either of the two services. Transit was authorized for either business or personal reasons.

As the war years approached this class of traffic grew at an accelerated rate, amounting to 1,000 cars per day by mid-summer, 1940. In March 1941, in a suit brought by the Government, the United States District Court in San Francisco extended this toll-free privilege to include all government agencies. The result was another large upsurge in the number of non-revenue cars and trucks using the Golden Gate bridge. By 1944, the daily total of revenue-free crossings had grown to 2,200 or 17% of the entire bridge traffic.¹³

The loss of income to non-revenue users, coupled with the war-time restrictions on automobile travel (gas rationing began on December 1, 1942), presented a serious financial challenge to the district. In 1942, the Bay area press, the California State Legislature, and bridge officials began to seek passage of remedial legislation to correct what they considered to be an abuse of federal power. Early in the following year, United States Congressmen Welch and Clarence F. Lea introduced a bill into Congress which provided for restrictions on the use of this toll-free privilege.¹⁴ In March 1944, over the objections of the War

13. San Francisco Chronicle, March 12, 1941; Golden Gate Bridge and Highway District, Third Annual Report, 1939-1940, p. 4; Seventh Annual Report of Operations, 1943-1944 (San Francisco, 1944), p. 1.

14. San Francisco Chronicle, Jan. 12, 1943; California

Department, the proposal was passed and signed by President Roosevelt. Under the provisions of this statute, only Army and Navy personnel and civilian employees of the War and Navy departments on official business could use the bridge without tariff. Following the implementation of this new regulation on April 1, 1944, free-fare transits dropped from a daily average of 2,200 to 800. The result was a sharp increase in bridge income.¹⁵

Fears of financial insolvency occasioned by sub-standard revenues in the first few years began to fade in the early 1940's, even before the abuse of the non-revenue privilege was corrected. By 1942, when the first amortization payment of \$200,000 was due, a reserve fund of \$400,000 had been built up to meet bond retirement. Eight years later, in 1950, and in spite of sharp increases in the yearly bond retirement rate, the reserve bond fund stood at over \$5,500,000; in 1956 it was \$6,625,000.¹⁶ By September 1957, the district's total cash reserves, plus the \$21,000,000 in bridge insurance, equaled the total outstanding bridge debt,

Journal of the Senate, Legislature of the State of California, 55 Sess., 1943, p. 1097; Golden Gate Bridge and Highway District, Third Annual Report, 1939-1940, p. 4.

15. San Francisco Chronicle, March 15, 1944; Golden Gate Bridge and Highway District, Seventh Annual Report, 1943-1944, p. 1.

16. Golden Gate Bridge and Highway District, Fifth Annual Report of Operations, 1941-1942 (San Francisco, 1942), p. 2; Thirteenth Annual Report of Operations, 1949-1950 (San Francisco, 1950), p. 28; Nineteenth Annual Report of Operations, 1955-1956 (San Francisco, 1956), p. 12; Roy S. West, auditor, Golden Gate Bridge and Highway District, to Board of Directors, January 16, 1942, Keesling Papers.

interest and principal. In the unlikely event that the bridge should collapse, all obligations could be paid off from available funds without resorting to taxation.¹⁷

Structural Stability

The structural stability of the span, a source of controversy since 1927, has been carefully observed since the opening of the bridge. Periodically, the bridge administration conducted thorough checks of every major bridge component. In 1948, for example, a study was made of the cables, anchorages, and piers. The United States Coast and Geodetic Survey aided in this investigation by taking soundings of the channel, concentrating on the area around the south pier. The bridge was found to be in excellent condition. No significant changes in the floor contour, evidence of slides, or movement of piers were noted. After more than twenty years, Professor Bailey Willis' assertion that the bridge could not long stand still was without proof.¹⁸

The only major structural change made on the bridge was the addition of a bottom lateral bracing system on the main span. This was a precautionary measure taken in the wake of a severe windstorm which occurred in December 1951. During the course of this prolonged storm, the bridge began vibrating asymmetrically (one-half of the bridge moved upward, the other half downward) reaching a point, late in the

17. San Rafael Independent Journal, Sept. 16, 1957.

18. Golden Gate Bridge and Highway District, Twelfth Annual Report of Operations, 1948-1949 (San Francisco, 1949), p. 10.

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afternoon of December 1, at which travel across the bridge became hazardous. Thereupon, for the first time in the bridge's history, the span was closed, remaining closed for three hours until the vibration subsided. Subsequent investigations revealed no structural damage to the bridge; the board of engineers conducting the survey, however, concluded that the span could be strengthened in such a way as to reduce substantially the "galloping" motion of the center span when subjected to high winds over a long period of time. This \$3,000,000 improvement was completed in 1954.¹⁹

Traffic Trends, 1937-1956

The steady growth in bridge income was made possible by the rapid rise in vehicular traffic. According to the 1930 board of directors' report, 2,465,000 cars and trucks would use the bridge in 1937; an annual rate of 10,000,000 would be reached in 1970.²⁰ Actually, the bridge's first year of operation saw 3,310,000 vehicles cross the bridge. The annual rate of 10,000,000 was attained in 1951, nineteen years in advance of predictions.²¹

19. Golden Gate Bridge and Highway District, Report on Alterations of the Golden Gate Bridge, by Clifford E. Paine, Othmar H. Ammann, and Charles E. Andrew (San Francisco, 1953); Eighteenth Annual Report of Operations, 1954-1955 (San Francisco, 1955), p. 16. It was this "galloping" type of motion, plus structural defects not present in the Golden Gate span, which caused the collapse of the Tacoma Narrows Suspension Bridge in 1940.

20. Golden Gate Bridge and Highway District, Vol. I: Report of the Chief Engineer, p. 64.

21. See chart, p. 198.

TABLE VII

GROWTH OF VEHICULAR TRAFFIC AND REVENUE, 1937-1956

Fiscal Year ending June 30	Passenger Cash Toll	Autos Commute Toll	Non-Revenue Vehicles	Buses	Trucks	Others	Total Vehicles	Total Revenue
1937	541,726	22,048	4,375	2,827	6,929	3,426	97,551	3,12,218
1938	2,704,468	278,312	103,093	23,227	154,224	21,488	3,313,512	3,528,282
1939	2,819,812	703,963	164,565	61,106	270,976	23,266	4,333,594	4,593,323
1940	2,927,815	781,237	217,160	65,511	312,061	26,402	4,315,267	4,628,152
1941	2,965,244	956,146	322,077	29,147	346,160	25,236	4,726,258	4,922,213
1942	2,997,566	1,062,367	706,895	123,367	365,838	26,527	5,173,251	4,292,265
1943	2,980,038	1,233,208	725,385	162,222	366,255	27,475	5,365,295	4,577,285
1944	2,658,207	953,936	606,618	176,229	398,912	27,201	6,276,632	5,605,227
1945	2,916,157	966,230	322,997	191,536	359,271	23,465	4,783,265	4,235,212
1946	4,522,195	1,125,100	240,914	126,222	409,213	49,465	6,242,390	5,579,521
1947	4,972,123	1,582,302	136,655	203,655	609,798	64,307	7,453,444	5,256,312
1948	5,197,636	1,926,923	120,120	191,665	545,321	62,322	8,243,220	6,977,225
1949	5,301,071	2,213,253	160,107	129,222	526,510	57,720	8,507,297	7,105,212
1950	5,692,526	2,529,039	178,517	170,551	627,293	55,293	9,313,209	7,513,225
1951	6,541,352	2,471,034	210,407	152,222	717,222	55,520	10,119,226	7,925,222
1952	7,156,220	2,892,710	278,063	123,222	722,222	57,222	11,115,222	8,251,222
1953	7,401,410	3,053,137	313,132	140,222	752,222	61,627	11,673,222	8,429,222
1954	7,473,225	3,508,961	306,222	143,222	771,222	64,222	12,213,222	8,502,222
1955	8,141,222	3,674,225	336,222	167,222	863,222	59,222	13,222,222	8,517,222
1956	9,294,082	3,322,426	348,222	166,222	922,222	64,222	14,222,222	8,222,222
Increase	21.5	16.2	16.1	16.1	16.1	16.1	16.1	16.1

Statistics compiled by the Bureau of Public Affairs

The traffic reservoirs for the Golden Gate span developed along somewhat different lines than had been expected. The heavy stream of westbound traffic entering San Francisco from the east continued to use the Carquinez Strait-East Bay route. Instead of constructing a new highway connecting U. S. Highway 40 with the Golden Gate bridge, the state developed a multi-lane road system on the East Bay side connecting Sacramento with the San Francisco-Oakland Bay bridge which had opened in 1936.²²

The losses that occurred when this traffic source failed to materialize were offset by the stimulation of new traffic, particularly within the Bay area. In the twelve-month period prior to the opening of the span, the ferries carried a record average of 125,000 vehicles per month across the Golden Gate. The first twelve months the bridge was in operation, the monthly bridge average was 276,000, or better than double the ferry record. By 1956, this average had increased to 1,300,000 cars and trucks every thirty days.²³

State Control of the Golden Gate Bridge

In spite of the general excellence of the bridge's financial condition throughout its first twenty years of operation, many interests sought the passage of legislation which

22. Sydney W. Taylor, traffic engineer, Golden Gate Bridge and Highway District, to Board of Directors, Nov. 14, 1936, Keesling Papers.

23. Golden Gate Bridge and Highway District, First Annual Report, 1937-1938, pp. 6-9; Nineteenth Annual Report, 1955-1956, p. 10.

would have transferred control of the span from the district to the state. Allegedly at stake were the toll rates, tax levies on property owners in the district, and the future solvency of the district.

By 1938, fifteen years after the passage of the Bridge and Highway District Act, only one district--the Golden Gate Bridge and Highway District--had been organized. Following the formation of this district in 1928, the California legislature, in 1929, established the California State Toll Bridge Authority. Since that date, all California toll bridges have been constructed and operated by the state, leaving the Golden Gate bridge district as an isolated example of local control.

The first indication of popular support to place the Golden Gate bridge under state management came in 1938 when the San Francisco Chamber of Commerce charged the bridge administration with extravagance. Budget estimates prepared by Strauss, said the Chamber, had been exceeded in most every instance; in view of high operating costs and inadequate revenue, drastic measures were needed immediately to ensure financial success of the bridge and protect the district taxpayer from unnecessary tax levies. The Chamber recommended that the State Department of Public Works immediately take over management and control of the span.²⁴

24. San Francisco Examiner, Sept. 27, 1938; W. W. Monahan, executive vice-president, San Francisco Chamber of Commerce, to Board of Directors, Golden Gate Bridge and Highway District, June 13, 1939, Keesling Papers.

The merits of this proposal were discussed for many months but with the gradual improvement in the district's financial position, demands for economy measures became less urgent and fewer voices were raised in support of state control. No legislation was passed.

Arguments in favor of state control, however, persisted. In 1941, the San Francisco Chamber of Commerce, in response to complaints from commuter organizations, reiterated its demand for state management. The Chamber pointed to the state-controlled San Francisco-Oakland Bay bridge, with its twenty-five-cent cash toll, as evidence that under Sacramento's direction fares over the Golden Gate could be reduced. As the agitation increased, a bill was introduced in January 1941 which would have made the bridge part of the state highway system administered by the State Toll Bridge Authority.²⁵

The measure failed to pass. Sufficient interest in the problems of the Golden Gate bridge district, however, was generated to prompt the California State Senate to establish an interim committee which would periodically study the bridge's operation. Late in 1942, the senate bridge committee opened the first of a series of hearings. Following an exhaustive review of the district's functions and operation, the committee concluded that it would be in the interest of the people of California to have the span operated by the

25. San Francisco Chronicle, Jan. 7, 21, 24, 1941.

state. After World War II, this same group made additional bridge studies, each time arriving at the same conclusion. Bills to put these recommendations into effect were introduced in 1951, 1953, and again in 1955. None passed.²⁶

There were several reasons why bills transferring either ownership or control of the Golden Gate bridge to the state failed of enactment. Most important was the fact that the public never enthusiastically supported such a move. What interested the Bay area motorist most, particularly the commuters living in Marin, was lower bridge fares. Also important were the rights of the bondholders and taxpayers. According to the California State Attorney General, it would be necessary for the legislature, prior to taking over control of the span, to appropriate funds to pay off the bonded indebtedness, a step which the legislators never were willing to take.

On the subject of toll charges, the directors had followed a conservative policy, based on provisions in the Bridge Act of 1923. According to this statute, the district was required to set aside each year sufficient funds to:

- (1) pay operating expenses of the district,
- (2) provide for repairs and depreciation,
- (3) pay interest on the bonds,
- (4) provide for a sinking fund for payment of bonds as they came due, and
- (5) provide an emergency fund for use in the event of damage to or destruction of the bridge.

26. California, Journal of the Senate, 55 Sess., 1943, pp. 1095-1100; San Francisco Chronicle, June 10, 1951; May 16, 1953; June 3, 1955.

In accordance with the spirit and letter of these obligations, the directors reduced tolls gradually, and only when they felt reasonably certain it could be done without jeopardizing the bridge's financial safety. From 1937 to 1950, the basic fares of fifty cents for a single crossing and twenty cents for regular commuters remained unchanged. By the latter date, however, the excellent financial condition of the district gave rise to public demands for lower tolls. Recognizing the need for a downward adjustment, the directors appointed a special committee to study bridge fares.²⁷

Reporting back to the directorate in May 1950, the committee recommended and the board approved a toll reduction from fifty to forty cents for single crossings. This change was made effective July 1, 1950. No adjustment was made in the commuters' rate.²⁸

Failure of the board of directors to make a bigger cut in the cash toll, or to lower the commuter rate at all, brought forth a number of objections from local civic and commuter groups and the newspapers. The Chronicle, expressing the thoughts of many bridge motorists, scored the district for spurning the opportunity to promote the growth of the Bay area by substantially lowering the bridge tariff. The Chronicle described the board as a "private club," a

27. Golden Gate Bridge and Highway District, Thirteenth Annual Report, 1949-1950, p. 33.

28. Ibid., pp. 17-25.

"closed corporation," which gave each director a large expense account and encouraged him to use it freely.²⁹ In Marin County, meanwhile, commuter groups sought, unsuccessfully, to remove Marin's two directors, both of whom voted for the minimum toll cut which excluded the commuter.³⁰

The State Senate Committee on the Golden Gate Bridge renewed its investigations into the district's operations. Under the leadership of Marin County's energetic young State Senator, John F. McCarthy, the committee invited county supervisors from the bridge district, representatives of citizen commuter groups, and bridge directors to testify. By the end of 1952, McCarthy's committee concluded that public sentiment favored state control since state administration of the bridge offered the best hope for an immediate toll reduction. Administrative costs alone, said the report, would be cut by \$133,000 in the first year, since several of the highly paid administrative posts could be abolished.³¹

The senate hearings led to the introduction of bridge legislation, sponsored by McCarthy, calling for state ownership, operation, and control, and an immediate lowering of tolls. McCarthy's evaluation of public sentiment, however, proved to be something less than accurate. Most of the

29. San Francisco Chronicle, June 6, 23, 1950; Nov. 17, 20, 1950.

30. Ibid., June 1, 1950; Oct. 24, 1951.

31. California, Appendix to Journal of the Senate, Reg. Sess., 1951, I, pp. 1-15; Reg. Sess., 1953, I, pp. 1-9.

county supervisors, in spite of their strong opposition to the directors' high toll policies, preferred local control over state control. In particular, Marin supervisors were concerned lest state gas tax funds be used for bridge maintenance and operation. If this were done, Marin officials said, fewer gas tax dollars would be available for other county highway projects.³² Again, when McCarthy proposed that tolls be used for maintenance and operation, San Francisco supervisors objected since this implied a perpetual toll.³³

The drive to bring about lower tariffs continued. Commuter groups in Marin repeated their demands; and the California State Senate twice passed memorials addressed to the bridge directors asking for an immediate cut in fares.³⁴ In 1953, a bill was passed by both houses calling for a mandatory reduction of the cash toll to twenty-five cents. Only a pocket veto by Governor Earl Warren prevented the measure from becoming law.³⁵

In 1955, in the face of another siege of anti-bridge district proposals in Sacramento, the directors announced a series of toll reductions, "consistent with its policy of continuing consideration of toll rates to fix them as low as

32. San Francisco Chronicle, March 11, 1953.

33. Ibid., April 2, 3, 1953; April 26, 1955.

34. Ibid., April 12, 1952; May 29, 1952.

35. Ibid., Jan. 17, 1953; Golden Gate Bridge and Highway District, Sixteenth Annual Report of Operations, 1952-1953 (San Francisco, 1953), p. 8.

financially possible." On February 1, the single fare charge of forty cents was lowered to thirty cents. On the following October 1, it was reduced further to twenty-five cents, where it now (1958) remains. Also on October 1, the forty-trip commutation ticket was lowered from \$8.00 to its present (1958) level of \$7.00.³⁶

Future Bridge Plans

The 174,000,000 vehicles that crossed the Golden Gate bridge between May 28, 1937 and November 30, 1957, represented a total which far outdistanced original predictions.³⁷ In January 1952, the bridge directors initiated a formal study of the possibilities of a second span across the Golden Gate. Traffic curves extrapolated to 1960 indicated an annual traffic load of 22,000,000 vehicles--seven times the first year's total. This number, said the directors, would be difficult if not impossible for one bridge to accommodate. In 1955, the California State Legislature appropriated \$150,000 to make a feasibility study of the proposed structure. Two years of economic and engineering surveys, however, ended inconclusively, and in 1957 the state legislature refused to vote additional funds for the investigation.³⁸

36. Golden Gate Bridge and Highway District, Eighteenth Annual Report, 1954-1955, p. 15; Nineteenth Annual Report, 1955-1956, p. 11.

37. Golden Gate Bridge and Highway District, "Comparative Record of Traffic for the Month of November and Accumulated Totals for Current Year to Date; and from May 27, 1937 to November 30, 1957," December 13, 1957, files, Golden Gate Bridge and Highway District, San Francisco.

38. San Francisco Chronicle, Jan. 28, 1952; March 12, 1952; May 10, 1955; July 10, 1955; Jan. 20, 1956.

The lack of unanimity among Bay area leaders for a second span across the Golden Gate stemmed largely from the growth of another solution to the Bay area's traffic problem. Since 1950, many Bay area citizens reasoned that a satisfactory solution to the transportation problem could not be achieved merely by building more bridge and highway facilities. What was needed was a diversified transportation system centering around an interurban mass rapid transit system. Under this diversified plan, each of the three major modes of transportation--the automobile, local transit, and interurban mass rapid transit would fulfil a particular need. The major accomplishments of this system would be to reduce the number of cars on the highway and to increase markedly the number of people in transit.³⁹

In July 1951, Governor Earl E. Warren of California signed into law a statute creating the San Francisco Bay Area Metropolitan Rapid Transit Commission.⁴⁰ Present on the commission were representatives from the nine-county Bay region.⁴¹ The purpose of the commission was to develop a master rapid transit plan, including an estimate of construction costs. After five years of extensive engineering, organizational, and financial studies, the commission recommended

39. San Francisco Bay Area Rapid Transit Commission, Report to the Legislature of the State of California (December 1957), pp. 11-12, 63-67.

40. Statutes of California, 1951 Reg. sess., Chap. 1760, pp. 4187-88.

41. See map, p. 2.

that a "unified long-range program of mass rapid transit construction and operation be undertaken in the Bay area."⁴²

An important segment of this comprehensive rapid transit plan involved a crossing between San Francisco and Marin counties using the Golden Gate bridge. In reply to the transit commission's query, the Board of Directors of the Golden Gate Bridge and Highway District stated that many problems would have to be resolved before a rapid transit facility could be constructed over the bridge. Legal questions (particularly the fact that two public agencies would be exercising simultaneous jurisdiction over two different transportation media installed on the span), construction problems, and financial involvements were some of the vital aspects to be considered. Incompatibility between the two state-created agencies loomed large in the thinking of the Golden Gate bridge directors.⁴³

The California State Legislature passed the San Francisco Bay Area Rapid Transit District Act in 1957. Com-
 prised of five counties--San Francisco, Alameda, Contra
 Costa, San Mateo, and Marin--the district was created for
 the purpose of providing a modern, efficient interurban mass

42. Rapid Transit Commission, Report to the Legislature, pp. 11-12.

43. George P. Anderson, president, Golden Gate Bridge and Highway District, to Harry A. Mitchell, chairman, San Francisco Bay Area Rapid Transit Commission, Nov. 15, 1956, files, Golden Gate Bridge and Highway District, San Francisco; interview with James Adam, general manager, Golden Gate Bridge and Highway District, July 16, 1957.

rapid transit system, adequate to meet the needs of the region for the next thirty-five years. The other four Bay area counties (Napa, Sonoma, Solano, and Santa Clara) were invited to join.⁴⁴

To a considerable degree, the state legislature patterned the Rapid Transit District Act after the Bridge Act of 1923. In addition, the board of directors of the transit district were urged to model their initial rules of procedure after those adopted by the bridge district. The first meeting of the board of directors of the San Francisco Bay Area Rapid Transit district was held in November 1957.⁴⁵

Summary

The first twenty-one years of operation for the Golden Gate span have been successful in every respect. The final construction cost was held to the \$35,000,000 figure approved by the voters in November 1930. The rate of traffic and revenue growth has far outdistanced original prognostications. An annual rate of 10,000,000 vehicles was reached in 1951, nineteen years ahead of predictions. Cash reserves have been increased so rapidly that all bond and interest indebtedness has been met on schedule, with large amounts still remaining in all reserve funds. The structural integrity of the bridge is intact with no indications of weakness or appreciable signs of wear.

44. Statutes of California, 1957 Reg. sess., Chap. 1056, p. 2291 and passim.

45. Rapid Transit Commission, Report to the pp. 45-51.

The Golden Gate Bridge and Highway District, as an instrument of local government, still retains wide popular support within the district, although its existence is unpopular in many quarters of the state government.

The next twenty years will undoubtedly witness a greatly expanded role for the Golden Gate span. The proposed rapid transit system, plus increasing vehicular traffic, will enhance the value of the Golden Gate bridge as a transportation medium.

CONCLUSIONS

Adequate land communications is basic to the continued growth of any metropolitan area. The history of the San Francisco Golden Gate bridge since its completion in 1937 underscores the immense significance of this span to the region which claims the Golden Gate as its center of gravity.

The bridge was the product of many forces. The underlying factor was the evolution of the automobile with all the ramifications that this product of American ingenuity had on the economic, political, and social life of American cities. In the years immediately following World War I, many Bay area leaders became conscious of some of the fundamental implications of the automobile age and publicly urged the erection of bridges.

Citizens on both sides of the Golden Gate called for the elimination of nature's barrier separating the two areas. It was in Marin and Sonoma counties, however, where the demand for a crossing was first clearly established. Acutely aware of their economic dependence on San Francisco as the regional capital of the area, business and civic leaders in the north Bay counties in the post-World War I era repeatedly spelled out the many benefits which would accrue once a bridge had been constructed. Statistics compiled in the two-decade interval since the completion of the span have

not only supported the predictions made in the 1920's, but, in many instances, have proved them to be timid estimates of the bridge's potential.

The benefits of the completed span were immediately obvious to commuter and businessman alike. The fact that suddenly in May 1937 there was a dry-land connection between San Francisco and Marin County was an emotional experience in itself. No longer did the commuter, holiday traveler, or trucker have to depend on ferry boat schedules or wait in long lines at the ferry terminals. The physical movement of traffic across the Golden Gate was virtually unrestricted.

San Francisco's role as regional capital has rapidly advanced in the years following the opening of the span. The dairy and poultry industries in Marin and Sonoma counties, for example, have easy and quick access to the large metropolitan markets. Products are loaded at the point of origin and are not handled again until they reach their destination. The redwood lumber industry has gradually abandoned the use of freighters and the railroads to ship lumber to the Bay area. Heavy duty lumber trucks now take their place. Among other advantages, trucks are faster and make for greater flexibility in product distribution.

San Francisco and the north Bay counties both have benefited from the rise in tourism. Locally, the accessibility of the playgrounds in the redwood empire has attracted thousands of new visitors from San Francisco and vicinity. Also, the number of out-of-state visitors has risen

perceptibly. Except for the period of World War II, the number of tourists using the Golden Gate bridge each season has grown rapidly.

Not everyone has looked upon the bridge as an unqualified blessing. Some felt at the time the bridge was opened that it was unsightly, marring the charm and natural beauty of the Golden Gate. Others, particularly those living in Marin, looked upon the bridge and its companion development, the automobile, as unwelcome intrusions. They had purchased property and constructed homes in Marin in order to separate themselves from their city jobs once the day was over. The spectre of hordes of automobiles descending on them using their highways appeared frightening.

In retrospect, Marin's landscape and rural atmosphere has not been altered to the degree once predicted. As far as traffic volume is concerned, the number of vehicles using Marin roads has exceeded the estimates. Most of it, however, has been through traffic; relatively few have remained to make their homes in Marin. The explanation for the slow growth of Marin since the bridge opened in 1937 lies in the existence of tolls on the bridge plus the fact that San Francisco and the other peninsula cities have the advantage of direct land connections. Instead of moving across the Golden Gate into Marin, many San Franciscans have moved south of the city into the Santa Clara Valley. From there they commute to the city by car, by train, or by bus, without the added expense of a bridge toll.

The creation of the Golden Gate Bridge and Highway District in 1928 was notable in that it was the first and (up to 1958) the only district formed under the provisions of the Bridge Act of 1923. As an instrumentality of local government, the Golden Gate bridge district has been pre-eminently successful, although its existence has been opposed by state officials in Sacramento.

The conflict of interests between the bridge district and California officials first came to the surface in 1929, the year following the incorporation of the bridge district. Recognizing the need for a coordinated state highway program, the California State Legislature in 1929 established the State Toll Bridge Authority with powers to construct and operate all future toll bridges. During the construction period, policy and procedural differences between the bridge district and state highway administrators brought about demands on the part of state officials for state control of the Golden Gate bridge district. Since 1938, many attempts have been made to transfer control of the bridge. None has succeeded. The bridge district, administered by a board of directors appointed by the county supervisors, is today more firmly entrenched than at any time in its thirty-year history.

The achievement of the Golden Gate bridge was a victory for local leadership. At the time that the span was actively promoted in the early 1920's, neither the state nor the federal government was prepared to sponsor the project.

In order to achieve their goal therefore, the citizens of the Bay area called upon their own business, financial, and labor leaders to undertake the task.

The high calibre of this local leadership shone most brightly during the dark days of the depression. Losing out in their bid for federal aid, the bridge directors sought and found relief from California financial institutions--principally the Bank of America. Led by A. F. Giannini, the Bank of America displayed an uncommon measure of faith and courage in California and the American economy by purchasing the bridge bonds and advancing credit to the district. This timely purchase during the chaotic days following the Presidential election in November 1932, not only made it possible to begin work on the Golden Gate bridge, but supplied the needed impetus to keep the project going forward. The San Francisco-Oakland Bay bridge, financed by federal funds, brought a second large construction project to the Bay area. Between 1933 and 1937, millions of dollars in contracts and salaries furnished by private and public funds found their way into local channels, shoring up the battered economy and restoring a measure of confidence and hope to a besieged populace. San Francisco, during the 1930's, was one of the major areas of revived economic activity.

Viewing the twentieth century in retrospect, one can see that the Golden Gate bridge forms an integral part of the history of Bay area transportation and regional growth. During the early part of the century, the mass rapid transit

systems--such as the ferry boats and the steam-powered inter-urban trains--had a virtual monopoly on the movement of people in and out of San Francisco. These rail and ferry systems were privately owned and operated under franchise agreements with the local municipalities and the state.

With the advent of the automobile age, followed by an extensive bridge and highway building program, transportation by private car began to be a significant factor in interurban transportation. The mass transportation media, however, continued to expand until the late twenties, after which a gradual decline set in. With the onslaught of the depression in the early thirties, followed in 1936-37 by the completion of the two transbay crossings, travel on the private interurban transit media, particularly the ferries, hit an all-time low. The railroad-ferry interests, led by the Southern Pacific Company, attempted to delay or prevent bridge construction in order to preserve their investment and monopoly. Most of their anti-bridge efforts were directed at the Golden Gate project since it was much more vulnerable legally than the Bay bridge--the latter constructed by the state and financed by the Reconstruction Finance Corporation.

The completion of the bridges marked the end of the ferry era. Following the onset of World War II, however, with its restrictions on automobile travel, patronage on other forms of interurban service began to soar. Buses, picking up where the ferries left off, transported thousands

of workers each day across the two Bay bridges. With the end of gas and tire rationing in 1946, the trend reversed and, once again, the automobile became the chief medium of inter-urban mass transportation. Patronage on the railroads and buses began to decline sharply.

By 1955 the local transportation picture had reached a new crisis. Private transit operators--the train and bus companies--faced with mounting operation costs and declining revenues, were forced to raise their fares while, at the same time, to restrict their service to the public. The number of automobiles, meanwhile, had outstripped all predictions as the suburban areas continued to grow.

Unlike the traffic crisis which faced the motorists in the 1920's, the solution to traffic congestion in the 1950's lay not alone in more highways and bridges. Because of the high automobile density in the Bay area, local authorities turned to possibilities of constructing a rapid transit system which would remove large numbers of cars from the roads during the congested hours. A publicly owned and financed transit system was recommended since experience had indicated that private companies, even if they had the capital, could not successfully operate such a vast system at a rate the public could afford to pay.

In their recommendation to the California State Legislature, the Rapid Transit Commission proposed that the northern arm of the Bay area transit system cross the Golden

Gate bridge. When and if this measure is approved by the voters the complete role of the Golden Gate bridge as envisioned by the founders of the bridge movement will be realized.

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CITY AND COUNTY OF SAN FRANCISCO

DEPARTMENT OF PUBLIC WORKS
CITY HALL
SECRETARY'S OFFICE

Bridge across Golden Gate,
Marin County to San Francisco.

August 28, 1919.

M. M. O'Shaughnessy,
City Engineer.

Sir:

You are directed to comply with Resolution 17071, now series,
of the Board of Supervisors, approved August 25, 1919, a copy of
which is hereto attached, reading as follows:

"RESOLVED, that the City Engineer is instructed to make a
preliminary investigation and report on the subject of the
proposition of building a bridge across the Golden Gate from
Marin County to San Francisco, no expense to be incurred here-
under."

Board of Public Works,

By

W. J. Fitzgerald
W. J. Fitzgerald,
Acting Secretary.

WJF DRS

RESOLUTION NO. 17071. (New Series)
That the City Engineer
is directed to make a preliminary
investigation and report on the subject
of the proposition of building a bridge
across the Golden Gate from Marin
County to San Francisco, no expense to
be incurred hereunder.
Adopted—by the Board of Supervisors, San
Francisco, August 25, 1919.
Attest: Secretary to Board, Staff Clerk,
Rayden, Hume, Clark, Hyler, Kottick,
Lehner, McLain, McSorley, Mulvihill,
Nelson, Schmitt, Sims, Welch.
Agent: Superintendent of Schools,
Wells.
J. R. HUNTER, Clerk.
Approved, San Francisco, August 25,
1919. JAMES H. HAYES, Mayor.

NO. 12-HCC

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

WASHINGTON

January 28, 1920.

Mr. W. M. O'Sullivan,
City Engineer,
San Francisco, California.

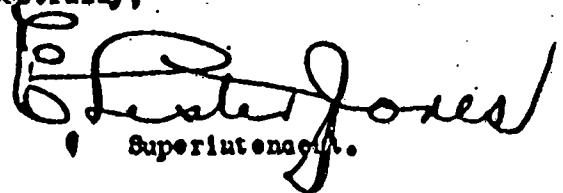
Sir:

In acknowledging the receipt of your letter of the 15th instant, relative to soundings across the Golden Gate between Fort Point and Lime Point, I am pleased to inform you that the Commanding Officer of the Coast and Geodetic Survey Motor Vessel KATONA has been instructed to obtain sufficient soundings to define the depths and character of bottom over the proposed site of the new bridge.

2. While it is not within the scope of the Survey's work to obtain information relative to the bottom characteristics below that obtainable with the sound lead the soundings will accurately develop the slope of the bottom with its surface characteristics.

3. Captain Eugle, Commanding the KATONA, has been instructed to consult with you relative to the work.

Respectfully,


Superintendent.

The Strauss Bascule Bridge Co.

Engineers

Designers of the *Naval* Bridges

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30 CHURCH ST. NEW YORK

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Main Office
104 South Michigan Ave.
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CABLE ADDRESS BASCULE CHICAGO
A B C CODE FIFTH EDITION

ADDRESS ALL CORRESPONDENCE TO THE COMPANY

May 22, 1920.

SUBJECT

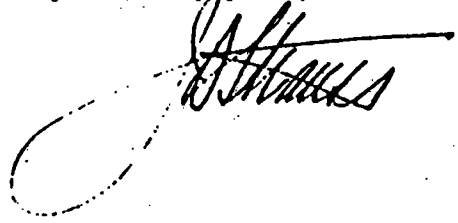
Mr. W. H. O'Shaughnessy, City Engr.,
Department of Public Works,
San Francisco, Cal.

My dear Mr. O'Shaughnessy:

I am today in receipt of your letter of the 14th transmitting soundings, profile, photos and status of climatic conditions for the proposed Marin-San Francisco bridge. This gives me the necessary information to make up a study which I will do promptly. I presume that you can allow me approximately 30 or 40 days to prepare this study and unless I hear from you to the contrary, I will proceed on this basis. It is possible that after I have gone into it a little further, I might write you for further information on one or two points. The project interests me very much and I will give it my very best attention.

With kindest regards, I am

Very sincerely yours,



JBS:ED

The Strauss Bascule Bridge Co.

223

EASTERN OFFICE
109 CHURCH ST., NEW YORK.

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CABLE ADDRESS: "BASCOLE CHICAGO"
A. N. C. CODE, FIFTH EDITION.
RENTLEY'S CODE.

PLEASE ADDRESS ALL CORRESPONDENCE TO THE COMPANY

SUBJECT

January 28, 1921.

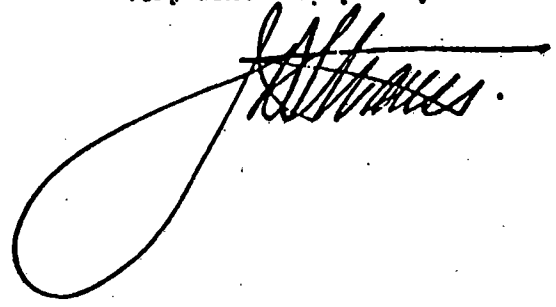
Mr. M. H. O'Shaughnessy,
City Engineer,
San Francisco, Calif.

My dear Mr. O'Shaughnessy:

I am pleased to advise you that I have now gotten a very good start on the Golden Gate Bridge and it is apparently working out quite satisfactorily. Within the next 30 days I will have the drawing completed and will be able to submit it to you, also an estimate of cost.

One of our engineers, Mr. F. E. Elbrick, will be in San Francisco within the next week or so and I am giving him a letter to Mr. O'Shaughnessy, suggesting that he take this opportunity to make a periodic inspection of the Fourth Street Bridge and also take up the question of any other bridges over this channel or the Dumbarton bridge or any other movable bridges. Mr. Elbrick, however, is not conversant with the long span bridge. This I will take up with you in person. With kindest regards, I remain,

Very sincerely yours,



JBS:JC

NEW YORK OFFICE
712, 30 CHURCH STREET
SPRING GARDENS 3772

JOSEPH B. STRAUSS, C. E.
CONSULTING ENGINEER
225 NORTH MICHIGAN AVENUE
CHICAGO, ILL.

TELEPHONE CENTRAL 9860-91
CABLE ADDRESS
BASCULF, CHICAGO

June 7, 1921.

Mr. M. M. O'Shaughnessy,
City Engineer,
San Francisco, Calif.

My dear Mr. O'Shaughnessy:

I am pleased to be able to advise you that I have now completed the general outline drawing in pencil of the Golden Gate Bridge and that the tracing of this drawing is now begun. This part of the work will take the least time and I expect to be able to send you this general drawing before the end of this month.

At that time also I will have the estimate of cost which I have already roughed out in a preliminary way and which from present indications will be quite reasonable. I will send on this information to you towards the end of the month, as above stated, and am also planning on being in San Francisco in September or October in person, at which time we will be able to discuss it in full detail. It has been a long time in process, but as I understood you there was no particular rush and the magnitude of the span has involved quite a little work.

In this connection I note that there has recently been considerable activity in connection with the project of A. J. Rich for a bridge from San Francisco to Oakland and that a suggestion has been made that a separate project of the same kind will be undertaken by you, State Engineer McClure and Mr. Haviland, County Engineer of Alameda County, provided that a bill now before the legislature appropriating \$5,000 for this purpose is passed.

According to the papers this project has been considerably advanced, but I presume that this is exaggerated and that the situation on this other project is substantially in the form that it was when you wrote me last. I would, however, be interested in hearing from you further on this subject if there has been a change. Trusting you are well, I remain, with kindest regards,

Very sincerely yours,

JBS:JC

JOSEPH B. STRAUSS, C. E.

CONSULTING ENGINEER
225 NORTH MICHIGAN AVENUE
CHICAGO, ILL.

TELEPHONE CENTRAL 8600 21

CABLE ADDRESS
PASCULE, CHICAGO

NEW YORK OFFICE
Room 712, 30 CHURCH STREET
TELEPHONE CORTLAND 3772

August 3, 1921.

Mr. M. L. O'Shaughnessy,
City Engineer,
San Francisco, Calif.

My dear Mr. O'Shaughnessy:

I have delayed reply to your letter of the 19th until I could transmit the estimate for the Golden Gate Bridge, which I am doing herewith. This comprises seven sheets, the first being the summary and showing that on the basis of the prices given the total cost will approximate \$17,000,000. From the footnote on this sheet you will observe that provision is made for variation in the prices of steel, which would give a maximum of \$20,000,000. I rather think, however, that the price of steel will range downward instead of upward, so that I feel that \$17,000,000 can be considered a conservative estimate. I shall be glad to have you look over the estimate in connection with the drawings, so that we can consider them all together at the proper time.

Regarding the Alameda Transbay bridge, I note your opinion that this would be of greater commercial importance than the Marin Bridge, but it seems to me that both are desirable. The Transbay Bridge would serve principally the railroads, while the Golden Gate Bridge would serve as a highway bridge only and as an outlet and development of valuable property. Thus there may be an opportunity for financing both--placing the burden of the Marin Bridge on the railroads, just as at New York, where the railroads are the principal supporters of the proposed new bridge which will serve them.

I should like to have you give this suggestion your thought, so that the development of the Transbay Project can perhaps be carried out along these lines, which would avoid the shelving or postponement of the Golden Gate Bridge. It may be considered also that the latter has a great commercial value to San Francisco in that it would be a monumental structure and the longest span in the world, thus putting San Francisco ahead of New York in this respect.

I agree with you regarding the estimate of the cost of the Marin Bridge prepared by Davies and Modjeski. This seems to me and also to others here as very much underestimated, and it would seem well worth while to investigate this point carefully. Also the estimate

Mr. M. L. O'Shaughnessy.

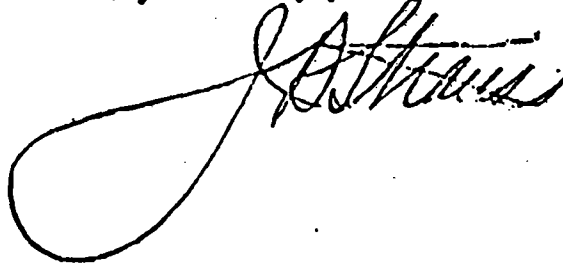
- 2 -

August 3, 1921.

should be carefully considered. As I understand it, however, this report is only a preliminary report and does not mean definite commitment to the layout or to the engineers and I assume that before the matter takes definite shape both these points will be thoroughly considered. I will be very glad indeed to have the opportunity to go over the whole matter with you in October and in the meantime will be pleased to hear from you from time to time as matters develop and should any question arise in your mind as you look over the plans and estimates for the Golden Gate Bridge.

I note that you received the little book I sent you and am glad to know that you find it of interest. I shall be pleased indeed to have you keep it as a testimonial of the very high regard in which I hold you. With best wishes, I remain,

Very sincerely yours,



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