

# Railroad Efficiency and Dismemberment

Testimony of

**Mr. J. Kruttschnitt**

Chairman, Executive Committee, Southern Pacific Company

before the

Interstate Commerce Commission

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## ERRATA

*On Page 9, Line 14, the figure quoted as the total outstanding securities of the Central Pacific should be \$267,758,841.20 instead of \$26,758,841.20.*

*On Page 12, Line 23, the figure quoted as the return on book cost of all railroads in the United States for the ten years preceding 1901 should be 3.7 per cent instead of 5.7 per cent.*

# Railroad Efficiency and Dismemberment

*Following statement was made to the Interstate Commerce Commission at Washington, November 22, 1922, by Mr. J. Kruttschnitt, Chairman of the Executive Committee of the Board of Directors, Southern Pacific Company, at hearing on the Southern Pacific Company's application to lease the Central Pacific:*

"I ENTERED the railroad service in 1878 as engineer on construction of the Morgan's Louisiana and Texas Railroad and Steamship Company. From 1878 to 1883, I occupied that position and the position of General Roadmaster and Assistant to the Chief Engineer. From 1883 to 1885 I was Superintendent of the same road, and also Assistant Chief Engineer. From 1885 to 1889 I was Assistant General Manager of what was known as the Atlantic System of the Southern Pacific Company. In 1889 I was made General Manager of the Atlantic System and in 1895, on the death of Mr. Towne, who was General Manager of the Pacific System, I was made General Manager of the entire Southern Pacific Company, both Atlantic and Pacific Systems, with headquarters at San Francisco. From 1895 to 1904 I occupied that position, and was also one of the Vice-Presidents of the Southern Pacific Company. From 1901 to 1904 I was also Assistant to the President. In 1904 I was given charge of the operation, maintenance and construction of both the Union and Southern Pacific Systems, with headquarters at Chicago, with the title of Director of Maintenance and Operation. I occupied that position until the unmerging of the Southern and Union Pacific, in January 1913, when I was made Chairman of the Executive Committee of the Board of Directors of the Southern Pacific Company, which position I now occupy. The Chairman of the Executive Committee is the chief executive officer of the Company, who under control of the Executive Committee and Board of Directors has general supervision and direction of the Company's business in all its departments and over all its officers, agents and employees.

## Development of Southern Pacific System

"A few words on the history and growth of what is now the Southern Pacific System are perhaps necessary to a full understanding of its organization and aspirations.

"The Central line from San Francisco to Ogden, built by Messrs. Huntington, Stanford, Crocker and Hopkins, was placed in operation in 1869. It joined the Union Pacific at Ogden, thereby making a continuous line from the Missouri River to the Pacific Coast, as contemplated by the Pacific Railroad Acts. In 1870, just a few months after the completion of the Ogden-San Francisco Line, the four men who constructed that line purchased the line of the Southern Pacific Railroad Company, which then had constructed 80 miles of railroad south from near San Francisco to Gilroy. From that time on extensions were made to the Central Pacific Railroad and to the Southern Pacific Railroad by the four men mentioned. In 1883 the line from California to New Orleans was completed and placed in operation. Branches were built and extensions made from time to time as deemed necessary, some in the name of the Central Pacific and others in the name of the Southern Pacific Railroad Company, depending on which one could, at the time, the more easily finance the desired addition, but the management and control were common to both companies. Substantially all the directors of both companies consisted of men selected by Mr. Huntington and those associated with him in the control of the two properties. There was but one construction company and one superintendent of construction, whose forces worked interchangeably upon both properties and the equipment was moved back and forth as occasion required. The employees of both companies were paid through the same channel.

This went on until 1885, when the present Southern Pacific Company was organized by Mr. Huntington and his associates to take over, through leases for 99 years, all of the lines owned by the Central Pacific and Southern Pacific Railroad Companies, and thence forth all have been operated by the present Southern Pacific Company.

"Titles to extensions made and lines acquired since 1885 have been taken sometimes in the name of the Central and sometimes in the name of the Southern. For instance, the line from Tehama north to the Oregon line, completed in 1887, was taken in the name of the Central Pacific whereas the line from Portland south to the California state line, known as the Oregon and California Railroad, was taken in the name of Oregon and California Railroad Company, then and now owned by the Southern Pacific. Thus we see the lines in Southern Pacific and Central Pacific ownership so interwoven in both construction and operation that it is almost impossible to separate them physically. Any kind of separation

so far suggested is really a modified form of merger, but why modify a merger that has never been a merger at all but for every practicable public purpose has been one transportation machine under one control and one management for over half a century, while the title to some parts stands in the name of Central Pacific and to other parts in the name of Southern Pacific? The division is in name only. There are 'two' names but 'only one railroad system,' each part of which is dependent for its maximum usefulness upon some other part or parts.

"We are applying to your honorable Commission for a temporary lease of the Central Pacific until such time as in the exercise of your authority, under the Transportation Act, you shall have allocated it definitely in your permanent plan of consolidation. Should our application be denied and the separation of the Central Pacific be carried out at once as contemplated in the mandate of the Supreme Court, thereby creating an independent Central Pacific, much expense and inconvenience to the public through changing existing routes and channels of traffic will ensue, which will prove to have been entirely unnecessary if the Commission in its final consolidation plan should leave the existing relations of Southern Pacific and Central Pacific unchanged.

"An analogous case would be that of a house demolished because it did not conform to building regulations within fire limits. Because of a change in the law thereafter it is found to conform rigidly to them; what possible purpose could be served by insisting on its demolition because of infraction of the old law?

"Therefore, pending the final decision of the Interstate Commerce Commission as to the ultimate fate of the Central Pacific, two courses are open; either—

"(a) Authorize a temporary lease such as we ask for, or—

"(b) Set up an entirely independent Central Pacific.

"Let us consider which course will better serve public interests. In the slow growth and development for over 50 years of Southern Pacific System, an efficiency of operation, implying a high excellence of service to the public, attained by careful adjustment of mileage of divisions, location of division terminals and freight train terminals, convenient to sources of water and fuel supply, arrangement of train service, location of shops, wood preserving plants, fuel stations, all without regard to corporate ownership, has created an operating organization equalled by few and surpassed by none. The highly coordinated train service provided by Southern Pacific can be successfully operated only with terminals functioning with great efficiency. Through long years of training the superintendents and their staffs have attained a high degree of operating efficiency within the terminals along the line and with respect to coordinating operations with neighboring divisions and

terminals. In assembling fruit and other freight, each terminal builds up its trains so as to minimize switching and insure prompt delivery at destination. A cooperative spirit is maintained between divisions, founded on the theory that each is working to a common end. Each division strives strenuously to increase its own efficiency, but is ready to surrender its individual advantage whenever necessary to improve the service as a whole. Should a train running over several divisions meet delay on one division, connecting divisions spontaneously cooperate to make up lost time, and are called upon for explanations if they fail to do so. Here again the common good of the service is the first consideration. Through a long period of years coordinated train service has grown up concurrently with traffic. Traffic is much heavier on some routes than others. Some terminals have become more important than others. As a consequence the various lines and terminals have capacities proportioned to their needs, including sidings and engine houses, car repair yards and other facilities that must expand with volume of traffic; important pieces of line have been double tracked; the operating divisions, eleven in number (not including steamer division) have been established with territories and headquarters to best suit relations with patrons and shippers, and effectively supervise operations.

"Train and engine men and mechanical department employees in numbers sufficient to handle traffic, as now routed, have located and built their own homes at terminals. Crews and locomotives, and repair facilities are concentrated at important terminals, available for use in any direction. This supplies flexible operating conditions.

"In the use of equipment, ownership is entirely disregarded, locomotives and cars being so distributed as to best meet the requirements of a *unified* system. An examination of a map of the Southern Pacific System will show that Central Pacific and other system lines are so interwoven and interdependent as to offer alternative routes for traffic at a very large number of points, a feature of great public convenience, because in case of accident or damage to permanent way, by fire or washouts, detours are ready at hand whereby currents of passenger and freight traffic can be diverted and moved with negligible delay. Such abnormal as well as normal movement of traffic requires the indiscriminate use of both lines to complete delivery of freight at destination and to gather freight from origin and assemble it into solid trainloads. The flow of traffic in the main north and south commerce arteries between California and Oregon and between Northern and Southern California requires the use, first of Southern Pacific, then of Central Pacific, and finally again of Southern Pacific lines to complete delivery. Where alternative routes exist train service has been arranged regardless of ownership of rails, so as to afford the best service to the public at the lowest practicable cost.

"It will thus be seen that service now being rendered is the direct product in all respects of the operation of these lines, as

interdependent parts of a single system, for the period of 50 years and of the growth in facilities and operating methods which have taken place during that period.

"The unanimity and spontaneity of the public's protests against the dismemberment of a transportation system that has been built up gradually for its use during a period of 53 years is convincing proof of the fidelity of the management of the Southern Pacific Lines to its public obligations. For years it has spent money consistently and generously in the intensive development of its transportation plant where ever it could best respond to public needs, and the emphatically expressed wish of the public to have the system left intact, furnishes gratifying evidence that its patrons believe their interests and those of the railroad that faithfully and efficiently serves them to be identical.

## Joint Versus Unified Use

"It has been conclusively shown that complete dismemberment is impracticable. In fact every suggestion for a termination of the existing unified operation contemplates joint use of certain lines to a greater or less degree, itself conclusive evidence of the interdependence of these lines and of the reason why present unified use should be continued. Any species of joint use is therefore a mere makeshift to avoid the admitted evils of separation. If the Commission denies this application, the District Court has no power to authorize a continuance of such unified use of 'all' lines. The most that it may do is to authorize a joint use of a part of such lines as compared with the present unified use of all such lines. The extent of such authority and the extent to which the interested carriers, independent of each other, would care to avail themselves of joint use is involved in great uncertainty. To whatever extent joint use may be employed it is not an adequate substitute for the existing unified use. Under present unified use the freest use of all lines, equipment and forces is made for the purpose of producing the most efficient service at the lowest cost through their operation as a single system under a single management. Present efficiency of service is primarily due to this condition, which would be completely destroyed under any form of joint use. There would be substituted either neutral management of all jointly used properties or management by the owning company with the other admitted as a tenant, either with or without neutralization of station and certain other forces.

"(A) To secure the most efficient operation of any property and consequently the highest grade of service to the public, requires the loyal, whole hearted and enthusiastic work of all concerned, from the highest to the lowest. Service of this character can never be obtained without cultivating regard for the honor and interest of the company one belongs to in the highest degree. Each and every employee must feel a personal pride and a personal interest in the welfare and success of the property he serves and

an equal pride and interest in the opinion the public holds as to the character of his company's service and his co-employees. Under joint, 'free', and equal use of a line by two railroads, considerations of economy would require that employees should be joint to as great an extent as possible. In all contracts providing for joint employees their absolute neutrality is of the greatest importance and is always most carefully guarded. In such conditions where a man undertakes the impossible—to serve two masters—there can be no deep regard for the honor and interests of both as they necessarily conflict, enthusiasm is stifled and there can be no pronounced effort to improve service of either one of the joint users, because he would violate neutrality and would lay himself open to a charge of discrimination in favor of one user and against the other and probably would incur dismissal on the demand of the party discriminated against. In such conditions it is absolutely impossible to get the best or most efficient service. Neutral management or neutralization of employees, therefore, leads to inefficiency, also to lack of responsibility on the part of both employees and management. If, on the other hand, joint line operations are left in the exclusive control of the owning company, the tenant company will be discriminated against and its service will suffer.

"(B) Competitive joint use necessarily leads to wasteful duplication of train service, since each user will endeavor to get the lion's share of the traffic by operating trains, both freight and passenger, at those hours of the day when most attractive to the public, whereas under unified operation trains are spaced throughout the day affording both a more economical and, on the whole, more convenient service. All such increased expenses must ultimately be born by the public and defeat one of the objects of the Transportation Act to bring about *efficient and economical management and reasonable expenditures*.

"(C) Joint use complicates and retards the making of improvements by requiring the concurrence of two parties where the action of one alone is now required, a situation further complicated by the fact that the interests of the joint users are not always identical, but frequently conflict.

"(D) Except where there was considerable advantage in routing traffic over joint tracks each company would prefer to hold its traffic on its own lines so as to retain full control of its service.

"(E) Divisional organizations, representing years of training in the handling of their own affairs and in cooperating with each other would be broken up just as extensively as in the case of complete separation of the lines.

"(F) More extensive use can be made of equipment and power under unified operation than under independent operation no matter what the extent of joint use. As applying to the present situation this is one of the most serious results which would follow either complete separation, or a complete separation accomplished by joint use of certain lines, which joint use would in no way cor-

rect it. It therefore appears that joint use so far as it may be provided for by the court will not cure the extensive impairment of public service created by separation of the line.

## Increased Cost of Separate Operation

"A careful estimate prepared by our operating officers shows that a separation of the properties, even with extensive joint use of tracks and terminals, will result in increased operating expenses for the two lines combined of approximately \$6,557,000 per annum. All of this money, which is approximately 21 percent of the entire net railway operating income of the Pacific System for the calendar year 1921, would be wasted each year during which the separation continues.

"A careful estimate prepared by our operating officers also shows that in the event of separation there would be imposed upon the Southern Pacific capital expenditures, amounting to \$2,676,000 mainly for enlarged facilities to take care of traffic now using Central Pacific tracks, while in order to make good its equipment deficiencies Central Pacific would be required to spend \$1,840,000 for passenger locomotives and cars, \$3,250,000 for freight locomotives, \$10,000,000 for freight cars, to which expenditures should be added other scattering capital expenditures, making a total for the Central Pacific of \$17,966,000 or for both lines of \$20,642,000. These capital expenditures would be necessary in order to permit these companies to take care of the same volume of business now being handled, all of which would be avoided by continued unified control. It is difficult to form an adequate conception of the magnitude of these sums, but if the expenditure of \$6,557,000 annually in operating expenses can be avoided it would purchase 3640 fifty-ton box cars or 94 of the heaviest type of freight locomotives; would pay for a second track in fairly difficult country for 130 miles. The \$20,642,000 of capital expenditures that might be avoided is two-thirds of the average yearly amount spent on the entire Southern Pacific System for the past 21½ years.

## Central Pacific Without Credit

"Whether unified control continues or ceases, capital expenditures should be made on the Central Pacific to provide increased facilities for the handling of traffic both as to second tracks and facilities at important traffic centers.

"Litigation of the past nine years has so clouded the title of Southern Pacific to Central Pacific that improvements of all kinds have been sparingly made, that is, hardly to the extent demanded by increased traffic. The general increase of traffic has made it imperative to undertake a number of improvements of a pressing nature at once, and Southern Pacific stands ready, if this application for temporary lease of Central Pacific be granted, to advance

the money at once, as the Central Pacific itself, with its poor credit, cannot obtain it, in order to provide enlarged and more modern facilities at various points, including stations at Sacramento and Reno, whose requirements have outgrown existing ones; to establish enlarged terminal at Dunsmuir; substitute the most substantial ballast for that now under the ties on parts of the line where necessary; to start the construction of second tracks on parts of the Central Pacific line where such construction will facilitate the prompt movement of traffic, such as certain sections of the tracks over the Sierra Nevada and in the territory where the meeting points of eastbound passenger trains out of San Francisco and westbound passenger trains into San Francisco are concentrated. In fine, to proceed on a program of improvement to fully meet the requirements of existing and future business. The Central Pacific as an independent company has no credit in the financial markets of the world. If separated from the Southern Pacific it could not raise the capital necessary for these improvements now needed nor the huge additional amounts required solely on account of separation and which would otherwise be unnecessary. In the settlement of its debt with the Government of the United States in 1899 the guaranty of the Southern Pacific as to both principal and interest was required in order to provide for settlement of said debt, which amounted to \$58,820,000, and the negotiation of bonds to take care of the same, and also for refunding and construction purposes. The Southern Pacific likewise had to guarantee \$9,640,000 short line first mortgage bonds to finance construction by the Central Pacific of the Lucin cut-off. The last loan negotiated for the benefit of the Central Pacific was its European Loan of 1911, which was negotiated solely upon the basis, first, of its guaranty as to principal and interest by the Southern Pacific, and second, by a pledge of \$83,985,800 of the liquid assets of the Southern Pacific Company represented by stocks and bonds in other companies, which are the only tangible securities back of this loan.

## CENTRAL PACIFIC RAILWAY COMPANY

Funded debt outstanding December 31, 1921, guaranteed  
by Southern Pacific Company

| <i>Title of Bonds</i>                                                   | <i>Total<br/>Outstanding</i>      | <i>Guaranteed by<br/>Southern Pacific<br/>Company</i> |
|-------------------------------------------------------------------------|-----------------------------------|-------------------------------------------------------|
| First refunding mortgage, 4%.....                                       | \$98,718,000                      | Principal and interest                                |
| Three and one-half per cent mortgage<br>3½%.....                        | 6,617,325                         | Principal and interest                                |
| Through Short Line First Mortgage<br>4%.....                            | 9,640,000                         | Principal and interest                                |
| Four Per Cent 35 year European Loan,<br>(payable in French Francs)..... | (fcs. 83,922,000)<br>\$16,201,158 | Principal and interest                                |
| (payable in U. S. Gold).....                                            | \$32,061,358                      | Principal and interest                                |
| Total.....                                                              | \$163,237,841                     |                                                       |

"The total \$163,237,841 funded debt guaranteed by Southern Pacific Company is 89% of the total funded debt of the Central Pacific and shows how seriously the Southern Pacific would be crippled by a temporary separation even, pending the determination by the Commission of the final allocation of the Central Pacific in its consolidation plan, because the Southern Pacific would lose the large contribution to its net income made by the Central Pacific and in addition would remain burdened with the obligation to make good its guarantee of the interest on \$163,237,841 of funded debt. The Central Pacific is today bonded at the rate of of \$80,000 per mile. Its balance sheet as of July 31, 1922—exhibit 15 attached to the petition—shows outstanding capital stock \$84,675,000, outstanding funded debt \$183,083,841.20, total outstanding securities being, therefore, \$26,758, 841.20; ratio of bonds to total capital being already 68.4%, a percentage which, in the opinion of bankers, is unsafe and it should not exceed 60% and therefore is not an attractive security for the investor. An independent Central Pacific would therefore be unable to finance either these improvements which will be required, if unified control continues, or those additional and unnecessary improvements required in the event of separation. The public would therefore have the service of an impoverished line operating at a disadvantage and incapable of making improvements now needed or of keeping pace with the growing needs of the country.

"Central Pacific contributes 25.4% to the total income of the Southern Pacific System, that is \$9,143,251, out of \$35,946,291. The Southern Pacific Company's net income is used for payment of fixed charges, additions and betterments, and for the payment of guarantees on bonds of its constituent or related companies. On July 31, 1922 the amount of such bonds guaranteed by it as to principal and interest was \$401,000,000 and in addition \$4,479,000 of outstanding bonds have been guaranteed as to interest only. The annual interest on these guaranteed bonds amounts to \$17,400,000. It is patent, therefore that if deprived of the net income contributed by the Central Pacific, the Southern Pacific would be in position where it might have to default on some of its obligations incurred in building up a transportation system designed to give to the public the most efficient possible service.

"We have forecasted in considerable detail the extent of impairment and disarrangement of service, which would follow the destruction of a unified system, where operating methods and business policies have been developed during 50 years of steady growth. Having entered the service of Southern Pacific Lines in 1878 and having therefore acquired a most intimate familiarity with the growth of the system in 44 years of service, I am peculiarly well qualified—perhaps better than anyone now living—to indicate the many influences that have contributed through the interdependent use of all its lines to the great operating efficiency of Southern Pacific that is equalled by few and exceeded by no system in the United States. Nevertheless, it manifestly would be

impossible for me to enumerate all of the favorable conditions brought about by unified control and management, or all of the unfavorable ones that would be created by dismemberment. It stands to reason, however, that in dealing with the proposed destruction of organizations and methods, which it has required half a century to create, no mortal being can possibly trace the effect of their sudden destruction to its conclusions; but we believe we have specialized enough in indicating evil effects so as to make it apparent to anyone that substitute methods and organizations, untried by time or experience, cannot possibly operate as efficiently or smoothly as that which now exist. It would seem to be folly to disrupt relations that have developed in 50 years of experience in operating these properties unifiedly in order to make such a doubtful experiment pending the determination of consolidation proceedings, wherein, under plans now before the Commission, the retention of these lines as part of a single system is contemplated."

## Cross Examination

On cross examination Mr. Kruttschnitt referred to the following statements made by Union Pacific "propagandists" in urging the tearing from the Southern Pacific System of lines in the corporate name of Central Pacific:

(A) The separation "would make every railroad coming into San Francisco stand on its toes as to business efficiency."

(B) "All major improvements were put in under Union Pacific control."

(C) Southern Pacific "a corporation that has never built up your territory." Union Pacific control of Central Pacific "would force development of every kind through the entire territory."

Regarding these statements Mr. Kruttschnitt said:

"In 1921 the following data established the relative 'business efficiencies' of Southern Pacific and Union Pacific. Remember that Union Pacific's main line is substantially all double-tracked with curvature and grade rates much lighter than on Southern Pacific whose long, steep grades, combined with sharp curves, over the Sierra Nevada, Siskiyou and Tehachapi Mountains, probably present the most difficult operating problems in the world on heavy traffic lines. Notwithstanding the handicaps we have mentioned, Southern Pacific freight locomotives made 8.82% more mileage daily than did those of Union Pacific.

"Southern Pacific passenger locomotives ran 91½% more miles daily than did those on Union Pacific, with 30% more passengers per train, suburban passengers excluded.

"Notwithstanding lighter grades, Union Pacific consumed 101½% more fuel to move the same number of ton miles.

"Notwithstanding lighter grades, Union Pacific burned 17% more fuel to move the same number of passenger car miles. Southern Pacific's equation of oil to coal such as Union Pacific uses, gives the coal 4% advantage over oil.

"Proceeding a step further, the regularity of movement of traffic, passenger and freight, through Ogden, shows the superiority of service rendered the public by Southern Pacific over Union Pacific.

Percentage of on time deliveries of trains at Ogden.

### *Passenger Trains*

|                          | 1921  | 6 Mos. 1922 |
|--------------------------|-------|-------------|
| By Southern Pacific..... | 93.9% | 91.4%       |
| By Union Pacific.....    | 73.2% | 80.3%       |

### *Manifest Freight Trains*

|                          |       |       |
|--------------------------|-------|-------|
| By Southern Pacific..... | 91.1% | 96.1% |
| By Union Pacific.....    | 79.2% | 88.0% |

### *Perishable Freight Trains*

between Roseville, California, and Council Bluffs, Iowa, made schedule time over Southern Pacific-Union Pacific, thus:

|                          | 1921 | 6 Mos. 1922 |
|--------------------------|------|-------------|
| By Southern Pacific..... | 90%  | 94%         |
| By Union Pacific.....    | 60%  | 50%         |

"The movements over Southern Pacific being on single track and on Union Pacific on double track with sharp curves and rates of grade very much against Southern Pacific.

"During the shopmen's strike, Southern Pacific placed embargoes on livestock and perishables for but two periods of 23 and 44 hours respectively, *and annulled no passenger trains*. Union Pacific embargoed livestock and perishables at all California junctions *for six days* and were *unable to move passenger trains for four days*, on which Southern Pacific assisted them by handling their passengers to destination. For several days during the strike the Southern Pacific Lines afforded the public the only means to move freight and passengers by rail out of California. In face of these tests of efficient organizations and management, much superior to those of its covetous traducer, not only it would not benefit but it would inflict great and unjustifiable injury on the public to lower the excellence of its service by turning any part of the Southern Pacific System over to the Union Pacific."

Referring to the charge "all major improvements were put in under Union Pacific control," Mr. Kruttschnitt said:

"Union Pacific acquired control of Southern Pacific in 1901. Ten years preceding 1901 covered a period of financial trouble for the railroads. The return on book cost of all railroads in the United States in that period averaged but 5.7 percent. For the ten years ending in 1910 the average was 5.2 percent. Added to this country-wide trouble the Southern Pacific had peculiar troubles of its own in negotiating the settlement of the Central Pacific debt of some \$58,812,715 to the United States Government. The negotiations, which were completed in August, 1899, were a cloud on the Southern Pacific's financial horizon which made large expenditures on long desired and fully matured plans impossible. It was impracticable to raise large sums of money on poor credit of the Southern Pacific Company. A review of the status of "major improvements" preceding and during Union Pacific control will test the correctness of the charge of our critics.

"(1) Complete plans and specifications for rebuilding Central Pacific, including those for constructing the Lucin cut-off—which was a dream of Mr. C. P. Huntington's for over 25 years—had been prepared by Southern Pacific engineers long before Union Pacific acquired control, but were held in suspense because, among other things, the unsettled government debt affected Southern Pacific credit and made it difficult, if not impossible, to raise the needed capital. Soon after an agreement with the Government was reached Mr. Huntington died, whereupon Mr. Harriman secured control of Southern Pacific System and assumed the Presidency. About eight months thereafter I was appointed his assistant, with headquarters at San Francisco. By his direction the General Manager and Chief Engineer of the Union Pacific came to San Francisco for conference on plans of the Lucin cut-off, and on rebuilding 550 miles of the Central Pacific between Ogden and Reno. Following this conference Mr. Hood, Chief Engineer

of the Southern Pacific, who had prepared the plans, and I, were called to New York bringing them with us. After two short conferences Mr. Harriman approved them without any changes whatsoever and ordered their immediate execution.

"The Union Pacific lent its credit to obtain money which Southern Pacific with its impaired credit was unable otherwise to obtain, and made possible the execution of work which had been conceived by Southern Pacific officers and had been covered in detailed plans and specifications long before Union Pacific acquired control of their lines. The work was completed by Southern Pacific officers who reported direct to Mr. Harriman entirely independently of Union Pacific officers.

"(2) The Bay Shore cut-off, or low grade entrance into the City of San Francisco, was completed in 1907 but the credit for its conception and, indeed, for a considerable part of its construction does not belong to Union Pacific. This cut-off diverges from the old main line at San Bruno, about 11 miles south of San Francisco and follows a sea level grade along the shores of San Francisco Bay to the terminals. The construction of this line, like that of the Lucin cut-off, had long been a dream of Mr. Huntington's, and we find from office records that a short part of the line from San Bruno to South San Francisco was completed on the final location December 31, 1892, and some of the right of way was bought as far back as 1878. Other purchases of right of way were made in 1893 and thereafter until construction was actively begun. As much as \$1,000,000 was spent in the acquisition of property for this change in the year ended June 30, 1900, and \$563,000 in the year ended June, 1901, all of the expenditures were made on plans perfected long before Union Pacific control.

"(3) Completion and opening of the Coast Line from San Francisco to Los Angeles via Santa Barbara, Montalvo, Chatsworth and Burbank:

"The long unfinished gap of 107 miles between Ellwood and San Luis Obispo was completed in January 1901. The construction between Montalvo, via Chatsworth, and Burbank, substituting a low grade line in place of the heavy grades via Saugus and the San Fernando tunnel was completed in the year 1900.

"Thus we see that the three most important and costly 'major improvements' to Southern Pacific property were all conceived and covered by complete plans and specifications long before Union Pacific control, although the completion of two of these improvements was unquestionably hastened by Union Pacific lending its credit to Southern Pacific.

"Shortly after the Central Pacific reconstruction was finished Mr. Harriman who by his wonderful work of rehabilitating the Union Pacific placed himself at once easily at the head of great upbuilders of railroads, determined on an organization, planned by himself, to operate both Southern and Union Pacific Systems with maximum efficiency. It is significant that every man he selected for the highest posts and vested with jurisdiction over the

combined systems which embraced the greatest mileage ever operated by common officers, were selected from the Southern Pacific staff.

"Under Mr. Harriman's directions these officers introduced on Union Pacific Lines, Southern Pacific methods and practices, whose excellence had been proven in their previous positions, and these were used until the properties were unmerged by the decree of the Supreme Court in 1913.

"The operating data for 1921, which we have quoted, showing the superiority of Southern Pacific 'business efficiency' over that of Union Pacific vindicate Mr. Harriman's opinions of the comparative efficiencies of the management of the two systems, and show that one railroad 'coming into San Francisco' has been 'standing on its toes' as to 'business efficiency' high enough at least, to overtop the Union Pacific."