The Southern Pacific Tradition

The publication of this historical sketch of the development of Southern Pacific seems particularly appropriate at this time when the railroad’s organization has added, in terms of achievement, another outstanding chapter to the history of the road.

In taking over the office of president on December 11, 1941, four days after the Japanese attack on Pearl Harbor, President A. T. Mercier issued a message to Southern Pacific men and women saying that “our first duty is to our government in the war,” and added:

“The job is being tackled by all hands in the traditional spirit that built our western link of America’s transcontinental railroad — the same spirit that has since won through in every crisis of flood, storm and disaster. I know the men and women of our railroad. They have what it takes. Out on line, in the yards, in the shops and offices, day and night they will continue to do the greatest job in our history.”

Such confidence was, indeed, well merited; for during the entire war period the Southern Pacific organization, despite serious handicaps of manpower and equipment shortages, kept unprecedented volumes of traffic moving to surpass any previous accomplishment in the company’s existence.

With the return of peace, President Mercier has pledged that “all our resources of manpower and physical facilities will again be turned to furthering development of the area served by our lines and to provide progressive, friendly service to our customers.”

This booklet presents in concise form the history of Southern Pacific from its founding through World War II. It is published by the Southern Pacific Bureau of News, 65 Market Street, San Francisco, and is a revision of the “75 Years of Progress” articles which first appeared in the Southern Pacific “Bulletin” during 1944.

DECEMBER, 1945.
Diamond Anniversary of Last Spike Driving to Complete First Transcontinental Railroad
Recalls Role of Southern Pacific and Parent Central Pacific in Making Western History

"What was it the Engines said, Pilots touching,—head to head Facing on the single track, Half a world behind each back?"

SEVENTY-FIVE years ago these lines were penned by the immortal Bret Harte heralding that day in May of 1869 when the Central Pacific woodburning locomotive from the West touched its pilot to the Union Pacific coalburner from the East to signal completion of the first transcontinental railroad.

The story of the early beginnings of this great railroad project is the story of the West, the saga of individual initiative and courage that spanned a nation with bands of iron rail and nurtured the development of today’s western empire.

Construction of the rail highway for the Iron Horse from the Pacific Coast to the Missouri River was one of man’s greatest accomplishments. Its completion gave birth to a new era, and the expansion of its western lines is evidenced today in the far-flung properties of the Southern Pacific Company.

Pioneer of transcontinental railroads, Southern Pacific had its origin in the Central Pacific Rail Road Company of California, incorporated June 28, 1861, to build the western portion of the Pacific Railroad. Construction began at Sacramento in 1863 following authorization by Congress in 1862. The original unit of the transportation system that today comprises more than 15,000 miles of rail lines in this country and Mexico, was built from Sacramento 690 miles over the Sierra Nevada Mountains and across Nevada to meet the Union Pacific at Promontory, Utah, where the Last Spike was driven on May 10, 1869.

To an unknown editor in the little village of Ann Arbor, Michigan, belongs the credit for making in 1832 the first suggestion for a railroad that would span the continent from the Great Lakes to the Pacific. At that time less than 100 miles of rail lines had been built in the United States during the three years since the first public railroad was operated out of Baltimore.

The benefits of a transcontinental railroad, it seems, should have been obvious to all thinking men, but the idea took root only gradually and met with strenuous opposition. The first plan to receive consideration of Congress was one in 1836. Others followed, some of them having a short route to the rich Orient as the primary objective rather than being aimed at the development of the West.

Discovery of gold in 1848 focused world attention on California and the Pacific Coast region. The arduous overland journey across the plains by oxen or mules, and the long ocean voyage via Panama or around Cape Horn, brought to the early settlers a realization of their isolation from the remainder of the country. A growing sentiment in the West and East favored a railroad that would bind the nation closer together.

During 1853 five parties of Army engineers were sent into the West to make surveys over various routes. Volumes of data were compiled but intense factional rivalries among congressmen from the North and South frustrated every effort in behalf of a railroad. The Civil War brought need for definite action. Withdrawal of the southern representatives left official Washington of one accord. It was vital that California and the Pacific Coast be bound to the Union, consequently the Pacific Railroad became a military necessity.

The Pacific Railroad Act was signed by President Abraham Lincoln on July 1, 1862, and six months later, on January 8, 1863, the first shovelful of earth was turned by Central Pacific in constructing the pioneer line.

Southern Pacific is a monument to the enterprise and vision of Leland Stanford, Collis P. Huntington, Charles Crocker and Mark Hopkins. These Sacramento merchants, famed in later years as the “Big Four,” became impressed with plans for a railroad east over the Sierra as conceived by Theodore D. Judah, a young civil engineer. Typical of the courage and daring that
characterized the successful exploits of many western pioneers, the four associates launched the project, unmatched in all the story of rail transportation, without any one of them ever having been remotely connected with a construction project of greater magnitude than the erection of their own store buildings. Against the advice of their friends and in the face of strong opposition and ridicule they threw their entire resources and personal credit into the project. How they accomplished the task is an epic chapter in the history of the West.

Builders Young Men

Stanford, 36 years old when first steps were taken in November, 1869, to organize a railroad company, was a dealer in groceries and provisions; Crocker, 38, had a dry goods store; Huntington, 39, and Hopkins, 47, were partners in a hardware establishment. From this prosaic early environment the two hardware merchants became financial geniuses; the weaver of sugar and tea developed into a master organizer and political leader; while the man who had stood behind a ribbon counter rose to command men in a construction undertaking that startled the engineering world.

Judah, 34, had completed in 1856 the 28-mile line of the Sacramento Valley Railroad from Sacramento to Folsom, first railroad operated in the far West. He was the first advocate of the Pacific Railroad who had practical railroad engineering knowledge to add to sincere enthusiasm. He took his plan to Congress on several occasions, made preliminary surveys over various routes through the Sierra, and had received a small amount of financial support from residents in the mountain towns. But his proposal was branded by many as fantastic or a vicious money-grabbing scheme. He failed to impress men with money to invest until he got the attention of the Sacramento merchants.

Four parties of engineers went into the mountains early in 1861 under Judah's direction. The reports led to incorporation and organization of the Central Pacific. Stanford, to be elected governor of California in September, 1861, was chosen president; Huntington became vice president; Hopkins, treasurer; and Judah, chief engineer. Crocker became one of the directors and was later general superintendent of construction. Judah again went to Washington and played a leading role in final passage of the Pacific Railroad bill. Huntington went to New York to try to raise money. He met with little encouragement for the enterprise seemed too risky; prospects of financial returns were too remote. Even the assurance of government aid through grants of land
THE BIG FOUR: The men whose courage and determination pushed the western portion of the first transcontinental railroad over the high Sierra to completion were, left to right: Collis P. Huntington, Leland Stanford, Charles Crocker, and Mark Hopkins.

CHIEF ENGINEERS: Theodore D. Judah, left, died six years before line’s completion; Samuel S. Montague, carried on.

and the loan of federal money, left the Central Pacific organizers with a formidable task ahead of them. After passage of the bill, Huntington wired his associates: “We have drawn the elephant, now let us see if we can harness him.”

The Job Undertaken

The country to be opened by the railroad was then almost entirely a wilderness. All that was known of the region at that time discouraged such a venture. Mountain roads so steep that covered wagons had to be lowered down them by ropes were still fresh in the minds of emigrants who crossed the plains to settle in the West. Packs and shovels, black powder, wheelbarrows, one-horse dump carts, were the only aids to grading. Cutting a roadway through the rock walls of the Sierra was literally hand carving. There were no power tools of any kind, such as are common on big construction jobs today; even dynamite was not then in general use.

Chinese laborers were swung in baskets over cliffs high above the American River to hew a footing so that workers could blast out a grade for the track in the mountain side. Tunnels were dug while the region was covered under snow packs often thirty feet deep. All of the rolling equipment and most of the building materials had to be shipped 15,000 miles around Cape Horn from the East, a voyage of eight to ten months. At one time the Central Pacific had thirty ships on the high seas loaded with materials. White labor was scarce in California, for men were more interested in digging for gold than in working on a railroad. Although each of the four associates was a wealthy man, as wealth was counted in those days, their combined resources were totally inadequate to finance much more than a start in building and equipping the first forty miles of railroad which was necessary under terms of the federal bill before one dollar was available in government bonds. It is little wonder the world doubted this railroad could be built by four inexperienced country merchants in a land that was so lacking in money, men and materials.

Although New York capitalists were not interested in the railroad as an investment, they were impressed with the high credit rating the Sacramento business men held in the commercial world. Thus, by personally guaranteeing the interest on a limited number of Central Pacific bonds for ten years, the four associates raised enough money to start construction on a big scale.

The first rail was laid in Sacramento on October 26, 1863; the first locomotive, “Governor Stanford,” went into service November 10, 1863; and the first 31 miles of railroad was in operation to Newcastle on June 10, 1864, when the first timetable was published (four days premature) announcing regular passenger and freight service.

WORK TRAIN IN SIERRA during 1865 when grade for the railroad was being cut above Auburn. At one time more than 14,000 men, mostly Chinese working with meager equipment, were engaged in the gigantic project. All locomotives and rail, also most of other equipment and materials for construction were shipped 15,000 miles around Cape Horn.

*In granting this aid to the Central Pacific and Union Pacific, Congress followed a federal policy already established, and one extended to several other railroads built before and after the Pacific Railroad was authorized. The financial aid was not a donation, but was in the form of United States 6% bonds which were a lien against the railroad property, with repayment to be made in thirty years. Central Pacific’s debt to the government was computed at more than $65,000,000 in 1899, and by July 1903, that debt had been paid in full. The land, with certain exceptions, included alternate sections twenty miles on each side of a 400-foot right of way, and ultimately the government profited immeasurably through its deal with the various railroads. Not only did the alternate sections of land retained by the government along the rail lines increase in value by reason of improved transportation and resultant development of great areas of public domain, but for decade after decade there was to be profit to the government in reduced charges for all government property, including mail, and for the transportation of troops of the United States, land over the land grant portions of the railroads involve 1. Certain revisions were made in 1949 but not in the provision that troops, military equipment and supplies be moved for 50 per cent less than standard fares and rates. These reductions on government business skyrocketed during World War II. By end of the war it was estimated the land grant rate reductions for all railroads reached a total in excess of one billion dollars, or more than eight times the $125,-000,000 value of the land at the time they were granted to the railroads. December 12, 1945, President Truman signed a bill repealing the remaining rate provisions of the land grant law.
Judah lived only long enough to see construction actually underway on the railroad that had been his great obsession. He contracted Panama fever while crossing the Isthmus, and died in New York City on November 2, 1863, a young man on the threshold of a distinguished career. Sam S. Montague succeeded him as chief engineer, with J. H. Strobridge as construction superintendent.

The builders soon faced serious financial difficulties. Money raised by Huntington in New York had been exhausted, mostly in the purchase of equipment and materials and in greatly increased cost of their transport around the Horn due to wartime conditions. Work never came to a complete stop, but there were days on end when there was not one cent in the company's treasury. It was at this time that an appeal was made for public support. The voters of three counties responded favorably, but strong opposing interests threw the bond proposition into court, and it was well into 1865 before the aid was available. Advantage could not be taken of a mild 1864-65 winter in the Sierra, otherwise the Central Pacific might have met the Union Pacific at Cheyenne instead of Promontory. Eleven months passed before the five miles between Newcastle and Auburn was opened to traffic May 13, 1865.

Beyond Auburn the forty-mile mark was passed and government bonds loaned the railroad could be turned into cash. There was a clamor for more men, and because of the scarcity of white labor, Crocker experimented with Chinese laborers. The Orientals proved so successful that hundreds were added to the construction gangs.

**Sierra Battle Begun**

The beginning of 1866 saw the fight to overcome the Sierra on in earnest. Crocker decided to work the 1659-foot Summit tunnel from four faces. A shaft was sunk and crews worked each way from the center while others dug from the entrances. Rock was so hard it took the better part of a year to dig the shaft deep enough to begin the laterals, and it was another year from then before the tunnel was completed. Altogether, 15 tunnels were bored through the Sierra.

Working conditions were difficult at all times, but the severe winters of 1865-6 and 1866-7 called for superhuman courage to keep things going. During the latter winter the only work possible was in the tunnels. It was during this winter that Crocker directed the tremendous but strategic undertaking of hauling and sledging three locomotives, forty cars, and material for forty miles of track over twenty-eight miles of tortuous mountain trails down into the Truckee River canyon where light snow made grading and track work possible. It was June of 1867 before the forces could be brought back into the mountains, where the grade in many places was still buried under heavy snow packs.

By November the road was in operation
to Summit station. Again the forces were transferred to the Truckee region. The first locomotive poked its nose over the California-Nevada state line on December 13, 1867, and by the end of the year there remained only a seven-mile gap of difficult construction over the Sierra Summit at an elevation of 7017 feet, and on the ridges above Donner Lake, to link the Truckee work into a through line.

First Snowsheds

Difficulties in keeping the line cleared of snow in the high Sierra region convinced the builders that the problem must be solved before trains could be operated successfully, so it was decided to build snowsheds over the tracks. Experimental sheds were erected in the summer of 1867. Construction that started in the spring of 1868 was completed in the fall of 1869. Forty miles of sheds were eventually erected, the nearly solid covering over the tracks once prompting a boomer brakeman to remark: "I've railroaded all over the world, but this is the first time I've ever railroaded in a barn." (Powerful rotary snow plows and improved snowfighting methods gradually reduced the snowshed mileage in succeeding years, and today only eight miles remain.)

The year 1868 was one of feverish activity for the Central Pacific forces. Crocker announced a construction program of a "mile of track every working day," a goal that actually was surpassed. The race with the Union Pacific was on in earnest. Each company was alert to the advantage in future earnings from every additional mile of railroad built. The tough work in solid rock above Donner Lake was completed in the spring of 1868 and the Sierra had been conquered. On June 19 the road was opened to Reno, Nevada, a town site staked out by the railroad's engineers.

The route ahead was over a terrain that offered none of the difficulties encountered in the mountains. The "mile a day" program went into high gear. Crocker's "pets," as the 14,000 Chinese workers were dubbed, together with some 2000 whites and about 6000 horses, responded with superhuman effort. Canvas towns sprang up to live but a few days as rail-head was pushed steadily eastward. The rival builders could not agree where their tracks should join and for many miles, far in advance of the track layers, the grading crews often worked within a few yards of each other on parallel lines. The government's railroad commissioners finally ruled that the rails should join in the vicinity of Promontory Summit in the barren, low hills beyond Great Salt Lake in northern Utah.

Ten Miles in One Day

Most intense construction came in the early months of 1869. One day Union Pacific's Irish "terriers" laid six miles of track. Crocker's "pets," paced by Central Pacific's own Irish track builders, followed with seven. This was bettered by the rival camp and brought the boast from Crocker that his men could lay ten miles of track in a day. It is said that his wage of $10,000 was "covered" by Thomas C. Durant, vice president of the Union Pacific. Crocker and Strobridge made careful plans. Ties were laid several miles in advance and materials were hauled ahead to strategic points. April 28, 1869, was the day. While a number of officers of both

MARCH OF PROGRESS in transportation was prophesied in this picture taken at Cisco in the Sierra in 1867, when that station was the rail-head of the Central Pacific. Stage coaches, so romantic in western history, gradually gave way before the advance of the Iron Horse as the first transcontinental railroad came to completion, and the story of rail transportation since that time has been one of steady progressiveness.
ENTER NEW, EXIT OLD: Enroute to the Last Spike ceremonies, Stanford’s special train (above) was met by a forerunner of first transcontinental steam train—a covered wagon caravan westbound with emigrants. Meeting was at Monument Point near Promontory.

AT PROMONTORY: After the battle against great odds had been won to tie America’s seaboard together with two bands of Iron, the men who finally completed the vast project gathered with many dignitaries and countrymen on the plains of Great Salt Lake to celebrate the occasion with mixed solemnity and festivity. Picture above shows bandsmen of the 21st Infantry from Fort Douglas posed at the side of the pioneer locomotive, Jupiter, following the ceremony of driving the Last Spike. Four companies of troops gave military atmosphere to the historic event. At left is shown the monument which later marked spot where the transcontinental rails joined and which stands isolated in the Promontory hills now that the pioneer line north of Great Salt Lake is abandoned. As the rails pushed eastward, canvas and board shanty stores and other establishments sprang up at camp sites, boomed for a short time, then moved forward to next rail-head. Picture below shows portion of pioneer town of Promontory, which flourished briefly as junction of the CP and UP, then gradually faded into oblivion.
companies, including Gen. G. M. Dodge, chief engineer of the UP, several newspaper correspondents, and workers from the rival camp looked on, the Central Pacific forces, working with military precision and organization, laid ten miles and 56 feet of track in a little less than twelve hours, a feat that has never been equaled. This day's performance brought the CP rail-head past Camp Victory, later Rozel, a few miles from Promontory.

Last Spike Ceremony

Stanford was the principal instigator of the Last Spike ceremony on May 10, 1869, an historic event that will live forever in the annals of colossal construction achievements. Present were the few hundred workers left to complete the job, four companies of the 21st Infantry and regimental band from nearby Fort Douglas, a sprinkling of settlers, a few officials of the two companies, their guests, and a photographer. On his special train from Sacramento, Stanford brought the famous Golden Spike as a gift from David Hewes of San Francisco, also a highly polished laurel tie, silver sledge-hammer and shovel. Special spikes of precious metals were presented in behalf of other western states. All of these glistening mementoes played an honorary part in the program. Many cities celebrated the occasion, and throughout the nation knots of people gathered around telegraph offices to get the final flash from far-off Utah. Telegraph lines at Promontory were connected to a specially prepared hammer and spike so that Stanford's tapping on the last spike sent a click-click-click over the wires to signal completion of the Pacific Railroad at 12:45 p.m., Promontory time. Central Pacific's bonnet-stacked, woodburning locomotive "Jupiter" and the slim-stacked coal-burning No. 119 of Union Pacific were moved up so their pilots touched, while men climbed aboard to have their pictures taken as the two chief engineers of the gigantic project shook hands heartily.

The laurel tie used in the Last Spike ceremony was destroyed in the San Francisco fire of 1906; the silver hammer and sledge are at Palo Alto, Calif., in the Stanford Museum, which institution also owns the famed Golden Spike but keeps it in the vaults of the Wells Fargo Bank in San Francisco.

The first passenger train from Omaha to Sacramento was run two days later, and on May 15 regular transcontinental freight and passenger service was inaugurated. The first daily passenger train between Sacramento and Omaha was known as the "Atlantic Express" eastbound and the "Pacific Express" westbound. The trip between Sacramento and San Francisco was by river steamer. Connection was made at Omaha with trains for Chicago, St. Louis and eastern points. Passengers completed the 3,176-mile Sacramento-New York trip in seven days flat, the 160-hour schedule of elapsed time not taking into consideration the three hours variation in time zones that would be effective today. (Standard time was established in United States and Canada on November 18, 1883, prior to which date every railroad ran its trains by the local time of the city in which its headquarters were located, or on some other arbitrary standard.)

No passenger or freight cars operated through from Sacramento to Omaha in early years of the transcontinental road, except for an occasional "de luxe" special train. During the first few months the line was opened, passengers transferred with their baggage from Central Pacific cars to those of the Union Pacific at Promontory. After Central Pacific purchased 47.5 miles of track the UP had built east of Promontory and leased an additional 5.11 miles, the transfer point and terminal of both companies was established at Ogden.

Silver Palace Sleepers

Construction of the line had progressed so rapidly that Central Pacific was not equipped with sleeping cars during the first weeks of operation. It was not until June 4, 1869, that the first of the company's Silver Palace Sleeping Cars arrived in Sacramento from the eastern manufacturer. The Union Pacific operated Pullman's Hotel Cars and Palace Sleeping Cars over its portion of the Pacific Railroad. All cars were wooden, lighted by candles and coal oil lamps, and heated by coal stoves at the ends of each car. (The nation's first all-steel passenger coach was completed by SP at its Sacramento Shops in July, 1906.) Primitive and crude as such equipment was by present-day standards, it represented a great advance in its day, and in fact contemporary travel guide books described the Silver Palace Sleeping Cars as "elegant," with "appointments of a home drawing room" and such comforts that one slept "amid the easy roll of the car as sweetly and refreshingly as ever upon the home bed." Central Pacific operated its own sleeping cars until July 1, 1883, when all such equipment was transferred to the Pullman Palace Car Company.
CHAPTER 2
Framework Takes Shape

JUST WHAT the Big Four associates envisioned in May of 1869 as their ultimate railroad system is not known. They had taken certain steps toward expansion west and north from Sacramento, and had become interested in other California railroad ventures, but the future apparently looked none too bright to them. What had loomed as lucrative traffic at the outset of their project began to fade away when Nevada mining activity, particularly the Comstock Lode operations, went into a temporary decline and when opening of the Suez Canal diverted heavy tonnage of the Oriental trade that otherwise would have moved across the continent by rail to Pacific ports. Stanford testified in later years that he and his associates would gladly have sold out in 1869 for ten cents on the dollar, but the Central Pacific in operation was no more attractive to "smart" investors than it had been before the first rail was laid.

Although the Big Four continued building, it is doubtful they dreamed that in another eighteen years their 690-mile pioneer unit would expand to some 5,500 miles of lines radiating from San Francisco and Los Angeles to Portland, Ogden and New Orleans, with their own steamship lines plying between New Orleans, Havana and New York. This made Southern Pacific truly "transcontinental" with what was then the most extensive transportation system in the world. Much less could they have foreseen that the Promontory Last Spike was to be only one of many "last spikes" commemorating in succeeding decades the building of new lines into other regions as the Central Pacific founders and their successors opened vast western and southwestern areas to amazing development.

Expansion Begun

This expansion, in its initial stages, saw enfolded into Central Pacific's organization several independently established companies in central California, some of which were already in operation, while others existed only on paper. Their corporate identity, historic background, and properties owned would involve too much explanation to be recorded here. It was through their acquisition, and by new construction, however, that the Big Four gained entrance to the San Francisco Bay area; established the main north-south routes through California into Oregon and the Southwest; and from which emerged the Southern Pacific Railroad Company, also the Oregon and California Railroad Company, to augment the Central Pacific in carrying out the vast construction program of the '70s and '80s. From these pioneer companies emerged the present Southern Pacific Company.

While construction was under way on the transcontinental route over the Sierra and across Nevada to Promontory, Utah, the Big Four began extension of the line between Sacramento and the San Francisco bay. This line through Stockton and Niles Canyon was over a route originally projected by the Western Pacific Railroad (no connection with the later company of the same name) whose federal authority for construc-
tion had been taken over by the Central Pacific. Transcontinental trains reached San Francisco Bay over the pioneer Oakland and Alameda "local" lines whose rail-ferry service to San Francisco had been in operation since 1863-64.

East Bay "Locals"
The Oakland "local" line was the San Francisco and Oakland Railroad Company, incorporated October 21, 1861, which began operation of its combination rail-ferry service on September 2, 1863, from Broadway in Oakland along Seventh Street to Oakland Wharf at Gibbon's Point and thence by ferry boat to the Davis Street landing between Broadway and Pacific wharfs in San Francisco. To meet competition of a rival ferry line on the Oakland Estuary "creek route," the railroad built a bridge (later filled in) across San Antonio Creek and extended its service to the town of San Antonio (now East Oakland) on September 28, 1864.

The Alameda "local" line was the San Francisco and Alameda Railroad Company, commonly called the "Eucenieal Road," incorporated March 25, 1863, on which August 25, 1864, began operation of its rail-ferry service from the Davis Street ferry landing in San Francisco to Alameda Wharf at the foot of Pacific Street (since abanoned), thence along what is now Alameda Avenue to High Street, in Alameda. Extensions were opened to San Leandro on March 2, 1865, and to Hayward on the following August 24.

First ferry steamer on the Oakland service was the "Contra Costa," and the "Sophie McLane" inaugurated the Alameda service.

Overland passenger service was first operated to Alameda Wharf on September 6, 1869, and then transferred to Oakland Wharf the following November 8. Ferry boats carried passengers across the bay to San Francisco. The two-mile Oakland Long Wharf, opened for traffic January 16, 1871, remained the terminal for passenger trains until the present-day Oakland Pier (earlier known as the "Mole") was opened January 22, 1882. The route through Niles Canyon remained the main line for transcontinental and San Joaquin Valley trains until a line with less grade along the upper San Francisco bay shore through Berkeley, Richmond, Port Costa and Martinez was completed to Tracy on September 8, 1878. Early the following year a line was opened from Benicia to connect at Suisun with the pioneer California Pacific's railroad from South Vallejo to Sacramento (to be described later) and on December 28, 1879, the car-transfer steamer "Solano," largest ferry boat in the world, began the transfer of trains across Carquinez Straits between Port Costa and Benicia to provide a shorter main line between Sacramento and the San Francisco bay cities.

The central California area, already the starting point of the pioneer line over the Sierra later to be known as Southern Pacific's Overland Route through the mountains, also became the hub from which was projected the lines that now form the railroad's Shasta Route into the Northwest and the Sunset Route through the Southwest to New Orleans. The Big Four had the added distinction of giving the nation its second transcontinental railroad when Santa Fe joined the Southern Pacific at Deming, N. M., on March 1, 1881; the third route through connection with the Texas & Pacific at Sierra Blanca, Tex., on January 1, 1882; and the fourth when the Sunset Route was opened to traffic on February 5, 1883.

Start of Sunset Route

Construction on the western end of the Sunset Route was started December 31, 1869, branching from the transcontinental line at the newly established town of Lathrop. Only the most optimistic hopes could have prompted the Big Four to build into the San Joaquin Valley. The great broad region now so productive and populous was then nearly unoccupied. When looking over the proposed route, Stanford and Hopkins and their engineers traveled the upper section of the valley on horseback and camped out. For miles and miles they rode without seeing any sign of habitation, except an occasional sheep herder's shack. Many of the valley's large cities of today—Fresno, Merced, Modesto, Tulare and others—were just "railroad towns" in the '70s, founded by the railroad's builders. Traffic was inaugurated to Modesto on November 8, 1870; to Merced, January 15, 1872; to Fresno, May 28, 1872; to Tulare, July 25, 1872;
and to Sumner (now East Bakersfield) on November 8, 1874.

For more than two hundred miles the builders had easy construction through the valley, but south of Bakersfield the Tehachapi mountains towered ahead of them. Here the engineers faced the problem of raising the railroad 2734 feet from the valley at Caliente to scale the mountain pass at an elevation of 4025 feet in about 16 air-line miles. This feat was accomplished by swerving 28 miles of track back and forth up the mountainside around gradual curves on a 2.2 per cent grade through 18 tunnels. At one point the track was looped over itself in a remarkable stroke of engineering skill directed by William Hoo, who had by then become chief assistant engineer. The road was opened through Tehachapi out onto the desert to Mojave on August 8, 1876.

Before this date the Big Four and their engineers had pondered over the exact route for the railroad through southern California. At one time it was considered advisable to leave Los Angeles several miles to the west of the main line. The great metropolis of today was then a sleepy, little Mexican city with a population of less than 10,000. Trade of the area was being well served by steamers and sailing vessels; and, what was more important at the moment, the most direct and cheapest route for the transcontinental line would have been through the Cajon and San Gorgonio passes to the Colorado River, with a branch line later into Los Angeles.

Kept L. A. on Main Line

Vanguard of the famed Los Angeles boosters, however, had arrived even at that early date. The citizenry was not entirely asleep. Numerous conferences were held with the railroad’s top men, and a proposition was submitted to the county’s voters that won favor in an election on November 5, 1872. As a result, Southern Pacific acquired a 22-mile railroad from Los Angeles to Wilmington, opened in October, 1869, and construction was begun during 1873 on lines north and east out of the city. Trains were operated to Colton on July 16, 1875, and to Indio (then Indian Wells) on May 29, 1876. San Fernando had train service on January 21, 1874, and the line was extended northward through a 6975-foot tunnel, then the second longest railroad bore in the country. It took nearly sixteen months to complete the tunnel, and by that time the gangs building south from Mojave had reached Soledad Canyon. Special trains brought official leaders from Los Angeles and San Francisco to a ceremony held at the little station of Lang on September 5, 1876, where Charles Crocker, then president of the Southern Pacific Railroad Company, drove the “last spike.” Through service was inaugurated the next day.

Moving on eastward from Indio, the railroad reached the west bank of the Colorado River opposite Yuma on May 23, 1877. There was delay in getting military authority to lay tracks across

LOCOMOTIVE “LIBERTY” was first one operated by the San Francisco & Oakland Railroad Company, whose rail- ferry service between SF-Oakland began September 2, 1863. One of the first locomotives constructed on the Pacific Coast, the tiny woodburner was built at Oakland Point, near the first wharf of the pioneer railroad.

LOCOMOTIVE “SAN GABRIEL,” first to turn a wheel in southern California, was placed in service January 14, 1869, by the Los Angeles & San Pedro Railroad Company on the line then being built from Wilmington to Los Angeles. It was scrapped in 1876, after this 22-mile line was taken over by SP and connected with the extension of the first transcontinental railroad to Los Angeles.
NEW CITIES: Many of the West’s present-day cities were founded by the Southern Pacific-Central Pacific builders. Among them are Reno, Nevada; and Fresno, Merced and Modesto in California. Others were already founded but it wasn’t until the coming of the railroad that they began to flourish and grow. Picture below shows two woodburner locomotives in front of the El Capitan Hotel, one of the first buildings erected in Merced.

FIRST RAILROAD STATION in Los Angeles (above) was built by the Los Angeles & San Pedro railroad and opened October 26, 1869, when the first train operated in southern California was a free excursion from the new station to end of the line at Wilmington. Regular service was inaugurated November 1, 1869. The property was consolidated with Southern Pacific in December 1874, and was linked to the first transcontinental railroad when Southern Pacific completed its line southward through the San Joaquin Valley on Sept. 5, 1876.

Arrival of the first train in Tucson on March 20, 1880, was celebrated with great enthusiasm, and the banners of all nations fluttered from the outer walls of the ancient pueblo. As the train approached the little city of 2,000 inhabitants, a salute of 38 guns was fired and a cavalry band burst into a medley of patriotic tunes. Charles Crocker added another “last spike” to his collection. As the railroad continued on from Tucson a military escort accompanied

the Yuma Indian reservation, and it was September 30 that year before the bridge was completed so trains could operate into Yuma, a village known as Arizona City prior to 1873. Here rails of the SP were to have joined those of the Texas & Pacific, one of several railroads then holding, or seeking, federal authority to build lines from various sections of the country to the Pacific Coast. But since rail-head of the T&P was at a standstill far off in Texas, SP continued building eastward.

Yuma was the railroad terminus for more than a year. Connection was made there with the Southwest’s historic stage coach and freighting lines, first of which were the Southern Overland Mail opened in July 1857, over a route from San Antonio to San Diego, and the Butterfield Stages on a route from San Francisco to Tipton, Mo., with rail connection to St. Louis. John Butterfield made the initial 2759-mile trip in 24 days, 20 hours, 30 minutes, leaving San Francisco September 16, 1858.

SP’s tracks were pushed on from Yuma in November, 1878. At that time Tucson was the only town of any size all the way to El Paso, about 560 miles. Only stage coach and freight stations dotted the route, except at a short distance north of there were the villages of Florence and Tempe, also the store, blacksmith shop, and a few buildings at a crossroads, the site of present-day Phoenix.

FAMED LOOP in the Tehachapi Mountains south of Bakersfield was a master stroke of engineering. Problem was to gain quick elevation of 2734 feet in only 14 air-line miles. Viewed from air (right) the loop and its immediate approaches resemble two giant circles with the track tunneled thru a ridge, twisted around the crest of a peak and then back over the top of the tunnel. This Dorman Photo looks south, with highway showing on the right.
PASSenger POWER had color in the '60s to match today's spectacular "Daylights." The "San Mateo" (below) built in 1863 and one of the first locomotives on the pioneer San Francisco & San Jose line, was typical of ornate power of its day. There was lots of brass for the firemen to keep glistening, including wide bands around boiler jacket, elaborate builder's plate between mud guards, and trimmings galore. Numbers and lettering were usually red shaded with green and gold. Same colors edged the tender, also steam and sand domes on engine.

Observation Cars (below) sacrificed certain sightseeing features in favor of improved air-conditioning down through the decades. The open-sided car of 1870's "Atlantic & Pacific Express," shown here in the Sierra, offered a maximum of view and fresh air, plus plenty of dust and variable breezes. Nets are not craned from today's streamlined "Lark" observation (prewar picture below) but the passing scenery is viewed more pleasantly from foam rubber cushioned chairs in a comfortably tempered, smooth riding air-conditioned car.
the construction forces over a portion of the route, for the Apaches were then on the warpath. The line was opened to Benson on June 22, 1880; through what is now Wilcox, to Lordsburg on October 18; to Deming, December 15, and to El Paso on May 19, 1881.

Here another tracklaying race developed. The Texas & Pacific line had reached Dallas and was pushing westward rapidly to check the drive of the SP into Texas. In the mountainous country southeast of El Paso there was but one logical route for a railroad into the valley of the Rio Grande. The first company to lay its rails through the pass would have undisputed right-of-way from Sierra Blanca to El Paso. This objective was won by the SP forces, and the road opened into Sierra Blanca on November 25, 1881.

**Texas and Louisiana Lines**

Southern Pacific’s present-day network of 4312 miles of lines in Texas and Louisiana represents the consolidation of numerous separate companies, two of which had portions of their lines in operation long before either the Central Pacific or Southern Pacific were organized in California. The colorful history of these lines is a story in itself, little of which can be related in this sketch.

The main stem of today’s Sunset Route between El Paso and New Orleans was built by four companies, or their predecessors — the Galveston, Harrisburg and San Antonio Railway, extending from El Paso to Houston; was constructed westward from Houston and eastward from El Paso; the Texas and New Orleans Railroad eastward from Houston to Orange; the Louisiana Western Railroad westward from Lafayette to Orange; and the Morgan’s Louisiana and Texas Railroad and Steamship Company westward from New Orleans to Lafayette.

These companies formally came under management and operation of the owners of the Central Pacific just prior to the completion of the Sunset Route, and control was later transferred to the Southern Pacific.

It was about 1879 that C. P. Huntington purchased for his Big Four associates an interest in the GH&SA, as first move of the Pacific Coast builders into the southwestern states. Pioneer unit of the GH&SA was the Buffalo Bayou, Brazos and Colorado Railway Co., which began its existence on February 11, 1850, and whose 30-mile line in Texas between Harrisburg and Richmond was one of the first two rail lines operated west of the Mississippi River. By February 5, 1877, the GH&SA was operating into San Antonio. Construction between there and El Paso was carried on partly by GH&SA and partly by the construction forces that built the SP line from the Pacific Coast.

Col. T. W. Peirce, president of the GH&SA, drove the last spike January 12, 1883, two and a half miles west of the original Pecos River bridge near the confluence of the Pecos with the Rio Grande, on a section of the original line that was abandoned in 1892 when the Pecos River High bridge (replaced by a new bridge December 21, 1944) was opened to traffic. First through passenger trains over the newly completed Sunset Route between San Francisco and New Orleans left the respective cities on February 5, 1883.

At New Orleans the SP rail lines connected with ships of the Morgan Line, one of America’s oldest shipping concerns, dating from the late ’40s. The flag of Morgan continued to grace the foremost after ships of the line sailed under management of the Southern Pacific Steamship Lines in freight service between New Orleans, Houston, Galveston and New York, Boston, New Bedford, Baltimore and Norfolk. Passenger service was inaugurated between New Orleans and New York in 1885, and for many years (until 1941) the voyage of “a hundred golden hours at sea” was an alluring attraction on SP’s transcontinental Sunset Route.

**Start of Shasta Route**

This sketch now turns back to the ’60s and again to central California where, at Marysville in Sacramento Valley, SP’s Shasta Route was born. The bustling little pioneer city rivaled Sacramento as a center of railroad enthusiasm in the ’50s and ’60s. Companies were organized and some construction done in that section of the state, but it was not until the Big Four got behind one of the projects that Marysville greeted its first train from Sacramento, via Junction (now Roseville) and Lincoln on June 1, 1869. Marysville promoters had earlier launched an ambitious plan for a railroad via Knights Landing, Davisville (now Davis) and

**LAST SPIKE IN SUNSET ROUTE** was driven January 12, 1883, in western Texas, about two miles from the original bridge that crossed the Pecos River near its confluence with the Rio Grande. Site of the ceremony was on a portion of line abandoned when a new line with new high bridge was opened for traffic in 1892. Picture shows some of group that participated in the ceremony, including Col. T. W. Peirce, president of the Galveston, Harrisburg & San Antonio Ry., one of the pioneer units that comprised SP’s Sunset Route.
Suisun to Valleclo, and thence to San Francisco by boat. During 1859-60 the road was graded about 60 miles to Suisun. Money could not be raised for rail and equipment so the project was halted until advent of the California Pacific Railroad, strongly financed by English capital, as a competitor to the Big Four’s Central Pacific, gave Marysville its second rail line in March, 1870, linked with the “Cal-P” rail-steamer system to Sacramento, Vallejo and San Francisco. Central Pacific acquired control of this system about August, 1871.

Line to Oregon

The Marysville project that launched today’s Shasta Route was the California & Oregon Railroad Co., temporarily organized in 1865 and incorporated June 30, 1865, to build to Portland. Preliminary surveys were run, congressional support obtained, and Oregon pioneers brought into the enterprise, which was headed by Simon J. Elliott.

The Oregon faction split into two rival groups. Each took the identical name of Oregon Central Railroad Company and each broke ground at Portland in April, 1868. But the group headed by Joseph Gaston, and backed principally by Portland men, started its line on the west side of the Willamette River, while the group sponsored mostly by Salem interests favored the east side of the river. The auspicious beginnings were but mere gestures, for neither group could go far without the federal aid authorized by Congress in July, 1866. A bitter legal and political tussle was under way when Ben Holladay, colorful westerner fresh from lucrative exploits with Pony Express, stage coach and steamship ventures, cast his lot with the “East Side” company.

Under his leadership the “east siders” won federal favor, but the summer of 1869 found his company far short of the goal of 20 miles that must be in operation before Christmas Day to comply with all provisions of the Congressional Act. The situation called for fast action and Holladay delivered in a grand manner. The first rail was laid October 26, 1869, and the first locomotive, “J. B. Stephens,” rolled onto the rails November 11. Biggest job was a 380-foot bridge across the Clackamas River. The structure was well along when high flood waters damaged it badly. While reconstruction was rushed, a small locomotive was floated across the river so that rail laying could proceed on the other side. On December 24 the last spike was driven in the first 20 miles of the road, and next day the “J. B. Stephens” crossed the Clackamas bridge to give the “East Side” company a definite victory. There was no construction on the “West Side” line until it, too, came under Holladay’s wing.

Before continuing with his line on the east side of the river during 1870, Holladay had frustrated an attempt of a rival company to build from Astoria across the state to connect in Nevada with the Central Pacific Overland Route; had obtained substantial backing from capitalists in Germany; had bought out the “West Side” company; and on March 16, 1870, had reorganized his entire enterprise as the Oregon & California Railroad Company. The railroad was a great attraction at Oregon’s annual state fair at Salem to which point the O & C began operation on September 29, 1870. “The corn of the locomotive whistle any hour of the day,” stated one newspaper, “never fails to start crowds of sightseers toward the tracks, and the arrival or departure of a train calls out hundreds of people who never saw that style of wagon before.”

Trains were in operation to Salem depot on October 11 and to Albany on December 25, 1870; to Harrisburg, June 25, and to Eugene on October 15, 1871, when the 345-mile stage coach journey to the California terminus of the railroad was cut to five days. The railroad reached Roseburg December 3, 1872. There construction was halted nine years. Holladay failed financially. Money acquired by sale of bonds in advance of construction had been spent with reckless abandon. Traffic revenue from the sparsely settled region was not sufficient to meet expenses, and when bond interest could not be met in 1873, Holladay was forced out and the property taken over by the German investors.

Prior to this the “West Side” line was operated from Portland to Hillsboro on December 23, 1871, but it was January 28, 1880, before trains were run through from McMinnville to Corvallis.

Villard Takes Over

The German bondholders sent Henry Villard to Oregon to look after their railroad interests. In succeeding years he became a national figure in transportation affairs. The entire Northwest was his field of operation, with the pioneer O & C line but one of his enterprises that included not only railroads but also steamship operations along the Pacific Coast and on the Columbia River. He was president of the Northern Pacific when that company completed its transcontinental line into Portland during August, 1883, and was the organizer and leading figure in the Oregon Railway & Navigation Company, later a unit of the Union Pacific line into Portland.

In 1876 he approached the Big Four with a proposition to buy the O & C and
complete the railroad between the two states, but Huntington and his associates were not then interested. It was not until June, 1881, that construction was resumed on the O & C south of Roseburg. Trains were operated to Glendale May 13, 1883; to Grants Pass, December 2; through Medford to Phoenix, February 25, 1884; and to Ashland, May 4. At this point Villard’s regime crashed. The O & C was forced into receivership and on July 1, 1887, the properties were formally acquired under lease by the Southern Pacific.

**North From Marysville**

Construction of the California portion of the line to Oregon was begun north from Marysville in October, 1869. Trains were operated to Chico on July 2, 1870; to Tehama, August 28, 1871; Red Bluff, December 6, 1871, and to Redding on September 1, 1872, where the terminus remained 12 years while the builders in Oregon were in and out of the financial wringer. Work was resumed from Redding in April, 1883, and heavy construction into the Siskiyou mountains was undertaken. Trains were operated to Dunsmuir, August 23, 1886, and to Hornbrook near the state line on May 1, 1887. During that year Southern Pacific pushed construction simultaneously from Hornbrook north and from Ashland south. Summit of the Siskiyou was crossed at an elevation of 4135 feet. A 3108-foot tunnel at the summit was the longest of 18 bores.

*Oakland Long Wharf and Mole as they appeared in 1890. The two-mile wharf was opened Jan. 16, 1871, with slips for the passenger ferry “El Capitan” and the freight car transfer ferry “Thoroughfare”, also berthing space for four ocean vessels and storage warehouses. Five docks with berth space for 22 vessels were added later, where for nearly six decades the ships of the Seven Seas met the transcontinental railroad. Long Wharf handled freight exclusively after Oakland Mole passenger terminal was opened Jan. 22, 1882. It was abandoned in 1918-19 when freight docks and sheds were built adjacent to present Oakland Pier.*
HORSES WERE MOTIVE POWER on the three-mile Newark-Centerville (Cal.) branch of the old South Pacific Coast railroad. The branch connected with the Oakland-San Jose-Santa Cruz main line of the 100-mile narrow gauge system, which included ferry service across San Francisco Bay, and which was acquired by SP in 1887. Horse power was used exclusively on the branch from its opening in 1882 to abandonment in 1899. Freight cars were regular narrow gauge size, switched directly from main line, but street car type coach was used for passengers. Main line of system was broad-gauged in 1906-07.

Starting point of the South Pacific Coast line was at Dumbarton Point on San Francisco Bay near Newark. Construction was commenced there in May, 1876, and the line opened into San Jose the latter part of the following year. Building continued through Los Gatos (service begun June 1, 1878) to a connection near Big Trees with the eight-mile Santa Cruz and Felton line, which had been independently built and in operation to "Old" Felton since October, 1875, and which was acquired by the Davis-Fair interests. In the meantime construction had been under way south from San Francisco Bay, starting from a wharf at Alameda Point. This 23-mile section to Newark, together with ferry service across the bay to San Francisco, was placed in service June 1, 1878, and through trains to Santa Cruz were in operation May 15, 1880. Service to Webster Street in Oakland was begun May 30, 1881, over a bridge across San Antonio Creek (the Estuary), the line later being extended to 14th and Franklin Streets and opened to traffic October 1, 1886. Bay terminal of the narrow gauge was moved March 14, 1884, to a new pier on the south bank of the Creek, which trestle was later filled in to become Alameda Mole. (During 1906-07 the line was changed to standard gauge. Heavy storms of 1939-40 did such extensive damage to tracks and tunnels in Los Gatos canyon that SP was granted authority on September 20, 1940, to abandon the poorly patronized 15-mile portion from Los Gatos to a point about nine miles from Santa Cruz.)

Coast Line Extended

The Coast Line as it exists today was not opened through to Los Angeles until after the turn of the century. This route had its origin in the San Francisco & San Jose Railroad, which was opened between those two cities on January 16, 1864. Some of the founders of this company then organized the Southern Pacific Railroad Company, which was incorporated on December 2, 1865, and in the following year authorized by Congress to build south through the Santa Clara, San Benito and San Joaquin valleys to the California state line near Needles, where it would meet the Atlantic & Pacific (Santa Fe) then projecting its road westward. The original organizers did no construction, but sold their interests to the Big Four of the Central Pacific, which had in 1868 acquired the pioneer line between San Francisco and San Jose. During 1870 the Big Four reorganized the Southern Pacific Railroad Company, and under its name carried through much of the construction already referred to in this sketch.

Early in 1868 construction was begun on the line south of San Jose and on March 13, 1869 trains were operating to Gilroy. It was the intention to follow the proposed route through Pacheco Pass into the San Joaquin Valley, but the cost of construction and operation over the mountainous section of the Coast Range, also the uncertainty of local traffic developing on the far western slope of the valley, halted further work over that route after the road had been opened to Hollister on July 13, 1871, and to the terminus at Tres Pinos on August 12, 1873. The main line south from Gilroy was opened to Pajaro (Watsonville Jct.) on November 27, 1871; to Salinas on November 1, 1872; and to Soledad on August 12, 1873. There the terminus remained for thirteen years while construction forces concentrated on completing the line through the San Joaquin Valley and eastward from Los Angeles, as already described.

It was 1886 before work could be resumed again south from Soledad. Trains were operating to King City on July 20 that year, to Paso Robles on October 31, and to Templeton on November 16. As the year 1887 ended, heavy construction was under way in the Santa Lucia mountains north of San Luis Obispo.

Framework Completed

With the Shasta Route added to its Overland and Sunset Routes, and with a portion of its Coast Line completed, the framework of Southern Pacific's ultimate system had begun to take shape. It was, of course, but a skeleton framework; for, in reaching its present-day status, the 5,500 miles of railroad operated at the end of 1887 was to be increased nearly threefold with vast expansions to develop and serve SP's far-flung territory through new construction and through the acquisition of other railroad properties. Southern Pacific and its far western territory were growing up together; its history intimately associated with the communities it served.

MIXED TRAIN AT ASHLAND not long after the Last Spike was driven there Dec. 17, 1887 to give first through train service between Portland, Ore., and San Francisco. Large building is the station-hotel. Note cord wood piled on locomotive to give fireman workout.
CHAPTER 3
Re-organization and Expansion

BEFORE PROCEEDING with the history covering the construction of new lines and expansion of the Central Pacific-Southern Pacific system beyond the end of 1887, attention should be given the corporate re-organization effected during 1884-85 which brought numerous pioneer companies under the single banner of the Southern Pacific Company of today.

Prior to this re-organization, all the rail and steamer lines originated or acquired by the Big Four associates had been operated under lease by the Central Pacific. However, gradual expansion of properties under the name of the Southern Pacific Railroad Company from the Pacific Coast through the Southwest with affiliated lines to New Orleans and by steamship lines to the Atlantic Coast, had made it possible for the stronger organization from a traffic producing standpoint. This factor no doubt influenced selection of the name for the new company.

Southern Pacific Company was created March 17, 1884, by special Act of the Legislature of Kentucky, and its formal organization was effected on August 14 following meetings in New York City. Long-term leases to Southern Pacific Company were thereafter executed covering properties of the Southern Pacific Railroad Company, Central Pacific Railroad Company, and all other companies of common control.

As a personal venture, Huntington had acquired control of the Chesapeake & Ohio railroad during 1869, and at the re-organization meetings he tried unsuccessfully to interest his associates in joining him; nor were they agreeable to the suggestion that the C&O be included with Southern Pacific in the creation of a railroad system under one management extending from the Pacific to the Atlantic seaboard.

Principal officers of the new company, elected with President Stanford at the first stockholders' meeting on April 8, 1885, included: Huntington and Crocker, 1st and 2nd vice presidents, respectively, each with offices in New York City; Timothy Hopkins (foster son of Mark Hopkins), treasurer; J. C. Stubble, traffic manager; A. N. Towne, general manager of the 3,004 miles of Pacific System lines west of El Paso and Ogden; and A. C. Hutchinson, general manager of the 1,692 miles of Atlantic System lines east of El Paso. Five years later Huntington was elected president and took over complete operations of the company, while Stanford, who had been elected U. S. senator from California in 1885, assumed a nominal role in the railroad's affairs as chairman of the executive committee.

During these years much attention was given Central Pacific's probable ability to meet payment in 1895 of the first of the government bonds for money loaned to aid in constructing the western portion of the first transcontinental line east from Sacramento, California, to Promontory, Utah. The Thurman Act of 1878 specified a sinking fund plan for retirement of the government bonds, the merit of which was strongly debated; and in 1887 the Pacific Railroad Commission was named to investigate affairs of all the railroads which had received federal aid during their construction. Government spokesmen were frankly pessimistic about receiving payment and anticipated that the Central Pacific Railroad Company would be obliged to go into receivership. Final outcome was that an agreement for settlement of the debt was adopted early in 1899, calling for organization of a new Central Pacific Railway Company to take the place of the Big Four's original company, and the issuance by the new company of $125,000,000 in bonds, all of which were guaranteed by Southern Pacific Company. Through this endorsement the finally computed Central Pacific debt to the government of about $58,913,000 was paid in full by Southern Pacific in July, 1908.

Southern Pacific Company stands today with a remarkable record among major railroads in never having gone through receivership and in never having defaulted a financial obligation.

Additions After 1887

During the twelve and a half years after 1887 a total of 2,630 miles of lines were added to Southern Pacific's operations, about 70 per cent of it being on the Pacific System. The principal western additions included considerable new construction and line acquisitions on
both sides of the San Joaquin Valley in California; stock purchase of the 300-
 mile narrow gauge Carson & Colorado railroad in Nevada and eastern Cali-
 nicia; completion of the Coast Line in California from San Francisco to Santa
 Barbara; construction and acquisition of a number of short main and branch
 lines in southern California; and acquisition of the narrow gauge Oregonian
 Railway lines on the east and west sides of the Willamette Valley in Oregon.

The Atlantic System in Texas and Louisiana added 522 miles to its opera-
tions during the same twelve and a half year period. However, not included in
this increase were the separately operated, but closely affiliated, 668 miles of
the Houston & Texas Central, the pioneer "Central" road serving northern
and central Texas; nor the 687 miles of the San Antonio & Aransas Pass Rail-
way serving southern portions of Texas. Both these properties were later to be
included in the Atlantic System lines.

Acquire Mexico Line

Expanding into Mexico, Southern Pacific, through a reciprocal lease with the
Santa Fe, had acquired the old Sonora Railway between Nogales and Guaymas
and its Arizona connection to Benson, in exchange for the 242-mile main line
which Southern Pacific had completed in 1883 from Mojave to Needles. Under
terms of a lease dated July 15, 1898, the Santa Fe obtained joint operating rights
over SP’s line across the Tehachapi Pass between Mojave and Bakersfield.

The turn of the century brought to Southern Pacific the next major phase
in its development, and also brought new personalities into the management

At the time of Huntington’s death, Southern Pacific was operating more
than 8600 miles of railroad extending from Portland, Ore., to Guaymas, Mex.,
and from Pacific Coast cities to Ogden and New Orleans. Its steamship lines
operated from Gulf of Mexico ports to New York and Havana. Southern Paci-
cific was then the longest and one of the major transportation systems in
the country.

While Southern Pacific’s properties were being expanded under the guidance
of Huntington, the Union Pacific sys-
tem which joined SP at Ogden had de-
veloped to a strong position under the
direction of E. H. Harriman. Purchase
of the old Central Pacific line westward
from Ogden to San Francisco had been
sought by Harriman, but Southern Pa-
cific would not sell. The only recourse
for Harriman was through acquiring
control of the entire Southern Pacific
system, and in Huntington’s death he
gained the opportunity.

The Harriman Regime

Through a series of skillful financial negotiations, Harriman had by March,
1901, caused the Union Pacific, through one of its subsidiaries, to acquire
from the Huntington estate and others about 37 1/2 per cent of Southern Pacific’s
outstanding stock, which was sufficient for control of the company. Later this in-
terest was increased to 40 per cent of the stock. Harriman was elected chairman
of the SP executive committee in April, 1901, and became president on Septem-
ber 26 the same year, a position in which
Charles M. Hays had served for nine
months.

No one was more aware than Hunt-
ington had been of the fact that the vast
skeleton system created by the Big
Four required extensive rehabilitation
to bring it to a proper standard of trans-
portation efficiency. Numerous projects
conceived by him were advanced be-
yond the preliminary blueprint stage
by his engineers, under Chief Engineer
William Hood. Property rights were ob-

FIRST GENERAL OFFICE OF SP was at 4th and Townsend Streets in San Francisco.
Original structure of three floors was occupied in the Fall of 1873 when offices were moved
from 54 K Street, Sacramento, first headquarters of the Big Four. A fourth floor added
in 1877 shows in this picture taken during 1887. Executive offices were moved to uptown
San Francisco in 1899. The old general office was destroyed in the SF fire of 1906.
COMPLETION OF THE TRESTLE portion of the cut-off across Great Salt Lake was marked by driving of the last pile Oct. 14, 1903. One of the men on the precarious rocking-chair perches at the stern of the boat is probably SP’s chief engineer, William Hood, who supervised construction. Inset: The 32-mile fill-trestle for the Overland Route was opened for traffic with first passenger train March 8, 1904.

Maintained in many instances and some construction was started. However, SP was not in a financial position to launch the full-scale program until Harriman’s reorganization made finances available.

More than $240,000,000 was spent during the eight years of Harriman’s administration (he died September 9, 1909) on reconstruction and new equipment, and for the building or purchase of new lines. Only a few of the major projects can be reviewed in this sketch.

Going to Sea by Rail

One of the most difficult and spectacular pieces of construction was the now famous Lucin cut-off across Great Salt Lake, where for 32 miles the railroad “goes to sea” over a trestle and fill, nearly 12 miles of which is supported on piles. The entire cut-off project extended for 103 miles between Lucin and Ogden, and was in turn part of a program calling for extensive rehabilitation of 373 miles of the original Central Pacific line between Reno and Ogden, with the old line shortened and strengthened and completely replaced over many sections. One line change took Wadsworth off the main line and the division terminal was moved during the summer of 1904 to the new town of Sparks.

Construction on Lucin cut-off began March 17, 1902, and on November 13, 1903, tracks from the east and west shores met near the center of the lake. Although maximum depth of the lake was only 32 feet, the undertaking proved a tremendous one. The bottom of the lake was treacherous and unstable, and there were times when it seemed the fills and trestles would be swallowed in the mud. Completion of the job was formally celebrated on Thanksgiving Day, November 26, 1903, but the line was not opened to traffic until March 8, 1904. The new route relegated to a branch line the historic pioneer line around the north end of the lake through Promontory, where the memorable Last Spike was driven.

Probably the most expensive construction per-mile was the approximate ten miles of the Bayshore cut-off between San Francisco and San Bruno which was completed at a cost of nearly a million dollars a mile to replace the old main line built in 1863 through the hills south of San Francisco. Land acquisitions and other preliminaries on the project began during the few years prior to 1900. Actual construction started in October, 1904, involved extensive grading along the shore of the bay, building of bridges, and boring of five tunnels totaling nearly 10,000 feet. The line was opened December 8, 1907.

Coast Line Completed

Another link in the Coast Line route of today’s famed “Daylight” streamliners between San Francisco and Los Angeles, was opened March 31, 1901, when first trains operated between the two cities, making use of the Santa Paula branch between Santa Barbara and Saugus to bring trains into Los Angeles over the San Joaquin Valley line. Heavy construction had been encountered in the 150-mile section of the line north of Santa Barbara. Six tunnels in the Santa Lucia mountains and a spectacular horseshoe curve were required before the line was opened into San Luis Obispo on May 5, 1894. Then came miles of construction along the Pacific shore, providing a beautiful scenic route but offering many engineering difficulties in completing the line into Santa Barbara. Three years passed before the Santa Susana mountains south of Santa Barbara were pierced by three tunnels, one at Chatsworth being nearly a mile and a half long. Final link in the Coast Line was completed March 20, 1904, when traffic was routed south from Santa Barbara through Oxnard and Burbank into Los Angeles.

[ 21 ]
A stirring chapter in Southern Pacific history was enacted in the Imperial Valley during 1905-06-07 when the railroad's engineers and resources were matched against the unruly Colorado River which broke its banks and threatened to inundate much of the area that was to become one of the prolific garden spots of the world. Colonization and development had little more than gotten a start in the Valley at that time. The SP line, branching from the main Sunset Route at Niland (then Old Beach), had been completed during 1903-04 to the Mexican border at Calexico. Then came flood waters early in 1905. When attempts of the California Development Company failed to close the break, Southern Pacific was appealed to for finances and assistance. A tough battle was fought week after week, and on November 6, 1906, the river was turned back into its channel. But it was not securely harnessed. The Gila River sent flood waters into the Colorado and another break resulted on December 6, 1906, pouring the river into Salton Sea. SP's forces again went into action, this time at the personal urging of President Theodore Roosevelt. It was a case of dumping rock into the 1100-foot break faster than the rampaging river could sweep it away. From two trestles built across the chasm in the river bank, rock was handled faster than it ever had been handled before. Normal operations over 1200 miles of the railroad's main line were disrupted while some 3000 flat cars of rock were rushed from distances as far as 480 miles. About 80,000 cubic yards were dumped in fifteen days. The break was sealed on February 11, 1907. The Imperial Valley rail connection (Inter-California Railway Company) through Mexico, connecting SP's main line near Yuma, was completed July 24, 1911.

San Francisco Disaster

While in the midst of the battle with the Colorado River, Southern Pacific's aid was rushed to another disaster area. San Francisco's great earthquake struck early the morning of April 18, 1906, followed by three days of raging fires. Relief supplies of food, medicines and other articles were immediately collected in numerous towns and cities on the SP system and moved rapidly and continuously toward San Francisco. All movement of supplies and evacuees was done without charge. Freight trains were shortened so as to move on passenger train schedules. On April 19, 1,073 carloads of refugees were transported. All the company's sheltered facilities were offered to the homeless. Explosives, stores of gasoline, etc., were issued free to city authorities. Temporary tracks were laid on city streets for removal of debris and to bring in rebuilding materials. Over 250 persons were given free care at the company's hospital. Shortly before the hospital was destroyed by fire, all patients were safely removed to nearby cities. The company's general office and most records were destroyed. Southern Pacific gave $200,000 for relief work and in 35 days moved over 1,600 carloads of relief supplies and over 221,000 passengers free of charge.

One of the most ambitious projects undertaken during the Harriman administration was the extension of the Southern Pacific lines on the west coast of Mexico south of Guaymas. Construction was started south from Empalme, junction near Guaymas, in August, 1905, also north from both Mazatlán and Orendain Jct. in 1907. In June, 1909, the Southern Pacific Railroad Company of Mexico was incorporated to carry on the work, and on February 5, 1912, through service was begun over the new 669-mile line between Empalme and Tepic. The revolutionary period, 1910-1920, halted further construction and made operation of the completed road extremely difficult. In those nine years the 105-mile section north of Tepic could be operated only five months. There remained a gap of 102 miles from Tepic to La Quemada to be built before trains could be operated to Mexico City from Nogales over the West Coast route.

Expansions 1900-1910

During the ten year period 1900-10, a total of 1,870 miles of railroad were added to the Southern Pacific system. In addition to the new lines and acquisitions already mentioned, numerous short lines were completed or under construction on the Atlantic System east of El Paso, as well as throughout the western states. Only a few of these extensions can be briefly mentioned here.

Southern Pacific joined John D. and A. B. Spreckels in building a line from San Diego to connect with SP's transcontinental route at El Centro, work on

COLORADO RIVER went on rampages in 1905-06-07, threatening to inundate what is now the prolific Imperial Valley. Worse break came late in 1906, when SP's engineering forces staged epic battle to plug an 1100-foot gap in the river bank and turn the surging stream back into its channel. This picture shows some of the 3000 cars of rock dumped into the chasm, rushed to the scene from distances of nearly 500 miles.
WHEN SAN FRANCISCO WAS STRUCK by a devastating earthquake and fire April 18, 1906, all the facilities of Southern Pacific’s vast transportation plant were made available, without charge, to the city’s disaster authorities. In 38 days more than 1,600 carloads of relief supplies were moved into the stricken area and 224,000 evacuees moved out. This picture, looking up Market Street from Ferry Bdg. tower, shows site (second block on left) of SP’s present General Offices. After 1906 SP offices were in Flood Building.

which was begun in 1907. The Pacific Fruit Express Company was incorporated Dec. 7, 1906, owned jointly by SP-UP, to operate refrigerator cars. In the opening on October 22, 1910, of the rehabilitated and extended Nevada & California Railway (originating with the narrow gauge line opened in August, 1883, from Keefer, Calif., to Mound House, Nev., by the Carson & Colorado Railroad Co., incorporated, May 10, 1880) there were prospects that the through line of about 400 miles between Hazen, Nevada, on the Overland Route, and Mojave, Calif., on the San Joaquin Valley line, might eventually become a short-cut to the East for traffic out of Southern California.

Arizona Eastern

The Arizona Eastern Railroad Company, formed on February 13, 1904, eventually consolidated into its organization the Arizona lines that served Phoenix and Globe-Miami, the first unit of which was the Maricopa and Phoenix Railroad Co. operated between those two cities July 4, 1887; and another important unit was the Gila Valley, Globe and Northern, whose line from Bowie to Fort Thomas was opened May 1, 1895, reaching Globe on December 1, 1896, and Miami late in 1909.

Through consolidation of seven short lines operating steam and electric service in the north coast counties of California, the Northwestern Pacific Railroad Company was formed January 8, 1907, under joint ownership of the SP and Santa Fe, to complete construction and weld the various units into one property extending from Sausalito and Tiburon on San Francisco Bay through San Rafael, Santa Rosa and Ukiah to Eureka and Trinidad, together with ferry boat service to San Francisco. Final 106-mile link through El River canyon between Willits and Shively was completed with a “last spike” ceremony October 23, 1914, but it was July 1, 1915, before the through line was opened to traffic. Pioneer unit of the NWP dates from Charles Minturn’s 2⅔-mile horse-powered rail line of 1864 from Petaluma to Haystack Landing where it connected with ferry boats to San Francisco. Among other early companies was Peter Donahue’s 1870 rail ferry service from Santa Rosa to Donahue Landing and San Francisco. (January 17, 1929, SP acquired full ownership of the 515-mile NWP railroad and its ferry boats.)

Southern Pacific became interested in a number of steam and electric line projects in Oregon. Most important of these properties were the 141-mile Corvallis & Eastern line from the coast port of Yaquina across the state through Corvallis and Albany to Idanha, built during 1885-89, and acquired by SP in 1907; the Coos Bay, Roseburg and Eastern, whose short line from Myrtle Point into Marshfield was extended 122 miles to Eugene by the Willamette Pacific and opened to traffic October 1, 1916; the Portland, Eugene & Eastern, incorporated in 1907 to build and acquire lines in the Willamette Valley which were later electrified; and the Pacific Railway & Navigation Company which started building between Hillsboro and Tillamook in 1905-06, but was not opened for through traffic until Jan. 1, 1912.

On the Atlantic System during the 1900-10 period, 160 miles of the Dallas-Sabine branch in Texas were constructed between Rockland and Gossett to provide a through line between Beaumont and Dallas.

Other companies were formed to acquire existing properties and to build extensions, a large portion of which work was delayed pending outcome of suits instituted by the government to separate the Southern Pacific-Union Pacific System.

Government Suits

The Sherman Anti-Trust law of 1890 was the basis of two suits, the govern-
MOST SENSATIONAL coach trains in the world are today's red-orange-black "Daylight" streamliners that speed along the 470-mile scenic Coast Route between San Francisco-Los Angeles. Offering most modern travel comforts in train facilities, furnishings and improved mechanical features for smooth riding, these low fare luxury speedsters introduced in 1937 soon became the most heavily patronized long distance coach trains in country, and during the war had 20 cars.

BUILDERS IN THE '40s had only the brawn of men and beasts to supplement the most meager types of tools in accomplishing one of the greatest engineering feats of all time—that of hacking a roadbed along granite ridges and spanning deep ravines with wooden trestles for tracks that lifted the pioneer Central Pacific over the 7017-foot summit of the Sierra Nevada mountains in California. Because timber (Bull Pine, Sierra Fir and Tamarack) was plentiful in the mountains it was much speedier to erect wooden trestles than to undertake the making of fills and embankments with one-horse dump carts and wheelbarrows as the only equipment for moving earth. After the railroad was opened to through traffic in 1869 most of the trestles were filled in with earth and rock. The picture below taken in 1877 shows such an operation underway across Secuttown Ravine just above Gold Run, 64 miles east of Sacramento. This 1100-foot trestle was longest of those filled.

TODAY'S BUILDERS of railroads have many types of power machinery at their disposal, such as the tractors with carry-alls shown above finishing a grade change in Soledad-Canyon north of Los Angeles. Power-shovels, bulldozers, dump trucks, are a few of the many construction implements that, in a matter of hours, complete earth moving jobs that would have taken weeks to finish in the '40s. Today, when a roadbed is ready for the track, there are compressed air spike drivers and the tampers, rail laying machines and other devices which would have greatly simplified the sensational feat of April 28, 1869 (page 7) when eight Irish tracklayers spear-headed Central Pacific forces in making construction history by laying down rail for ten miles of track in a 12-hour day.
CHAPTER 4
World War I and More

Construction

A Merica's entry into the first World War (April 6, 1917) found Southern Pacific's management immediately alert to the gigantic transportation task it would be called on to perform with other railroads. Less than a week after war was declared the nation's railroad executives had organized the Railroads' War Board to coordinate operations of the country's rail facilities. William Sproule, who had been president of SP since Sept. 25, 1911, became chairman of the Western Department of the Board, which took over functions of the National Car Service Commission, organized by the American Railway Association on December 5, 1916, to unify and regulate flow of freight cars.

However, in spite of all the railroads' efforts, the system of war priorities for government freight jammed loaded freight cars into many areas throughout the country, particularly at Atlantic ports, where hundreds of thousands of cars could not be unloaded because of a shortage of ships and a lack of port warehouses or storage space. Hundreds of carloads of freight were also tied up at construction projects where work was not advanced sufficiently to make use of the materials. Congestions and car shortages were the inevitable result, not because the railroad plants were inadequate if put to their proper use, but because their equipment and trackage were used for storage instead of transportation purposes.

Government control and operation of the nation's railroads became effective at noon on December 28, 1917. There were no changes in Southern Pacific's officer personnel or subdivision of territory until July 1, 1918, when President Sproule was named by the U. S. Railroad Administration as district director of the lines of all railroads west of Ogden, Salt Lake City, Albuquerque and El Paso, and south of Ashland, Ore., in what was called the Central Western Region. This segregation placed SP's Oregon lines in the Northwestern Region, and its Texas and Louisiana lines in the Southwestern Region. Julius Krutschnitt, chairman of SP's executive committee, was elected to the additional duties of corporate president to succeed Sproule.

W. R. Scott, then vice president and general manager of SP's Pacific Lines, became federal manager over the remainder of the Pacific Lines as well as of the Western Pacific properties in the Central Western Region.

Over SP lines and elsewhere throughout the country, railroad facilities were consolidated, in some respects, for unified operations. As examples, SP and Western Pacific trains made joint use of each other's tracks through a portion of Nevada, and Oakland Pier terminal was used jointly by the SP, WP and Santa Fe. Ticket offices were consolidated in many cities and off-line traffic offices were closed.

The war ended less than eleven months after the government took over the railroads, but the properties were not returned to private operation until 12:01 a.m., March 1, 1920, making a total of approximately 26 months under federal control, Sproule resumed his pre-war SP position, and Scott became president of the lines in Texas and Louisiana.

FIRST AUTOMATIC AIR BRAKES used by SP were on this train photographed in 1885. Westinghouse made his first successful test in 1872. Earliest cars had hand brakes, the trainmen ran from car to car to tighten brake shoes against wheels. Under automatic system, same principle used today, brakes are applied when air is released, and any damage to the air system automatically brings the train to a stop. Cars of this type were used to haul boxed fruit before refrigerator cars were perfected. Ice was piled in ends of the car.
Out of wartime operations the railroads, the government and the nation’s shippers gained valuable experiences. The need of organizational set-ups to work out a program for efficient, normal operation of railroad services was obvious. The American Railway Association, founded in October, 1891 (predecessor of today’s Association of American Railroads, organized in September, 1934), coordinated many phases of operations and practices, particularly in the handling of freight cars through the association’s Car Service Division to avoid car shortages and congestion during heavy traffic situations. The government, through its military and other agencies; and the shippers, through thirteen Regional Shippers Advisory Boards, perfected rail transportation procedures in highly coordinated degree of teamwork with the railroads that was to pay off handsomely some twenty years later when rumblings of another war emergency gripped the nation.

Aftermath of War

When Southern Pacific regained control of its properties in March, 1920, it faced, in common with all other railroad companies, abnormal operating conditions. There were many problems to be solved, the most acute being a shortage of serviceable cars and locomotives. Little new equipment had been built because of war restrictions on labor and materials. Every car and locomotive that could roll had been subjected to heavy and continuous service and much shop work was necessary. There was an unusual dislocation of equipment with heavy concentrations of cars in the eastern territory.

To get the greatest service possible out of existing equipment and facilities, Southern Pacific intensified the wartime campaign for heavier loading and prompt unloading of freight cars, getting fine results through cooperation of shippers. Repair work in shops was moved into high gear, and orders were placed for many millions of dollars worth of new equipment. This move for early strengthening of SP’s capacity was coupled with a vast long-range program of rehabilitation and development.

In most of its major aspects this program was a continuation of the construction that had been started, or projected, in the 1900’s before the government suit under the Sherman Anti-Trust Act, and then the war, brought the railroad’s expansion to a virtual standstill. The program was launched under direction of Kruttschnitt, who had intimate knowledge of many of the projects from their very inception, having been director of maintenance and operations for the combined SP-UP system from April, 1904, and then chairman of SP’s executive committee after succeeding J. S. Lovett on January 13, 1915. The $387,000,000 gross expenditures for road extensions, additions and betterments, made during the eight years before the depression era swept the nation, surpassed any similar period in the company’s history.

Set Pace for Prosperity

Keynote of the entire rehabilitation program was sounded in the placing of a single order for fifty heavy duty 2-10-2 type locomotives, twenty of which rolled across the continent from Baldwin’s plant near Philadelphia in a solid train aptly called the “Prosperity Special.” The sensational train, acclaimed by the press as heralding a national upsweep in business and industrial activities, reached Los Angeles on June 10, 1922. In the five year period of 1920-24, more than $105,000,000 was spent for locomotives, freight and passenger cars, and other equipment, some of which were built in the company’s shops.

During 1923 and the seven years immediately following, Southern Pacific had more new construction in hand than any other railroad in the country. Four major projects completed at an aggregate cost of $76,000,000 were: Cascade Line (Natron cut-off), through Klamath Falls, Ore., $39,000,000, including expenditures for the beginnings of this program.

JUMPING-OFF SPOT for construction of the final 108-mile link in the Cascade Line was at Kirk, Ore., 41 miles north of Klamath Falls, in September, 1923. Roadway through heavy forests and over difficult mountain terrain to Oakridge was opened Sept. 1, 1926.
"PROSPERITY SPECIAL" was the name appropriately given SP’s special train of twenty 2-10-2 locomotives, first of 50 ordered, which rolled across the continent in June, 1922, heralding upswing in national prosperity.

Project dating from 1905; new line Klamath Falls to Alturas, Cal., and rebuilding of the Nevada-California-Oregon line to standard gauge, $9,000,000; new line in Arizona through Phoenix, $14,000,000; and completion of the Mexico line, $14,000,000.

The 270-mile Cascade Line between Black Butte, Cal., and Natron, Ore., opened to freight and local passenger traffic on September 1, 1926, and to all through traffic on April 17, 1927, provided a route with lighter grade, less curvature, and 25 miles shorter than the original line built over the Siskiyou mountains during the late ’80s. This project had its beginning when the Oregon Eastern was organized by SP in August, 1905, to build east from near Eugene across the Cascades. The intention was to connect with the Union Pacific but the litigation that separated the SP-UP properties caused a change in the routing as well as delayed construction. Work was begun at Natron, near Eugene, in August, 1909, and the line, commonly referred to as the Natron cut-off, was opened to Oakridge in May, 1912. The California portion of the Cascade Line originated in the California Northeastern, incorporated in July, 1905, to reconstruct a logging road built by the Weed Lumber Co. during 1903-05 from Weed to Grass Lake, and to extend the line to Klamath Falls. The road was opened for traffic to Klamath Falls in May, 1909, and to Kirk, Ore., in September, 1912. Work stopped there until construction was resumed in September, 1923, to complete the 108-mile gap between Kirk and Oakridge. Also involved in the finally completed Cascade Line was a 24-mile line change around the base of Mt. Shasta between Black Butte and Grass Lake, Cal., replacing the original section of line northward out of Weed.

New Southwest Lines

The new line through Phoenix, opened to traffic on November 14, 1926, and joined with the 1159 miles of the El Paso & Southwestern system which had been consolidated with SP on November 1, 1924, gave SP a second main line across Arizona and New Mexico as far as El Paso. The EP&SW properties extended from Tucson through Douglas and El Paso to Tucumcari, N. M., with important branch lines in the two states. Phelps, Dodge & Company, extensive mining and smelting operators, developed the line dating from the Arizona and Southeastern opened in May, 1888, to haul ore and other traffic from Copper Queen mine at Bisbee to a connection with the Sonora Railway TEN-STOREY GENERAL OFFICE BUILDING of the Southern Pacific in San Francisco was occupied during the last week in September, 1917, by some 2500 officers and employees who moved from offices in Flood Building. The huge building at the foot of Market Street was a year in construction. Ground was broken Sept. 1, 1916. Some of the tallest pile drivers in the world were used in driving a forest of piles 130 feet below the street surface. About 48 linear miles of piles were driven. A major job of project was moving from the corner of Market and Spear the three-story building now known as Annex A.
HISTORICAL MAP OF SOUTHERN PACIFIC’S RAIL LINES

Following is explanation of lines indicated by large numerals on the map:

1. Original route of transcontinental line through Promontory. This became branch line in 1904 when Ogden-Los Angeles cut-off across Great Salt Lake was opened, and was completely abandoned in 1912. Rail historians will be interested in noting the locations, about 25 miles apart, of Promontory where famed Last Spike was driven, and Promontory Summit; often referred to as site of the historic ceremony but which is located on present main line. Promontory was name published on first Central Pacific timetable when train service began two days after the final spike was driven, but apparently there was no officially accepted name prior to the ceremony. As a consequence, the name was reported variously as having taken place at Promontory, Promontory Point and Promontory Summit.

2. Former narrow gauge Nevada-California-Oregon line between Reno and Lakeview. SP rehabilitated to standard gauge the portion north of Wendel and linked it to Overland Route in 1907.

3. Former narrow gauge Carson & Colorado. Only portion still operating as narrow gauge is 20 miles between Ruler and Laws. Lines between Laws and Tonopah Jct., and between Churchill and Moundhouse, are abandoned. Remaining portion now standard gauge.

4. The 16-mile line between Truckee and Lake Tahoe was abandoned in 1943.

5. SP's wholly owned Northwestern Pacific, extends southwest from Eureka to San Francisco Bay.

6. Inset Portion of former South Pacific Coast line between Los Gatos and nine miles north of Santa Cruz was abandoned in 1940.

7. Built by SP during 1882, this 242-mile line between Mojave and Norden was leased by Santa Fe in 1883 and purchased in 1911.

8. SP's wholly owned San Diego & Arizona Eastern, and the Tijuan & Tecate (in Mexico), between San Diego and El Centro.


10. Last Spike in SP's Sunset Route between Pacific Coast and New Orleans was driven Jan. 12, 1883, about three and half miles southwest of present Pecos River high bridge, on portion of line abandoned during 1902.

11. St. Louis Southwestern Railway (Cotton Belt), capital stock control of which was acquired by SP, was operated independently by its own organization.

12. Inset SP's entry into New Orleans is through contract arrangement with the New Orleans Public Belt Railroad for use of bridge and rail facilities, and through agreement with the Illinois Central for use of trackage and passenger terminal.
extension at Fairbank. Subsequent construction carried the EP&SW main line into the newly-founded city of Douglas in 1901, to El Paso on June 30, 1903, and to Tucson on November 25, 1912. The extension from El Paso to Tucumcari was part of a line completed in February, 1902, to connect with the Rock Island at Santa Rosa, and the Tucumcari-Dawson line was completed January 31, 1903.

Some of the heaviest railroad construction ever undertaken was involved in completing the final 102 miles of SP's line in Mexico. Volcanic formations of the rugged Barrancas were particularly tough. Thirty-two tunnels were bored, and on one section of the work more than 4000 Mexican laborers were employed. As part of this through line, 23 miles between Orendain Jct. and Guadalajara are leased from National Railways of Mexico. On April 17, 1927, first trains were operated over the 1895-mile through line from Nogales to Guadalajara, where connection was made for Mexico City.

In addition to the construction of these important main line units, the expansive improvement program of 1923-30 included a multitude of other projects, only a few of the larger items of which can be mentioned here.

Sierra Double-tracked

Double-tracking and strengthening the capacity of the Overland Route, particularly over the Sierra Nevada mountains, was one of the major jobs resumed in 1923. The project was begun in 1906 and nearly 200 miles of second track had been completed at various points between Sacramento and Ogden by the time work was suspended in 1914. Biggest single project in connection with the Sierra double-tracking was construction of the Summit tunnel of 10,326 feet, longest on SP lines, which was completed during 1925. To further expand double track operations on the Overland Route, an agreement was made with the Western Pacific on August 1, 1924, for joint use of that company's 178-mile line between Alazon and Weso in Nevada. Double-tracking was completed at other points over the system, particularly on sections of the Tehachapi mountain line during 1922-23 and 1928-29, and on sections of the Coast Line between San Jose and Watsonville Jct. during 1927-30.

Several of the larger freight classification yards were expanded. First units of the new Taylor Yard at Los Angeles, which was to eventually total 250 miles of trackage, were completed during 1922-23. Other facilities, including subways and an office building, were added in 1926, and an engine terminal was completed at Taylor Yard during 1929-31. At Fresno a new freight classification yard, PFE icing station, and 15-mile freight line between Kerman and Biola Jct., were major units of a big project completed in 1929-30. During 1925-26-27 considerable trackage and other facilities were added to the Roseville terminal, where PFE completed its car repair shops and storage track extensions in 1927. An extensive freight yard terminal was constructed at Santa Clara, Cal., during 1926, with additional facilities completed 1928-29. Construction on a large terminal yard at Eugene, Ore., was begun in 1923 and the last unit completed during 1929.

At Yuma a single span 400-foot steel bridge was constructed across the Colorado river during 1923, about 1300 feet upstream from the former crossing. Involved in this change of line was a new terminal yard and 11 miles of double track extending five miles east of Yuma to the East Yard and six miles west to junction of the Inter-California at Araz Jct. These terminal changes were progressively constructed and completed during 1928.

Outstanding among new passenger stations completed in the 1923-30 period, were: Glendale, Ogden Union station, and Phoenix Union station in 1924; Sacramento, Reno and Yuma, in 1926; and Stockton in 1930. A new freight station was completed at Bakersfield in 1927.

The 16-mile narrow gauge line of the Lake Tahoe Railway and Transportation Co., originally opened between Truckee and Lake Tahoe in May, 1899,

**EL PASO & SOUTHWESTERN'S No. 1 locomotive was built in 1857 and first used in Arizona on pioneer unit of EP&SW between Bisbee and Fairbank in 1889. The EP&SW properties serving expansive mining regions in Arizona and New Mexico, was completed in 1912 and acquired by SP in 1924. Historic engine is kept on display in El Paso.**
was leased October 16, 1925, rebuilt to standard gauge and opened for traffic May 1, 1926. (This line was abandoned in 1943.)

The Oregon, California & Eastern Ry., from Klamath Falls to the Sprague River in southern Oregon, was purchased July 22, 1927, and a half interest subsequently sold to the Great Northern. An extension to Bly was completed on April 30, 1929, giving the road a total of 65 miles.

Martinez-Benicia Bridge

Construction was begun in May, 1929, on the $10,000,000 5603-foot double-track Martinez-Benicia bridge across Suisun Bay, 35 miles from San Francisco, the longest and heaviest railroad bridge west of the Mississippi. First trains were operated across the span on October 15, 1930. Its completion made possible the abandonment of the world's two largest car-transfer ferry steamers, the "Solano" and "Contra Costa," which for many years had carried freight cars and entire passenger trains across Carquinez Straits between Port Costa and Benicia.

To the properties in Texas and Louisiana, the 40-mile line of the Franklin and Abbeville Ry. Co., serving a Louisiana sugar refinery and plantation, was added in November, 1924. Control of the Dayton-Goose Creek Ry., a 25-mile line from Baytown, Texas, to connection with the T&NO at Dayton, Texas, was acquired through stock ownership on May 1, 1926; and in the same manner control of the 125-mile Texas Midland Railroad from Emnis to Paris, Texas, was acquired on April 1, 1928. An important piece of construction in Texas, principally to overcome serious washouts, was the replacing of the old line of nearly 14 miles between Langtry and Osman, with a new line less than ten miles in length.

The San Antonio and Aransas Pass Ry. Co. was re-acquired on April 8, 1925, and operated in consolidation with SP's Texas lines. SP had control of the capital stock and guaranteed the principal and interest on the first mortgage bonds of this company up to 1903, when a court decree required SP to relinquish its control. The S&AP's 725 miles of Texas lines extended from Waco on the north, Kerrville on the west, and Houston on the east, to Falfurrias and Corpus Christi on the south. During 1926-27 this property was extended approximately 135 miles into the Rio Grande Valley, the new line from Falfurrias through Edinburg to McAllen being placed in complete service in February, 1927, also 15 miles of the line east of Edinburg opened to freight traffic. Remaining portion of the line, Edinburg through Harlingen to Brownsville, was opened to freight service on October 20, 1927, and to passenger service the following November 10.

Important subsidiary and affiliated companies operating on Pacific Lines before the end of 1929 to carry on specialized phases of the railroad's varied transportation services, were: Southern Pacific-Golden Gate Ferries, Ltd., in May, 1929, handling ferry boat vehicular traffic between several points on San Francisco Bay; the Southern Pacific Motor Transport Company, in April, 1927, operating motor passenger coaches on highway routes; and the Pacific Electric Motor Transport Co., in Mar. 1929, experimenting with motor trucks operating in conjunction with

PHOENIX CELEBRATED when partial completion of SP's second main line across Arizona was observed there October 15, 1926, when special trains brought visitors from San Francisco, Los Angeles, San Diego, Yuma and other points for ceremonies at union station.
freight trains in the delivery of less than carload freight from store-door of the shipper to store-door of the receiver.

Chief executives who supervised SP's affairs in the period before the dark days of the depression struck in 1930, other than the already mentioned Krutt- schnitzt and Sproule, were: Henry W. de Forest, who succeeded Krutschnitt as chairman of the executive committee on June 1, 1925; Hale Holden, who succeeded de Forest on January 1, 1929; Paul Shoup, who succeeded Sproule as president on January 1, 1929; and A. D. McDonald, who had become vice chairman of the executive committee on June 1, 1925, assuming the added duties of president of the Southern Pacific Lines in Texas and Louisiana (formerly referred to as the "Atlantic system lines") in 1926 and supervision of the S. P. Steamship Lines in January, 1929.

CHAPTER 5
Depression & New Era

The "DEPRESSION" years that began with 1930 were lean ones for Southern Pacific, in common with industry in general. Total railway operating revenues for 1928 and 1929 had reached all-time highs in the company's history. In 1930 they dropped to the lowest point in ten years. Volume of freight traffic handled on SP's transportation system (Pacific Lines, Texas and Louisiana Lines, Steamship Lines) dropped to its lowest figure of the depression period during 1932 when revenue ton-miles were 50 per cent under the peak of 1929. The low year for passenger traffic (exclusive of electric lines travel) was 1933 when revenue passenger-miles were 65 per cent under the company's previous all-time peak year of 1920.

Retrenchments in the company's operations were necessary all along the line. More economical and efficient ways were found to handle the business. Expenditures were confined to those necessary for current operating purposes and safety. Five operating divisions were consolidated with other divisions. New Mexico was added to the Rio Grande, July 27, 1930; Western took over the East Bay Electric on October 16, 1930, also the Stockton Division on May 1, 1931; and Shasta Division was linked to Sacramento Division on September 15, 1932. (Shasta was restored as a separate division July 1, 1941, when wartime traffic became exceptionally heavy.) During 1931-32 various accounting activities of most operating divisions were consolidated in bureaus at San Francisco, others at major freight stations. Some branch lines were abandoned and torn up; unprofitable services were sloughed off; obsolete equipment was junked. Payment of dividends to stockholders was discontinued, after the last quarterly payment for 1931, the first dividend missed since payments were begun in 1906. Total number of employees on the entire transportation system dropped to a low of 41,863 in March, 1933, as compared with a total monthly average of 89,304 in 1929.

A new executive set-up became effective August 1, 1932, to simplify and adjust the official management more closely to current conditions. A new position of chairman, Southern Pacific Company, was created to place control and direction of the company's affairs in a single authority. Holden became chairman, and Shoup, vice chairman, at New York; McDonald was elected president, to have jurisdiction over all rail and steamship lines, and other properties of the company, with offices at San Francisco and Houston.

After meeting the depression emergency with the unpleasant task of effecting rigid economies, SP's management turned to the more stimulating and pleasant role of adopting new services and techniques that would attract business and meet competition, particularly competition on the highways. Traffic revenues were low, but a progressive and competitive spirit ran high.

It was then that a new era in railroading was born—an era that brought air-conditioning, the greatest boon to travel since railroading began. SP pioneered and led the way in numerous innovations and improvements in railroad services; notably, in expanding motor truck store-door pickup and delivery of less than carload freight to include highway operations in conjunction with fast overnight merchandise freight trains, also in the offering of "bargain-day" passenger fares on coach trains, and in the introduction of the popular priced "meals select" in dining cars. SP also joined in the inauguration of streamlined, lightweight, luxuriously comfortable passenger trains; in the instituting of coach-tourist car trains for economy travel; and in placing stewardesses-nurses on certain transcontinental trains. These highly modernized services will be described further on.

When the depression hit, SP had numerous construction projects and

"DAYLIGHT" OF 1930 was painted silver gray to deflect sun rays and add to travel comfort. It operated on a 12-hour schedule and marked another in a series of progressive moves to provide high standard of coach service between San Francisco and Los Angeles. The first "Daylight" was operated on April 28, 1922.
property acquisitions underway. Most were completed without delay, such as the Martinez-Benicia bridge already mentioned, while a few were deferred. One of the biggest was a line change of nearly six miles in San Jose, which involved construction of eight grade separations, considerable trackage and facilities, and the erection of a new passenger station. The first subway was completed in September, 1931, but it was December 31, 1935, before the entire $3,250,000 project was opened to traffic. In Los Angeles an important improvement completed on June 1, 1931, was a new double-track line on the east side of the Los Angeles river over which freight trains could be routed around the business district of the city. A new freight station was opened at Reno during the same year.

As a major unit in the railroad’s extensive water supply system for operational and domestic use on the lines between El Paso and Tucumcari, N. M., Bonito Dam was placed in service during the summer of 1931. Built across the river of the same name in the White mountains about 26 miles southeast of Carrizoza, N. M., the dam rises 92 feet above the river bed, is 440 feet long at the top, and impounds a reservoir of 384,000,000 gal. capacity.

The first installation on SP lines of Centralized Traffic Control (method of operation to be described later) was placed in service during April, 1930, over a 39.7-mile section in California between points near Stockton and Sacramento.

The project of installing automatic block signals on all of the company’s primary main lines, which work had been continued progressively for a number of years, was completed during 1931, to give SP more road-miles of railroad protected by this safety device than any other railroad in the country.

“Cotton Belt” Added

Most important acquisition to SP lines since the welding of the El Paso & Southwestern into the Pacific Lines in 1924, was the 1800-mile St. Louis Southwestern Railway (Cotton Belt), capital stock control of which was concluded on April 14, 1932. Application to the Interstate Commerce Commission for authority to acquire control of the property through purchase of a majority of the company’s outstanding capital stock, was made on July 25, 1930. With St. Louis as the northern terminus, lines of the Cotton Belt are operated in Illinois, Missouri, Arkansas, Louisiana and Texas, making various connections with SP’s lines in Texas and Louisiana, particularly at Dallas, Corsicana and Shreveport. The property has remained in operation under its own, or trustee, management.

Another acquisition during 1932 was that of the Petaluma and Santa Rosa Railroad Co. with 37 miles of electric lines serving an intensively developed agricultural section of Sonoma County, Cal. Control of the rail properties, two small freight steamers and a line of barges operating between Petaluma and San Francisco, was acquired by SP through the Northwestern Pacific.

The 200-mile San Diego and Arizona railroad, including main and branch lines, extending from San Diego through 44 miles of Mexico to connect with SP’s transcontinental route at El Centro, Cal., was acquired for full ownership by the SP on February 1, 1933, through purchase of the portion of capital stock held by the Spreckels interests. The name was changed to San Diego & Arizona Eastern Ry. Co. Construction of this line, involving difficult and costly engineering work extending over twelve years, was still underway when the first World War broke. In order that work could continue, the road was released from federal control, the only company in the country to receive such permission. The line was opened to traffic on December 1, 1919.

Texas-Louisiana Lines Merge

To simplify the corporate structure and to effect substantial economies, particularly through eliminating a vast amount of accounting detail, the several individual corporations comprising SP’s
ROSEVILLE TURNTABLE (right), electric-powered and 120 feet long, gets one of the AC-7 Class 4-8-8-2 cab-heads in position to move into the roundhouse. There were 241 cab-ahead locomotives in service on the company's Pacific Lines as of August, 1948, more operating on the Sacramento Division over the Sierra than on any other district. The enclosed cab gives enginemen better vision in mountain territory where operations are frequently through tunnels and snowsheds and on curving track. The more extensive use of heavier locomotives on both freight and passenger runs over various divisions of the railroad made necessary the installation during the defense and early war periods of 126-foot turntables at Tucson, Los Angeles, Dunsmuir, Tucumcari, El Paso and Eugene. There are also 120-foot turntables at Sparks, Bakersfield, Los Angeles (Taylor) and at Norden housed under snowsheds at the Sierra summit.

ROCKLIN ROUNDHOUSE (left) was a unit of the busy terminal at western base of the Sierra before all terminal operations were established at Roseville on April 18, 1926. This picture taken in 1868 shows a ten-wheeler on the hand-operated 85-foot turntable, and in foreground is pile of wood used as locomotive fuel. Turntables of this size were located then also at Sacramento, Truckee, Wadsworth, Carlino and Terrace. Wood-burners gave early-day firemen plenty exercise. When the ten-wheel Rogers came into extensive use in the '80s, a fireman on the 82-mile run between Rocklin and Summit would toss into the firebox about 16 cords of wood (a pile of two-foot logs, 4 feet wide, 4 feet high and 128 feet long). Freight trains out of Sacramento then consisted of 35 cars, loaded or empty; were cut to 18 cars at Rocklin; and further reduced at Colfax for run over summit to Truckee. Two locomotives were used on trains of such length.

STALLS FOR IRON HORSES, shown in four pictures on this page, reflect the development in locomotive power down through the years of the CP-SP. Among the diamond-stacked wood-burners (left) in Lathrop roundhouse during 1891 is a coal-burner with straight stack. Pilots on front of pioneer engines were real "cow-catchers," some extending over six feet. The battery of powerful cab-heads (below), in one section of Roseville's 32-stall roundhouse, was photographed before wartime load eliminated such display of locomotives in apparent idleness.
HEAVY POWER was needed urgently when the traffic volume began to climb during 1935-36. The powerful cab-ahead locomotives shown here are two of 26 of this type placed in service during 1937. The largest cab-ahead weigh 1,051,200 lbs. loaded, develop 124,300 lbs. tractive power, are 125 ft. 5 in. long.

lines in Texas and Louisiana made application to the ICC on Oct. 24, 1932, to merge their properties into a single corporation, the already existing Texas and New Orleans Railroad Co. Merger of 12 operating companies with T&NO became effective June 30, 1934.

An important change in the entry of SP trains to New Orleans began December 17, 1935, when passenger and freight trains were routed for the first time over the impressive Huey Long 4.4-mile public highway and railroad bridge across the Mississippi River. SP’s guarantee of a minimum payment of train tolls was an important factor in financing the structure. The ferrying of passenger trains across the river was discontinued between Avondale and Harahan, and of freight trains between Algiers and New Orleans, New terminal facilities at Avondale replaced the old yard at Algiers which had been the railroad terminal for 60 years. A new passenger station at Houston, with related facilities, was completed at a cost of over one million dollars and opened for use on September 1, 1934.

Construction of the $11,000,000 Los Angeles Union Passenger Terminal, one of the finest passenger stations in the nation, was begun late in 1933 under joint agreements by the SP, Union Pacific, and Santa Fe. It was opened on May 7, 1939, and new facilities, including Mission Road Coach Yard, were placed in service. With its completion SP’s Central Station opened in July, 1915, was closed as a passenger terminal.

Ferries and S. F. Bridges

Southern Pacific ferry boat operations and interurban electric train service across San Francisco Bay were vitally affected by the opening of the world’s biggest and longest, 3½-mile $77,000,000 San Francisco-Oakland Bay Bridge to vehicular traffic on November 12, 1936, and to electric interurban train traffic on January 15, 1939; also by the $35,000,000 Golden Gate Bridge, with world’s longest single span (4,200 feet), opened to vehicles on May 28, 1937.

The two subsidiaries handling this traffic for SP were the Interurban Electric Ry. Co., which on March 23, 1936, took over the electric interurban service and dealt with the California Toll Bridge Authority for later operations over the bridge; and the Southern Pacific-Golden Gate Ferries, Ltd., a partially owned affiliate, which in May, 1929, began operation of auto and vehicular ferry boats.

SP’s ferry boat operations in interurban service between San Francisco and cities on the east side of the bay, and in handling main line train passengers, dated from the late ‘60s. Local steam trains in Oakland, Berkeley and Alameda that connected with ferry boats at Oakland and Alameda piers, were changed to electric in 1911-12-13. The electric lines operated as a single division during 1913-17, and then during 1922-30 as East Bay Electric Division. Daily ferry service for automobiles was inaugurated from Oakland Pier in April, 1923. During 1930 SP and its affiliated companies operated 43 ferry boats on San Francisco Bay, the largest transportation enterprise of its kind in the world. The SP-GG auto ferries enjoyed their peak year in 1930, handling over 6,117,000 vehicles and nearly 15,000,000 passengers. That year the SP and auto ferries carried 40,211,535 passengers.

Patronage of both the passenger and auto ferries began to drop off when the two big bridges were opened to automobile traffic. Ferry boats in connection with interurban service to Oakland and Alameda piers made their last runs the night of January 14, 1939, and the next day trains of the Interurban Electric Ry. began operation across the San Francisco-Oakland bridge direct over their lines from cities in the East Bay area. The only passenger ferries remaining in service between San Francisco and Oakland Pier was the three operated in connection with main line steam trains. Ferry service to Alameda Pier was abandoned, and soon afterwards the facilities there were salvaged. Traffic on the bridge trains topped as tolls for auto travel were gradually lowered. Early in 1940 Interurban Electric asked authority to discontinue service. This was granted later in the year, to become effective as soon as adequate substitute service was available to commuters. Train routes were abandoned by successive stages starting early in ‘41, and by July 26 that year SP’s East Bay electric interurban passenger service faded into history. Auto ferry service to all points on San Francisco Bay ceased to exist on May 16, 1940. Passenger ferries continued to operate only for main line train connections, and Steamer Division consolidated with the Western on October 1, 1940. Northwestern Pacific, affected by Golden Gate Bridge competition, discontinued its ferry boat and electric train interurban service, the last unit ending operations on February 28, 1941.

Among the important affiliated companies of Southern Pacific not already mentioned in detail, are the wholly-owned Pacific Electric Railway Co., in southern California; and the Pacific Fruit Express Co., jointly owned with the Union Pacific.

With its network of 441 miles of electric lines and 630 miles of motor bus lines radiating from Los Angeles, the Pacific Electric is one of the largest operators of interurban passenger serv-
ice in the world. The company was organized in 1901 by Henry E. Huntington, nephew of Collis P. Huntington. SP bought half ownership in 1903 and in November, 1910, acquired full control of PE and other electric railway properties Huntington had controlled in Los Angeles, San Bernardino, Riverside and Orange counties. The present PE Ry. Co. was incorporated September 1, 1911, and into it were consolidated properties of former PE Ry., LA Inter-urban Ry., LA and Redondo Ry., Riverside & Arlington Ry., San Bernadino Valley Traction, Redlands Central Ry., San Bernardino Inter-urban Ry., and LA Pacific companies. PE is also an important freight line serving communities and industries throughout its territory.

It is through the Pacific Fruit Express Company that SP is provided with refrigeration car equipment for the heavy and fast movement of fresh fruit and vegetable crops to markets. At that time the company was organized by the SP in 1906 the relatively small tonnage of perishables moving to eastern markets was handled by a limited number of cars owned by private interests. PFE started its operations with 6,000 refrigerator cars. End of '44 it owned or leased more than 36,000 refrigerator cars operating over most all railroad lines in the United States and Mexico. It is the largest refrigerator car line in the world, measured both by number of cars owned and traffic volume moved over long distances. PFE's traffic in 1944 totaled 451,885 cars, the third year in succession that carload shipments reached all-time highs. At Roseville, Calif., it has the world's largest railroad car ice manufacturing plant.

Also among the SP subsidiaries is the Los Angeles Union Terminal, Inc., properties of which were acquired in 1920. The Terminal, served by SP and PE, is located on 22 acres in the Wholesale District of that city. Its produce section accommodates the major wholesale fruit and vegetable growers and distributors.

In addition there is a warehouse section aggregating 2,000,000 sq. ft. of floor space accommodating a cold storage plant, food manufacturers and distributors, wholesale drug firms and department stores. The Union Terminal Warehouse, SP subsidiary, is the largest certified public warehouse in Los Angeles.

For a number of years SP subsidiaries operated local electric lines in certain California cities. Interests in the Fresno Traction Co., Stockton Electric R. R. Co., San Jose Railroads, and San Jose & Santa Clara County R. R. Co., were disposed of on April 1, 1939. The company owns the Visalia Electric RR, which operates freight service on more than 38 miles of lines serving Exeter, Woodlake, Redbanks, Lemon Cove and El Mirador in Tulare County. Electric line operations from Portland to points in the Willamette Valley of Oregon were discontinued during 1931.

**Buses and Trucks**

Southern Pacific's activities in highway transportation have been with both buses and trucks.

The Southern Pacific Motor Transport Co. was organized in April, 1927, and began motor coach operations over interurban routes in Oregon. Interstate operations were established between a number of western cities during 1928, also motor coaches provided substitute passenger service for certain steam and electric branch lines in states other than Oregon. Several independent motor coach lines were purchased. On January 1, 1929, the Pacific Transportation Securities, Inc., was organized to consolidate SP's motor bus operations with those of its principal competitors, the Pickwick and Greyhound corporations in the territory west of Salt Lake City and El Paso, and south of Portland. SP owns approximately a one-third interest in the consolidated company which took the name Pacific Greyhound Corp. on April 1, 1930, and that of Pacific Greyhound Lines on December 31, 1936.

To provide motor truck service for store-door pickup and delivery of less-than-carload freight, there was organized the Pacific Electric Motor Trans-
port Co., which commenced operation March 11, 1929. Proving ground for this revolutionary practice in a railroad's handling of merchandise freight was on SP's electric line subsidiary between Los Angeles and some twenty stations in southern California.

Basic principle of this initial service to meet the competition of highway truckers was in having a contract local drayman pick up the freight packages at the store-doors of the shippers, take them to the freight station for train haul to destination station where the packages were again picked up by a local drayman for delivery to store-door of the receiver.

The service enjoyed such a quick response in popularity that it was expanded over Pacific Electric lines and then reached out to a limited territory on SP lines in October, 1929, and on February 4, 1930, the name was changed to Pacific Motor Transport Company. Operations established out of San Francisco the following April soon spread to many California and Oregon points.

Next major development in the trucking operations was the establishment in May, 1930, of the first coordinated train-truck service to give metropolitan distributing centers overnight delivery of merchandise freight to outlying territory. Freight handled by train to central "set-out" points was distributed from there by PMT trucks to adjacent towns where the best available train service was too slow; or where small towns were too numerous to permit expedited trains to stop at each station without impairing their fast schedules; or to reach territory contiguous to but not served by the railroad.

Between San Francisco, Los Angeles and other southern California points, a "direct delivery fast express service," linking passenger train operations with PMT to give merchandise freight overnight delivery, became effective in June, 1931. By 1932, this traffic had increased more than 43 per cent over the previous year, and the service was available to most communities served by SP in California, Oregon, Arizona and Nevada.

With this expansion of activity came the need for more highway operations and additional equipment. On April 11, 1933, Pacific Motor Trucking Company was organized to own franchises and operate trucks in coordinated rail-truck service and, later, to perform a major portion of the job of handling local store-door pickup and deliveries.

The primary objective in expediting the handling of merchandise freight was not to substitute trucks for trains, but rather to supplement trucks to train operations and hold the long hauls to the rails. The development of PMT's merchandise business had the effect of adding more trains to the main line, more employees at freight stations, and more employment in other departments.

The Speedy "Overnights"

Miscellaneous mixed trains were introduced to give these shipments the speed of passenger train deliveries. On August 5, 1935, came the first exclusive merchandise train, a solid freight operating on fast schedule; and on October 22, 1935, the sensational "Overnight" made its debut in dusk-to-dawn operation over the 470-mile run between San Francisco and Los Angeles. This was the forerunner of similar speedy merchandise trains that were later to provide modernized overnight freight deliveries to practically all SP stations within the trade areas of the principal metropolitan distributing centers.

Mails became too slow for freight waybills, so they were telegraphed to be in destination yard offices and stations ready for handling far in advance of arrival of the shipments, another practice in which SP was a pioneer. Freight cars were especially built or equipped for the fast merchandise trains.

"Break-bulk" points were established at strategically located stations, where contents of cars switched from the merchandise trains were speedily transferred to line-haul PMT trucks, which in turn dropped off shipments at stations between "break-bulk" points, from which stations other PMT trucks or contract draymen made local store-door deliveries.

In addition to its close coordination with the railroad's merchandise freight handling, the PMT operations were expanded in many instances to handle freight hauls of a carload nature from, or into, territory not reached by SP lines. Hauling of construction materials from rail point to project site, and the hauling of pears out of Lake County, Calif., to nearest rail point, were typical of such traffic moved by PMT's trucks.

Solicitation of less-carload freight for PMT had been a function of SP's freight traffic forces from the beginning, and as the business grew other administrative and office work gravitated to the SP organization. As a consequence PMT Co. activities relating to the handling of freight were taken over by the SP during 1938. PMT continued in the business of operating motor buses at several points on Pacific Lines, such operations supplementing SP's passenger train service. After this change PMT's organizational staff concerned itself to a greater extent with operations of the Pacific Motor Trucking Company.

On SP's lines in Texas and Louisiana the same type of expedited merchandise freight service was being performed by the railroad through the Southern Pacific Transport Company which began operations in Texas on August 1, 1930, and Southern Pacific Transport Co. of Louisiana, Inc., which began operations in Louisiana on April 16, 1932.

Tailored to Meet Needs

This method of coordinated rail-truck freight handling, which gave major distributing centers such speedy and dependable deliveries to their jobbing and wholesale territory, was tailored to meet the requirements of modern merchandising methods, and consequently expanded rapidly. PMT absorbed the Peoples Freight Line, Inc., April 1, 1939, and the Pacific Truck Express in July, 1940, adding materially to its trucking services in California, Oregon and Arizona. On December 31, 1939, SP's trucking subsidiaries were operating over 7,745 miles of highway routes in coordination with rail freight service.
By the end of 1944 these trucking routes had been increased to 12,491 miles.

Shortly after the Pearl Harbor attack it was found necessary to make available for troop trains and war freights the locomotives and cars that had made famous the “Overnights” established between San Francisco-Los Angeles, and which were used elsewhere over the system in the company’s fast freight services. However, the store-door pickup and delivery of less-than-carload shipments moving on regular freight trains continued to function, and the highway routes of the trucking subsidiaries were further expanded to serve military and naval establishments, and wartime industries.

Travel Sales Tactics

Early in the 1930s, even while business remained in a slump and traffic revenues continued on the down grade, the attitude of SP’s management was forward-looking and aggressive. The first passenger equipment was air-conditioned in the company’s Sacramento shops (14 dining cars placed in service on June 1, 1932); “bargain fares” were introduced in a successful drive to capture passenger business; the new technique of handling less-than-carload freight (already described) was introduced; and freight train schedules were speeded up to save a full day’s time on many hauls.

Through the adoption of department store sales tactics, the company offered bargain roundtrip fares at 60 per cent of the usual one-way fare. This reduction figured out to be about a cent a mile, so the special excursion events staged at various times during 1931-32-33 were advertised as “Dollar Days.”

THE “SUNBEAM” began daily operation September 17, 1937, between Houston and Dallas with streamlined steam locomotives and luxurious chair cars on trains of the same name.

STewardess-NUrse service, one of the many travel accommodations inaugurated along with streamlined trains, was suspended during war to make trained nurses available for military and naval duty, offering “100 Miles of Travel for $1.” Other low fares were made for Sunday excursions between San Francisco and Sacramento, for the “Sun-Tan” special trains to Santa Cruz beach resort, and for “Snowball Specials” to the Sierra.

The program of installing air-conditioning equipment on passenger cars was continued progressively by SP independently, at Sacramento and Houston shops, and also in conjunction with Pullman Company. During 1936 SP had the largest fleet of air-conditioned cars operated by any railroad in the West, this equipment then operating on all the company’s principal transcontinental and local trains. In the meantime a large-scale program of modernization of passenger coaches with deeply cushioned reclining-rotating seats, improved facilities in washrooms, and lighter colors for interior decorations, introduced new comforts to coach travel.

A reassuring upturn in general business was reflected in SP’s traffic and revenues during the latter part of 1935 and the company enjoyed its best year since 1931. Projected expenditures for improvements and expansions in service in 1936 were over 100 per cent above those of the previous year, and the expenditures for maintenance of the property were likewise greatly increased.

In 1936 came the inauguration of a long series of notable improvements in passenger and freight services: large-scale purchasing of rolling equipment for first time since 1929; and introduction of the Overland Route streamlined train, “City of San Francisco,” an 11-car Diesel electric speedster, placed in operation June 14 by the SP-UP-C&NW on a 39½-hour schedule between San Francisco and Chicago, making five trips a month. All of SP’s popular pre-depression passenger trains were returned to their former high standard in 1936 with faster schedules and improved equipment. Greatest encouragement on Pacific Lines came from the fact that 5,500 men and women were added to payrolls.

“Daylight” Makes History

Sensational improvement was made in the “Daylight” on the 470-mile scenic Coast Line between San Francisco and Los Angeles. First run on April 28, 1922, as a Friday and Saturday special on a 13-hour schedule for summer months, this train captured popular fancy and was destined to become a travel institution. By April, 1924, it was established as a year-around train, contained special observation car and lunch car equipment, and operated daily on a 13-hour schedule. For a time its exterior was painted silver gray, but the color proved impractical. It was one of the nation’s most popular trains when the depression hit and it was reduced in 1932 to local train status.

In 1936 the “Daylight” was the first of the company’s fleet of passenger trains to be rejuvenated. It went on an 11-hour schedule February 16, and in June that year announcement was made that orders had been placed for the most modern type streamlined cars and the world’s most powerful streamlined steam locomotives to make the “Daylight” one of the most sensational passenger trains of all time. The two beautiful red-orange-black streamlineders, each costing a million dollars, each with 449 saleable seats, were placed in service March 21, 1937, on a 9½-hour schedule. By August 4, 2 less than five months later, the 100,000th passenger had been carried to give the twin “Daylights” an American record in travel on a single-section train, a distinction it has continued to hold.
“CITY OF SAN FRANCISCO” streamliner left Oakland Pier terminal (right) in two sections on January 2, 1938, when the new ultra-modern 17-car train was inaugurated to supplant the original 11-car train which had been in operation since June 14, 1936, for the SP-UP-C&NW between San Francisco and Chicago. Both trains carried capacity loads of holiday travelers. The original streamliner was assigned to other service after this trip. Above picture shows the 17-car train in the Sierra Nevada mountains. (A second 17-car streamliner was placed on the Overland Route run during July, 1941.)

In addition to the spectacular “Daylights,” other new trains and improved passenger services were added during 1937. Two so-called “economy trains” carrying most modern type coaches and tourist sleeping cars were introduced in transcontinental service with low fares, low-priced meals, separate cars for women and children, and other distinctive features for low-cost travel. These trains were the “California” which began operation January 3 over the SP—Rock Island lines’ Golden State Route between Los Angeles and Chicago; and the “San Francisco Challenger” September 15 over the SP-UP-C&NW lines on the Overland Route between San Francisco and Chicago. The popular stewardess-nurse service, first introduced on the “City of San Francisco” for the particular accommodation of mothers traveling with children, became a feature of the two “economy” trains as well as on the “Overland” whose former prestige as an all-Pullman was restored September 15 along with an improved schedule. Another new steam train, the 8-car all-Pullman “Forty-Niner” of streamline design and ultra-modern in all respects, was added July 8 on a 49-hour schedule between San Francisco and Chicago, staggering its five roundtrips a month with those of the “City of San Francisco” to provide streamliner service on the Overland Route every three days. The San Francisco—Portland “Cascade” became all-Pullman with faster schedule on June 13, and on September 19, two “Sunbeams,” of same design as the streamlined “Daylights,” also the “Hustlers” with streamlined cars, were placed in service between Houston and Dallas, Texas.

Freight Service Speeded

Such were the highlights of passenger service improvements during 1937, but since freight traffic was producing about 80 per cent of the company’s revenues this major phase of operations came in for full attention. Extensive expansions to the handling of merchandise freight through rail-truck coordination had been steadily effected, as already reviewed here. At the same time transcontinental, and many other long haul freight deliveries, were stepped up through a continuous program of freight schedule improvements that by 1937 had increased the average speed of freight trains 28 per cent in a ten-year period with many individual freight runs spaced 40 per cent to 75 per cent during the decade.

The upswing in traffic volume that began in 1935, and which continued through 1936 into 1937, took a down turn in the latter part of ’37 due to a nation-wide recession in industrial and other business activities. The slump reached its lowest stage in the fore part of ’38 and, despite general increases in freight rates and charges, as well as in certain passenger fares, the total railroad operating revenues for 1938 were more than 11 per cent under those of ’37.

Again the railroad took a hitch in its belt, effecting every economy possible that would not weaken operating efficiency or would not seriously interfere with the continuous program of service improvements that had become distinctive of Southern Pacific’s current New Era of railroading. Certain services that were unprofitable because of lack of patronage were either abandoned or curtailed and some passenger train schedules were revised, but at the same time improvements went forward and equipment was added to services for which there was public demand. A new 17-car “City of San Francisco,” embodying many developments in car accommodations and more powerful Diesel-electric locomotives, supplanting the original 11-car streamliner on January 2, 1938.

Storms Take Heavy Toll

The most devastating combination of snow, rain and wind storms in the company’s history harassed the California lines early in 1938. One continuous storm blanketed most of the northern and central portions of the state from January 27 to February 14, with nineteen days of rain, a duration record.

Hardest hit in the early February storm was the Sacramento Division (including the present Shasta Division), with heavy snow in the mountain regions, floods and high waters in the valley lowlands, rock and dirt slides in Sacramento River Canyon, and severe wind damage to pole lines through the central section of the state. Points on the Coast and Western Divisions also came in for lots of trouble. A snowfall of 345 inches, heaviest ever recorded any month at the Sierra summit, fell in a 14-day storm that extended also over Siskiyou and Cascade mountains. Norden 1937-38 total was 805 inches. Every piece of snow-fighting equipment available was in almost constant operation keeping lines open over a total of 312 miles on widely scattered districts. A gale of hurricane proportions, swept in from the Pacific February 9, toppling pole lines and uprooting trees from the rain-soaked earth, demoralizing com-
SACRAMENTO SHOPS is largest railroad construction and repair plant west of Chicago. This picture, taken by Robert Handaker of the Sacramento “Bea” in 1941, also shows the passenger station and train yard in lower right. First shops built in 1863, now expand over 200 acres, along with stores and roundhouse.

Communications for hours and blocking the railroad at many places from San Luis Obispo to Gerber and east into the Sierra foothills. For the first time since the San Francisco fire and earthquake of 1906, SP’s General Office was without wire contact with other system points for nearly eight hours. Damage to railroad telephone and telegraph service was the most severe in 35 years.

Hardly had the lines in northern California recovered from storm onslaughts than southern California was swept by the worst rains and floods in its history. This time it was the Los Angeles and San Joaquin divisions that faced the fury of the elements. Heavy rain started February 27 and by the morning of March 2 swollen streams began to take a toll in damage that increased as the storm reached its climax. The normally docile Santa Clara, Los Angeles, Santa Ana and San Gabriel rivers, and their tributary creeks, ran rampant. Los Angeles was isolated. All railroad and highway services were tied up. For most of two days there was virtually no communication by wire with the stricken district.

Focal points of most serious damage were: (1) Soledad Canyon, where the Santa Clara River tore into the railroad at many places along a 13-mile area, completely ripping out four miles of main line and five steel bridges, buried three bridges under sand and debris, and clogged two tunnels which had become huge culverts for the charging river; (2) Colton area, where the combined fury of the Santa Ana River and Lytle Creek made a shambles of the SP and PFE yards, covered tracks with silt up to a foot deep, and washed out 450 feet of track and wooden trestle approach to the Sunset Route main line bridge across the river; (3) Los Angeles, where the 301-foot double track Dayton Avenue bridge collapsed, and where river embankments were washed from under main line and Taylor Yard trackage; (4) Montalvo bridge, where a struggle of two days and two nights saved the 35-span steel structure which was the key to reopening the Coast Line.

Never was a storm challenge met more magnificently by the railroad’s engineering, maintenance, operating, traffic and other forces. There was no letup in the day and night battle to complete emergency repairs, and early on the morning of March 5 Southern Pacific—over the Coast Line—was the first railroad to restore service into Los Angeles. Trains began operation over the transcontinental Sunset Route near midnight on March 7, but it was the morning of March 15 before the San Joaquin Valley line through Soledad Canyon was functioning. The cost of final repairs and protective improvements to the SP and Pacific Electric properties was about $2,323,000.

New Shasta Route Line

Construction was begun in September, 1938, by the Federal Government on the Shasta Dam, one of the major items in California’s great Central Valley Water Project. Erection of the dam across SP’s main line in the Sacramento River Canyon, 14 miles north of Redding, caused the abandonment of about 37 miles of railroad and its relocation on a new 30-mile route between Redding and Delta. Building of the new $15,000,000 main line got under way in October, 1938, and pending its completion a temporary track for SP’s Shasta Route was laid through a diversion tunnel under the west abutment of the dam. The temporary route was opened for operation on June 26, 1939, and on May 24, 1942, all trains were operating over the line, equipped with Centralized Traffic Control, with 12 tunnels totaling over three and a half miles in length, and featuring a 3,588-foot double-track two-deck rail-highway bridge across the Pit River. This
bridge, one of eight on the new line, is 500 feet high and is among the tallest railroad bridges in the world.

**Headquarters Moved West**

In a move toward greater efficiency, through bringing the top management more directly in touch with local problems, official headquarters of the Southern Pacific Company were moved July 13, 1939, from New York to San Francisco and the Board of Directors was reorganized with an all-western Executive Committee. This change was made coincident with the retirement of Hale Holden as chairman, which position was discontinued and the duties and authority of that office were transferred to President A. D. McDonald. New directors elected were: Allen L. Chickerling, James B. Black, Stuart L. Rawlings and V. H. Rossetti, who with President McDonald and Director C. E. Perkins, constituted the new Executive Committee. (William W. Crocker, grandson of Charles Crocker, one of the “Big Four” founders of the railroad, became a director and executive committeeman January 9, 1941, succeeding Rawlings, who died November 9, 1940; and Director Henry L. Corbett became an executive committeeman, succeeding Perkins who died June 19, 1943.)

Rail traffic was moderately higher the first eight months of 1939 as compared with same ’38 period. Then, war in Europe that broke early in September developed traffic that sent SP's ton-miles of freight that year more than 12 per cent above ’38. Foresightedness counseled that additional rolling stock be purchased or built in SP's shops, and that the railroad's plant otherwise be expanded.

Motive power ordered early in 1939 and placed in service during the latter part of the year included 40 single expansion articulated locomotives, the company's heaviest and most powerful; also included were ten 600-horsepower Diesel-electric switching locomotives, the first to be used by the railroad. In July, 1940, orders were placed for 20 of the streamlined “General Service” locomotives, which were to be slightly larger and more powerful than the first 4-6-4s used on the “Daylights.” Also ordered were 2540 various type freight cars, and millions of dollars worth of streamlined passenger train cars for improvements on all the principal trains.

Passenger services were greatly expanded during 1939-40. To meet increased demands for de luxe service to and from the Pacific Coast, partly due to travel stimulated by the Golden Gate International Exposition on Treasure Island in San Francisco Bay, the “Treasure Island Special” was operated during the summer of both years. This nine-car all-Pullman train alternated with the “City of San Francisco” and the “Forty-Niner” to provide luxury passenger service every other day between San Francisco and Chicago.

The 14-car “Noon Daylights” began operation March 30, 1940, between San Francisco and Los Angeles, providing two twin streamliners each way daily over the popular Coast Route. On June 8, 1940, the “Beaver” was established as an economy type train between San Francisco and Portland. For the particular accommodation of winter vacation travel between Chicago, Tucson and Phoenix, the “Arizona Limiteds,” two all-Pullman streamliners were operated jointly with the Rock Island Lines every other day from December 15, 1940, to April 1, 1941, and again during the 1941-42 season.

During 1940 equipment was ordered for a second 17-car “City of San Francisco,” which was ready for service late in July, 1941; also more streamlined passenger coaches which contributed to establishment of two “Daylights” July 4, 1941, on the San Joaquin Valley run between San Francisco and Los Angeles. Twin 17-car “Larks,” between SF-LA, became the nation's premier sleeping car trains July 10, 1941, with newest type Pullmans and a luxurious, unique 3-unit lounge-diner-kitchen car. First streamlined sleeping units had been added to the trains in March.

Expansions and betterments to the railroad's plant facilities that had progressed in successive stages during recent years were stepped up during 1939-40 period. More extensive use over Pacific Lines of huge cab-ahead locomotives made necessary the enlarging of

---

**MOST DESTRUCTIVE STORMS** in Southern Pacific history struck the California lines during February-March, 1938. Giant rotary plows battled a 14-day snow storm along 312 miles of rail lines. The one shown below is plowing through a slide in the Sierra. The worst rains and floods in southern California history raised extensive havoc with the railroad's main line and other facilities, isolating Los Angeles from rail and highway traffic. Here is shown a section of the railroad's devastated main line through Soledad Canyon.

[41]
mechanical facilities at certain terminals. Increased length of freight trains required extension of numerous main line sidings. Yard trackage was increased and sidings extended at several terminals. Everywhere, and in every department of operations, the railroad was being geared for a bigger job.

The expected boom in freight traffic was slow to materialize on Southern Pacific lines, and as late as October, 1940, the railroad had scarcely felt the rise in the tide of defense activity. Then, in the closing months of 1940, the greatly enlarged training and supply bases of the nation’s armed forces, the shipyards and aircraft plants with huge orders from the United States and British governments, and other industries manufacturing for national defense, poured such a volume of traffic onto SP’s lines that the ton-miles of freight carried in 1940 was, up to that time, the greatest in the railroad’s history.

CHAPTER 6
World War II Gave SP Severest Test

No American railroad met greater wartime responsibilities than did Southern Pacific; none moved its unprecedented volume of traffic with greater success.

World War II brought to the company, as it did to other railroads, the greatest transportation job in all history. How vital the railroads were to victory is emphasized by the fact they handled throughout the country during the war about 97 per cent of all organized troop movements and about 90 per cent of all Army and Navy freight and express.

All-time freight traffic records on SP lines, as measured by revenue ton-miles, toppled for five years in succession during the defense and war periods. When Japanese hostilities came to an end the company’s freight traffic was running nearly three times that of 1939, and the wartime peak month of August, 1944, was over twice as large as the previous all-time peak pre-war month of October, 1929. Passenger traffic during 1944 was five times that of 1939, the last year before national defense affected the volume of rail business.

When the extreme pressure of more than 44 months of war could be relaxed slightly in mid-August of 1945, SP men and women were justly proud of their contribution to the nation’s victory. They were grateful, too, for the help that had made their accomplishments possible—such help as the sustained cooperation of governmental and commercial shippers, of Army and Navy transportation staffs, of government agencies and connecting railroads, of Shippers Advisory Boards and the Association of American Railroads, and the understanding attitude of the general public, the press and the radio in connection with the railroad’s multiple problems.

Strategically situated on the front line of supply with more than 15,000 miles of lines serving ports of the Pacific and the Gulf of Mexico, with more military and naval establishments on its lines than on any other railroad in the country, and with mounting production from hundreds of huge aircraft, shipyard and other war industries continuously swelling its traffic load, SP and its subsidiary companies felt the heavy impact of the war from the very outset.

The slogan, “Victory Trains Come First,” was announced immediately after the Pearl Harbor attack as SP’s solemn pledge to Uncle Sam—a pledge that was to be echoed with earnestness and determination throughout the railroad as its men and women knuckled down to the job of keeping those Victory Trains rolling in spite of a manpower shortage that grew ever more critical, and in spite of a stringency of equipment that squeezed more hours out of every serviceable locomotive and car than had ever been done before.

Magnitude of the immediate load imposed by military urgency is shown by the fact that during the first seven weeks after December 7, 1941, SP operated 670 extra military trains over its system lines, while in the like period before Pearl Harbor only 111 such trains had been moved. During the early weeks of the war, the Army’s Port of Embarkation on San Francisco Bay was the busiest in the nation, and it was being served directly by SP from three directions. Particularly was the test of ability severe in SP’s western territory where the company’s 1,400 miles of north-south lines through Oregon and California connected with transcontinental rail arteries to pour a ceaseless flow of traffic into the ports from Portland to San Diego which sent major support to the entire Pacific offensive, and into plants that provided the weapons of war.

On the West Coast were located the aircraft plants that produced 60 per cent by weight of all the fighting planes manufactured during the war, and the shipyards which built 44 per cent of the nation’s new cargo tonnage. In this area of the company’s Pacific Lines were located 290 military and naval establishments, as compared with only 15 major installations before Pearl Harbor.

In addition to the Army’s great Port of Embarkation on San Francisco Bay, which, after holding top position during first weeks of the war, later ranked second only to New York among the HOODED LIGHTS for signals, locomotives and trains had their American debut on Southern Pacific Lines. Permitting operations on main line and terminal yards during blackouts that accompanied air raid alarms, they were in use in the Pacific Coast war zone area from shortly after the Pearl Harbor attack until early part of 1944.

[ 42 ]
nation's war supply ports and was again in No. 1 position during the closing months, the Navy also built there the world's largest naval supply base, with an extensive branch at nearby Stockton. Freight unloaded by all rail lines for overseas shipment from San Francisco Bay points during December, 1941, totaled 4,200 carloads. By May, 1945, this volume had increased eight-fold to a wartime peak of 33,300 carloads, a major portion of which was handled over SP lines into the port area that included San Francisco, Oakland and adjacent points.

Lots of Train Rides

While war freight naturally gave SP its biggest job from the standpoint of volume moved, the proportionate increase in passenger traffic during the war was even more amazing. Men and women of the armed forces were given a lot of long and short train rides. The average soldier made five train trips during the course of his training before he embarked for overseas service, and the average distance of each trip was 1,159 miles. The same soldier in World War I made three trips and the average distance of each was but 852 miles. When an infantry division of approximately 15,000 men was on the move, 65 trains totaling 1,350 cars, plus locomotives, were required. An armored division including about 3,000 vehicles, required 75 trains ranging from 28 to 45 cars each.

Passenger travel on SP lines during the peak wartime year of 1944, as measured by number of passengers carried one mile, was nearly four times as large as that of 1918, the peak year for World War I, while for entire World War II period the nation's railroads were called on for over twice the performance of the last war. Yet the traffic was moved with far fewer passenger cars than the railroads had for the World War I job. Because of government restrictions on materials, no new passenger equipment could be built for the individual railroads during the war, and the only additional cars available to the railroads were 1,200 troop sleepers and 400 kitchen cars built for the Army. Some of the steps taken by SP to meet this passenger traffic challenge will be explained later.

From beginning of the war through August, 1945, SP's system lines handled 28,349 special government passenger and mixed trains, comprising 437,567 cars, exclusive of freight trains. In addition, 86,359 special military cars were handled on regular passenger trains. This did not account for the many thousands of furloughs and armed services personnel, with members of their families, who rode with other passengers on regular trains. About 65 per cent of the company's passenger business during 1944 was military and naval, a percentage that continued into 1945. The wartime peak of 959 special government passenger and mixed trains was reached during the V-J month of August, 1945.

Had it been possible to visualize the war's gigantic tide of freight and passenger traffic before it became a reality, it is doubtful that successful handling of the transportation task would have been considered possible by SP from the standpoint of available equipment and facilities. That the job was accomplished is a tribute to the proficiency of more than 122,000 men and women of the railroad's system and subsidiary companies, and to the management's foresight in having spent many millions of
dollars to strengthen the railroad plant with improved facilities, powerful locomotives and new cars, ready for the defense and war loads.

**Millions For Equipment**

During the pre-war years, starting with 1936 as the year that marked the beginning of a vast improvement program throughout the SP system, the company spent through 1941 approximately $123,000,000 for additions and betterments to the transportation plant. This included a total of 14,581 units of equipment ordered at a cost of approximately $88,000,000, including 156 steam locomotives, 73 Diesel-electric switchers, 14,158 freight train cars (not including Pacific Fruit Express refrigerators), 148 streamlined passenger cars, also two Diesel-electric passenger locomotives and 11 streamlined passenger cars for the two “City of San Francisco” trains jointly owned with the UP and C&NW, and excluding ownership of Pullman cars in these trains.

During the war period of 1942 through August of 1945, approximately $88,000,000 was spent for additions and betterments, providing $23,000,000 for 1119 units of equipment that included 60 steam locomotives, 57 Diesel-electric switchers, and 1000 freight cars (not including Pacific Fruit Express).

In addition to these equipment expenditures made wholly by SP, the company shared jointly with Union Pacific in the $23,000,000 purchase of 5,725 Pacific Fruit Express refrigerator cars during 1936-41, and in the $5,000,000 purchase of 1000 Pacific Fruit Express cars during the war period.

**Defense Traffic**

To get the full perspective of SP’s progressive approach to its wartime job it is necessary to look back to the closing months of 1940 when a heavy increase in defense traffic hit the railroad and continued to grow in succeeding months as the nation’s industry swung into the stride that was to amaze the world in establishing United States as the “arsenal of democracy.”

Uncle Sam had become the railroad’s biggest customer months before the Lend-Lease Bill was enacted in March, 1941. The national defense program that began in 1940 brought construction of new and enlarged training camps, air stations, supply bases, arsenals, navy yard facilities, coast defenses and other government projects. These, coupled with expansion of industrial plants, required immense quantities of building materials, most of it hauled by rail over long distances. Aside from its normal share of such traffic, SP was flooded with additional tonnage of lumber from the Pacific Northwest due to a sixty-day tieup of coastwise schooners late in 1940. Also during that year, and the ones to follow, the railroad handled an enormous volume of transcontinental traffic that ordinarily would have moved by steamship through the Panama Canal had not intercoastal steamers been first diverted to foreign trade routes and later taken over by the government. SP’s own steamships operating between Gulf and Atlantic ports were acquired by the government during March-July of 1941.

It was during the latter part of this defense period that petroleum products began moving in large quantities by rail and continued more heavily in suc-
ceeding months when ocean shipping, which normally moved the great bulk of such traffic, went almost entirely out of the picture. From September, 1941, through August, 1945, the T&NO lines alone moved 592,193 carloads of petroleum products to seventeen eastern states, which with return of empty cars for reloading, involved the handling of more than a million tank cars to meet a traffic demand that was practically non-existent before the war.

Southern Pacific’s first big test since World War I in mass transportation of troops and military equipment came during August, 1940, when the nation’s greatest peacetime movement of soldiers sent many thousands of men of the Regular Army and National Guard to maneuver areas. The going and return movements of 119 special trains over the company’s Pacific and T&NO lines on precision schedules gave the Army and railroad transportation staffs helpful training for the multiple movements of much greater volume that were to come. Then, not long after enactment of the Selective Training and Service Act on September 16, 1940, came the trek of American manhood to training camps, and in July-August, 1941, there were other heavy troop movements.

While it was obvious that government freight and passenger business required preferred attention, SP had a million other transportation jobs to dispatch during the defense period of 1940-41, and on through the war. Uncle Sam gathers his strength from American industry, so the factory lathes and farm tractors had to be kept rolling in tune with the greatly increased tempo of the nation’s productivity, while produce from orchards, farms, truck gardens and vineyards somehow had to be gotten to far-off markets.

The railroad’s plant was further strengthened during the defense era as increased earnings were poured back into terminal yard and roundhouse expansions, main line siding extensions, trackage to serve new military and industrial establishments, about 650 miles of new heavier rail, improvements to shops, communication lines and other facilities throughout the property. Improved credit by reason of increased earnings helped finance additional large purchases of locomotives, cars and other equipment. To get fullest possible utilization of freight equipment, all railroads joined in a nationwide campaign sponsored by the thirteen Shippers Advisory Boards and the Car Service Division of the AAR. Shippers contributed mightily through heavier loading of cars in both the defense and war years, making available for other shipments a theoretical equivalent of many thousands of additional cars.

**Heavy Repair Program**

An extensive repair and reconditioning program in all the company’s shops quickly brought into use every piece of serviceable equipment. The hiring age of experienced mechanics was raised in an effort to obtain additional manpower needed for the intensified shop schedules. The search for old power that could be reconditioned and returned to regular service was far-reaching and thorough. Many locomotives, some of them built as far back as 1901, were brought in from the lines in Mexico and from lines of other affiliated companies. From yards and sidings and roundhouses all over the system came various units of power, large and small, out of use for periods ranging from months to years. Three were reconditioned after many years’ service as stationary boilers, two actually having been reclassified as steam plants. Others were minus many parts, long since removed for use as replacements on other engines. Still others had to be converted from coal to oil and fitted with modern devices.

**Diesel-Electric Switchers** were first used on SP lines early in 1939. A fleet of 130, one of largest in the country, was expediting operations in terminals at end of war. This one is equipped for exhaustive test of radio adaptability to freight yard activities.
The railroad's personnel increased as its plant expanded. During 1940-41 about 18,000 employees were added to forces on the Pacific Lines and about 2,500 on the T&NO.

Best evidence of SP's intense activity during the period before we went to war was the increase in tons of revenue freight hauled one mile during 1940-41. Such traffic was at an all-time high for 1940, being nearly 14 per cent greater than the previous year. But that record was short-lived when the 1941 figure exceeded it by nearly 39 per cent.

McDonald-Mercier

Just a few weeks before United States was plunged into war, Southern Pacific's family was shocked by the death of President McDonald, who succumbed suddenly on November 15, 1941. When he became president in August, 1932, the railroad's financial situation was seriously jeopardized by the nationwide business slump. It was under his direction that rigid economies were made, reorganizations effected, and financial matters handled in such a skillful manner that when general business activities gave evidence of recovery SP was able to make investments in equipment and extensive improvements to services that gave the company a position of eminence among progressive railroads.

A.T. Mercier, who had demonstrated his ability as an operating officer and who had risen to the position of vice president, was elected president of the railroad on December 11, 1941. Never had a chief executive of the company assumed office at such a vital or dramatic moment. The eyes of the world were focused on events in the Pacific, the course of which depended so much on the ability of Southern Pacific and its connecting lines to speed the movements of America's men and materials of war and industry.

To Southern Pacific men and women President Mercier directed a stirring message outlining the railroad's responsibilities and how it was prepared to meet them. In conclusion he said: "I know the men and women of our railroad. They have what it takes. Out on line, in the yards, in the shops and offices, day and night they will continue to do the greatest job in our history."

How well the company's forces merited their president's confidence is shown in the record of wartime operations—records that for three full years in succession kept the railroad and the railroads during 1943-44 and right up to the end of the war handling more traffic every day than that moved any day during the Fall peak periods of peace-time years.

As an example, Roseville yard handled 7,055 freight cars on its peak war day of May 13, 1944, and 106 trains were received or dispatched, an average of one every 13½ minutes during the 24-hour period. Peak day at the same yard in 1939 was September 23, when 4571 cars were handled, comprising 76 trains.

When War Came

But, to return to the fateful morning when electrifying dispatches from Pearl Harbor snapped the railroad into instant action. An army of railroadmen, already geared to emergency situations, reported quickly to their posts of duty. Everywhere the railroad was alert, its forces eager to prove their ability on time-expedition firing line. Alert, too, was the railroad in guarding and protecting bridges, tunnels, structures, communications lines and other vital facilities.

Constant threat of air raids, particularly at night time, made it necessary to prepare the railroad to operate through blackout and smokeout conditions. Hooded lights for signals, locomotives and trains had their American debut on SP lines in the first week of the war and remained effective throughout the Pacific Coast combat zone of 150 miles inland until military restrictions were removed early in 1944.

Work of organizations and bureaus established during the defense period to smooth the flow of traffic, was greatly accelerated when war came. On December 18, 1941, the Office of Defense Transportation was established with emergency powers to obtain greatest use of the nation's transportation facilities. The Association of American Railroads had established in July, 1940, its Military Transportation Section. Staffed with experienced railroad men, it was located in the Washington office of the U.S. Quartermaster General to act in a liaison capacity with the Army, Navy, Marines and the railroads in setting up schedules and routes for movements of armed force personnel and equipment. From its Chicago headquarters the long-established Western Military Bureau of the Transcontinental Passenger Associ-
tion functioned through its many branch offices. Also the AAR appointed a Manager of Port Traffic to regulate commercial export freight into the ports.

Through these railroad and governmental organizations were established the procedures under which railroad traffic was regulated to avoid the disastrous congestions of World War I when many thousands of loaded freight cars jammed sidings and yard tracks for hundreds of miles back from seaports. Southern Pacific's satisfactory operations were allowed to continue unchanged when the federal government held nominal control of the nation's railroads for three weeks beginning December 27, 1943, to insure uninterrupted rail service during a nationwide railroad wage controversy.

In San Francisco a Port Traffic Committee, composed of representatives from the Army, Navy, AAR, ICC and the railroads, met weekly to review the Pacific Coast port situation and keep freight traffic coordinated with available shipping. Important in this control were the Army's "hold yards," specially built just outside railroad terminal areas to hold cars until the ports were ready to receive them.

Military Bureaus

Dovetailed into these various organizations were special bureaus of SP's traffic departments. First to be established in April, 1941, was the Military Bureau of the Passenger Department in San Francisco, which went on a 24-hour working basis at outbreak of the war. This bureau, and a second one established later at Los Angeles, worked through the Western Military Bureau with military and naval authorities in their respective areas, and with the railroad's Transportation Department (also functioning around the clock), in organizing equipment and schedules.

Until defense traffic began moving in extremely heavy volume, the Freight Traffic Department's extensive sales and service staffs in major terminal areas were sufficient to handle the situation through the Freight Traffic Service bureaus. Established during 1932 jointly by the Freight and Transportation Departments in San Francisco and Los Angeles, these bureaus kept shippers informed as to the whereabouts of their cars of freight and arranged for their diversion en route when a more attractive market developed. Before war broke, these FTS bureaus were expanded (Los Angeles in July and San Francisco in September of 1941) each with a special military bureau to handle more expeditiously the growing volume of freight traffic matters with the Army and Navy and war plants.

Cut Passenger Runs

Extremely heavy passenger movements of military and naval personnel called for maintaining a large pool of passenger cars to meet urgent requirements. Also locomotives had to be quickly available. It became imperative that equipment be conserved in every possible way. SP took drastic action by discontinuing 91 passenger trains in 1942, some of which were among the company's best paying trains, but which could be spared in the emergency. For example, as early as January 5, 1942, the "Noon Daylights" and "Sunset Limiteds" were dropped from the San Francisco-Los Angeles run.

To eliminate non-essential service, the so-called luxury cars (lounge, club and tavern) were removed from many trains to make room for more passenger-carrying units. Operation of special trains was stopped, reduced fares for party movements were canceled to discourage group travel, practically all excursion fares were discontinued, sale of Pullman accommodations was regulated to assure maximum occupancy, and other means were instituted to get full utilization of train space and passenger equipment. In the closing weeks of the war when the railroads experienced record troop movements incident to return of men from Europe and redeployment for action against Japan, train reservations for seating or sleeping space were limited
TROOP SLEEPERS, troop kitchen cars, government owned, were only passenger cars built for rail use after war broke. Record passenger load was handled with fewer locomotives and cars than railroads had for World War I. This train is on SP line in the Sierra.

to 5 days in advance of departures and the operation of sleeping cars was eliminated to stations 450 miles or less from point of origin.

An important innovation inaugurated by SP to control the overcrowding of coach trains and avoid congestion at terminal stations was the Train Assignment Plan introduced July 16, 1943. Under this plan passengers were issued slips which permitted them to board designated coach trains at terminal and intermediate stations and this eliminated the confusion that would have resulted from a "first come first served" policy with crowds standing in line for long periods and rushing station gates. The plan aided in making travel for coach passengers much more comfortable, at a sacrifice of revenue.

Rather than resign itself to wartime difficulties or to inferior service, SP made aggressive efforts to counteract handicaps as much as was humanly possible. Additional porters were placed on coach trains, and train service agents were added to the personnel of long-distance trains carrying coaches to supervise various service features. Many trains handling a heavy volume of coach and tourist sleeping car passengers carried women employees known as "passenger aides" who gave particular attention to assisting and looking after the comfort of women traveling with small children. "Nursery rooms" were arranged at many stations for the use of mothers. (Stewardess-nurse service, a pre-war feature on Overland and Golden State route trains, had been discontinued January 15, 1942, so the experienced nurses would be available for military and naval service.)

Ticket selling was streamlined to alleviate congestion in large offices and to simplify and speed up the procedure. Training classes for passenger sales forces quickly qualified new employees for positions of responsibility. Service Bureaus handling train reservations and passenger information were under continuous heavy pressure. The Service Bureau staff at San Francisco grew from 40 in 1939 to 175 during the war peak, with an average of 16,000 calls daily on the around-the-clock shifts. At Los Angeles the staff increased from 26 to 126, with total daily calls averaging about 15,000.

Southern Pacific’s dining car service likewise operated at an all-time peak despite labor shortage and other handicaps common to the entire railroad. During 1944 SP served approximately 25,000,000 meals and varied food items on its trains and in other food serving units, a volume never before approached by this or any railroad. Complete meals served on trains and at restaurants totaled nearly 12,000,000, box lunch sales averaged 6,000 daily and sandwich sales 16,000 daily, enough sandwiches to pile 1,750 feet high. Operating one of the world's largest dining car departments, SP during the war was serving to armed forces personnel more military meals in dining cars than any other two railroads in the country.

An extensive advertising campaign in newspapers, national magazines, on highway billboards, and through other media, was carried on by SP to keep the public informed of wartime railroad problems.

Equipment Maintenance

When war broke, the program of equipment maintenance and repair stressed during the defense period was greatly intensified in the three general shops on Pacific Lines and the two general shops on T&NO Lines, as well as in all divisional shops. Of 2,221 locomotives of all types owned at the end of 1939, OAKLAND PIER, across the bay from San Francisco, was one of the railroad’s major passenger terminals hard pressed to accommodate the wartime military and civilian travel that reached peak of five times that of 1939.
of 1944, only 4.91 per cent were in shops or awaiting repair. On Pacific Lines a low of 4.5 per cent in February, 1943, equaled the previous all-time low of December, 1941. Of 59,514 freight-train cars owned, an average of about 28,000 operated on SP lines during 1944, the balance of company-owned cars operating on foreign lines. Of these 28,000 cars, plus an average of about 77,000 foreign line cars on SP Lines, an average of only 2.4 per cent were out of service for repair.

The railroad's shop craftsmen and tools were made available to other war industries through the War Production Board when such production could be handled without jeopardizing SP's vital requirements, all work being handled on a cost, non-profit basis. Major items in this category were the 26-ton 40-foot steel ship plate rollers machined at Sacramento Shops for the Oregon Shipbuilding Corporation. Sacramento Shops also came to the assistance of the West's new steel mills by helping to build six 150-ton and 160-ton "hot metal" cars for hauling molten metal. West Oakland Shops were selected for training naval personnel in the operation and maintenance of big Diesel engines, and groups of Marines were given specialized training in the company's Los Angeles Shops.

**CTC Installations**

Since a large portion of SP's main line is single track, the company faced the problem of increasing the traffic capacity of various key sections to speed war trains. This was met by extensive installations of Centralized Traffic Control, a highly scientific system which greatly reduces delays to trains in passing each other, increases the capacity of single track from 50 to 75 per cent, and adds to the efficiency of double or multiple track operations.

On track controlled by CTC the use of written train orders is abolished. Trains operate according to indications displayed by the controlling wayside signals, which confer authority for the engineer to move the train. The dispatcher, sitting before a CTC machine at a central control point, knows by means of a series of lights and a train graph what the location is of each train in his CTC territory. He progresses their movement by moving small levers and pressing buttons on the CTC machine. This in turn operates through electrical remote control the wayside signals and switches so that practically no delay is caused the trains in meeting or passing. Telephones are located at each end of all passing sidings along the CTC territory for use in facilitating train operations whenever the need for them arises.

Prior to the war SP had one installation of CTC in California, covering about 39.7 miles between El Pinal (near Stockton) and Polk (near Sacramento), which had been in operation since April, 1930; and 39 miles at various points on the T&NO Lines. Later installations on California lines, and when placed in operation, include: Redding to Delta, 30.1 miles, March, 1942; Delta to Black Butte, 50.4 miles, November, 1942; Santa Margarita to San Luis Obispo, 16.6 miles, August, 1942; Beno to Tehachapi, 32.3 miles, June, 1943; Colton to Indio, 70.8 miles, April, 1944; in Nevada, between Vista (near Sparks) and Massie, 43.5 miles, August 1944; and in Utah, 52.8 miles from Bridge Siding across the Great Salt Lake cutoff to Lemay, May, 1945. Total mileage under CTC operation at end of the war was 375.2 miles, costing about eight million dollars, including incidental track changes. Under construction for

**SKILLED MECHANICS and shop tools kept unserviceable locomotives and cars at all-time lows during the war, and on occasion came to the aid of other industries. In this picture giant lathe at Sacramento turns out plate bending roll for use in shipyard,**
completion in 1946, is 21.1 miles of CTC from Lucin to Lemay, in Utah, and 8.5 miles from Sherman to Denison, Texas.

Many Improvements

Further major improvements to the property made during 1942-44 included: 1,400 miles of new rail laid, mostly 113 or 132-pound for lighter rail; 268 sidings and siding extensions totaling 115 miles, and 149 miles of track laid on 101 yard jobs to provide additional track capacity for increasing volumes of traffic; nine tunnels “daylighted” by being converted to open cuts or eliminated through line changes, permitting improvement to main track; replacement of the spectacular 1,515-foot long, 326-foot high, bridge across the Pecos River between Sanderson and Del Rio in west Texas, in December, 1944, by a 1,390-foot long continuous cantilever type single-track steel bridge; construction of a double-track steel bridge 450 feet long, with 1061/2-foot lift span, across the San Joaquin River near Lathrop, California, placed in service in August, 1944; numerous other track structures strengthened; extensive roundhouse and shop facilities installed; and station facilities improved at many points.

SP’s transcontinental communications system, in pre-war days already one of the most complete among railroads of the world, required expanding to meet the war load. The system includes 13,000 miles of pole line, with the company owning 44,000 of its 100,000 miles of open communicating wire. Equipment and circuits were installed during 1942-44 to handle a 45 per cent increase in telegrams, and by the end of 1944 it was estimated that 150,000 telegrams and teletype messages and 400,000 telephone calls were handled every 24 hours. The telephone board staffed by 16 operators in San Francisco was enlarged for 22 operators in 1943-44, making it the largest railroad telephone switchboard west of Chicago.

General Stores at Sacramento, West Oakland, Los Angeles, El Paso, Houston and the many local stores, had average monthly issues of stores’ stock, including rail and fuel, over twice those of 1939, reaching an all-time peak value of $10,423,800 in March, 1945. The stores took a leading part in the national scrap drive, collecting nearly a billion pounds of scrap from January 1, 1942, to the end of the war for re-use in the war effort. Millions of pounds of second hand rail and like tonnage of other track materials also were reclaimed, large quantities going to the government for layouts at military and naval establishments. Use of many critical materials was eliminated, the shops changing some 450 items formerly made of brass or aluminum to castings or forgings of cast iron or steel.

Manpower Shortage

Employees on SP’s Transportation System (Pacific and T&NO lines) totaled 94,900 on December 31, 1944, an increase of about 70 per cent over the end of 1939. Yet, on that date there were jobs open for more than 9,000 employees. During the same month SP’s wholly owned subsidiary companies (Pacific Electric, Northwestern Pacific and others) had 10,637 employees, while jointly owned companies (including Pacific Fruit Express, 5,247) had 6,924 employees, making a grand total of 112,461 men and women in this country engaged on SP’s war job at the end of 1944. Peak wartime month of employment on Pacific and T&NO lines was March, 1945, with a total of 96,619.

The manpower shortage was SP’s greatest wartime problem. Every means was used to overcome the handicap, yet there were periods when the number of employees leaving the railroad for one reason or another exceeded the number of new employees. Some 4,000 women in non-clerical positions were handling jobs formerly done exclusively by men. From the modern lady “smithy,” ruling a mighty steam hammer with delicate touch in a blacksmith shop, to the patriotic women handling supplies in stores, the “railroadettes” performed valiantly in many shops, stores, roundhouse and operating jobs.

After all other sources for recruiting track workers in this country had been exhausted, SP imported its first group of Mexican nationals to work on the railroad in May, 1943. As of August 15, 1945, a total of 41,662 had been imported by SP for its Pacific Lines and affiliated companies, and 12,665 were then working in track, shop and stores jobs. Recruiting of the workers in Mexico was carried on under agreements between the governments of the United States and Mexico. The workers were provided with six-month contracts, subject to renewals for six month periods. With the return of peace, no further renewals of contracts were made, and upon the expiration of contracts then existing, the rationala were to be returned to Mexico. Their work was highly satisfactory, and from the start the railroad made the visiting workers feel as much at home as possible.

To give concerted attention to its manpower problem, SP established a centralized Labor Employment Department in September, 1942, with offices in San Francisco, and later with branches in Los Angeles and Chicago. Intensive recruiting was promoted through newspapers, radio and other media. The weekly radio program, “Main Line,” was inaugurated November 10, 1943, to attract wider public attention to the railroad’s manpower shortage.

A total of 19,980 men and women from the ranks of SP and its wholly
own subsidiary companies had gone
into the armed forces as of August 15,
1945. There were then 238 whose mem-
ory was enshrined in the huge gold star
on the railroad's service flag, and final
reports were incomplete.

Into the armed forces had gone some of
the railroad's most experienced men
from the operating and mechanical de-
partments, most of whom saw service in
front line of supply with the Army's
Military Railway Service units in Africa,
Italy, France, Iran, Germany, India,
Belgium, Alaska, Luzon and elsewhere.
Pacific Lines furnished practically the
entire officer personnel of the 754th
Railway Shop Battalion, called in Octo-
ber, 1942; the 70th Headquarters Com-
pany, Railway Grand Division, called
in April, 1943, and the 716th Railway
Operating Battalion, called in Novem-
ber, 1943. The T&NO lines sponsored
the 719th Railway Operating Battalion,
called in September, 1942, and the
734th Railway Operating Battalion
called in March, 1944.

Contributions of SP men and women
to the war effort on the home front did
not end with the performance of a top-
notch transportation job. Through the
several SP Clubs and other employe
groups, they gave generously of their
blood, time and money to the support
of Blood Banks, War Bonds, Red Cross,
War Chest, USO, Civilian Defense and
all the other wartime activities. Out-
standing were the War Service Day ob-
servances of '43, '44, '45, when the rail-
roaders honored the thousands of their
fellow associates in the armed services.

From GI's in all the services, from
admirals and generals, cabinet mem-
bers and heads of government agencies,
as well as from the press, radio, national
magazines, and from industry in gen-
eral, the Southern Pacific and its men
and women received inspiring recog-
nition of their wartime transportation
performances and of their wholehearted
support of homefront endeavors. A let-
ter of which they are particularly proud
came in midst of the war from Gen-
eral Dwight D. Eisenhower, in which
the European supreme allied com-
mander stated: "Without this support
we could not go forward."

Victory Message

In a Victory message to all employe,
dispatched over the system August 14,
1945, President Mercier said, in part:
"With courage, individual resourceful-
ness and untiring perseverance in the
face of many difficulties, you have done
a truly splendid job in helping win the
war. The railroads played a great role
with the American team of the military
forces, science, industry and agricul-
ture, providing the essential transporta-
tion that made possible the winning
effort of all concerned. My hearty con-
gratulations go to each of you."

The war's end, closing another proud
chapter in Southern Pacific history,
brought some measure of relief from
peak tonnage of freight, but there was
to be no slackening in the volume of
passenger traffic. The railroad's mili-
tary travel became heavier than at any
time during the war, as all branches of
the armed services stepped up the re-
turn home of war veterans and the rede-
ployment of forces. The travel needs of
these men and women, en route to
camps and hospitals and homes, con-
tinued to be the first concern of the
company in the face of a critical short-
age of passenger equipment to meet the
tremendous job. As 1945 drew to a
close SP's passenger traffic was running
about six times the pre-war passenger
miles. Getting the boys back home de-
veloped into the biggest haul the rail-
road had ever experienced.

With new efficiencies learned under
wartime exigencies, the railroad looked
ahead with confidence in its ability to
meet the keen competition for peace-
time business. Highly modernized op-
erations that distinguished the company's
freight and passenger services just be-
fore the war were on the way to being
resumed and extended, with the addi-
tion of all the practical improvements
offered by science, art and industry to
provide customers with the fullest mea-
sure of transportation efficiency and
personal service.

Southern Pacific, with its historic an-
cestor, the Central Pacific, pioneered
the West. Its aim will always be to go
ahead with the territory it serves!
WOOD-COAL-OIL were successively used as fuel for CP-SP locomotives. The 4-6-0 type (below), typical of woodburners in the 1910s, had one-tenth the pulling power of today's cab-ahead oilburners. Coal first came into limited use during the 1890s on certain valley runs. The first experiment with oil as locomotive fuel was made in 1879, and a few years later was adapted to ferry boat operations. It was 1894, however, before oil was successfully adapted to locomotives, and in May, 1895, Locomotive No. 1344 on Los Angeles Division became the first SP engine equipped to burn oil. A standard oilburner adopted in 1901 was installed that year on all Los Angeles Division locomotives. Its use was progressively extended to other divisions and by about 1912 oil was in universal use on all the Company's western lines.

DINING CARS of the '90s were sufficiently ornate to elicit exclamations from the Gibson girls and their escorts, but were primitive in comparison with the refinements of service, seating comforts and general appointments of today's air-conditioned diners as exemplified by the dining section of the ultra-modern "Lark" streamliners shown right in a pre-war picture. The pioneer car above is one of Pullman's earliest, and SP veterans do not recall any of this type operating on Western lines. There never was a time, they say, when cuspidors were left in aisles of SP diners to be stumbled over. Separate dining cars were introduced on SP lines early in the '90s.
NEWEST CAR AHEAD in SP's fleet of powerful 4-8-2 locomotives is this one of the AC-12 Class which was delivered in March, 1944. Under the headlight is air horn, and below (behind the grill work) is a bell. Solid pilot toses aside light snow.

S. P.-Golden Gate Ferries, "Sudd," 35
S. P. Motor Transport Co., 36
S. P. Steamship Co., 15, 32; ships acquired by govt., 44
S. P. Railroad Co., 10, 12, 18, 19
S. P. Transport Co., 37
South Pacific Coast RR, 17, 20
Sparks, 21; new erecting shop, 42 (plc)
Sprechels, J. D. and A. B., 22, 33
Sproule, William, 25, 22
Stage coaches, Sierra, 7 (plc); Butterfield, 13; Southern Overland, 13; Eugene-Redding, 16; Sacramento-Portland, 17
Standard Time established, 9
Stanford, Leland, 3, 4, 5, 9, 10, 11; U. S. senator, 19; death, 20
Stanford University, 20
Steam Div. consolidated, 30
Steamship lines of SP (Morgan Line), 15, 32, 44; on Sacramento River, 9, 10 (plc)
Steel coach, first, 9
Stewardess-Nurses, 32, 38 (plc), 39, 48
Stockton, 10; new station, 30
Stockton Div. consolidated, 35
Stockton Electric RR, 36
Stores Dept., World War II Record, 50
Storm damage (1938), 39, 40, 41
Strobridge, J. H., 6 and (plc), 7, 16 (plc)
Stubbe, J. C., 19
Suez Canal, 10
Suisun, 11, 16
Suisun Bay, bridge, 31
Sumner (East Bakersfield), 17
"Sunbeam," 38 (plc), 39
Sunset Route, 11-15, 29
"Sunset Limited," service and train dates Worl War II, 47
"Sun-Tan" Specials, 38
T
Taylor Yard, construction, 14, 29
Teahapli., 12; Loop, 12, 13 (plc); joint track with Santa Fe, 30; double track, 30
Tekema, 17
Telephone-Pekegraph, World War II service, 50
Tempe, 13
Templeton, 18
Tepic-Rmpalme line, 22
Texas Midland RR, 31
Texas and New Orleans RR, 15; twelve Texas and Louisiana companies merge with, 33, 35; World War II operations included with SP Transportation System, 42-51; petroleum traffic, 44, 45, 46 (plc); military trains, 45; employment increase (1940-41) 46; OTC installations, 46, 50; Military Ry. Service units sponsored, 51; new Pecos River bridge, 50
Texas & Pacific RR, 13, 15
Thurman Act (1879), 19
Tijuana & Tecate RR, 29
Tiburon, 23
Tilamook, 23
Towne, A. N., 19
Tonapah Jct., 29
Tracy, 11
Train Assignment Plan, 48
Train Pictures: freight ("609") 7, 52; Stanford special near Promontory, 8; at first LA station, 15; streamlined "Daylight", 14, 24, 26; silver gray "Daylight", 32; passenger of SPFJS ("609") 14; "Atlantic & Pacific", 14; freight-passenger, Ashland ("609") horse; drawn SPC, 18; first into Santa Barbara, 19; with immigrants, 19; near Burlingame ("609") 24; first freight with automatic air brakes, 25; first "City of SF" on Martinez-Benicia bridge, 33; "Sunbeam", 33; second "City of SF", 39; troop sleepers in Sierra, 48; modern freight in Sierra, 52
Trains, information about, first transcontinental service, 9, 10; "Overnight" merchandise freight, 37; "Sun-Tan" and "Snowball" specials, 38; "City of SF", 59, 41; Coast "Daylights", 38; "Noon Daylights", 41, 47; "San Joaquin Daylights", 41; "California", 39; "SP Challenger", 39; "Overland", 39; "Forty-Niner", 39; "Beaver", 41; "Arizona Limited", 41; "Sunset Limited", 47; "Treasure Island Special", 41; "Larks", 41
Transportation Act (1920) 25
Travel times, 1869 transcon. schedules, 9; 1856 Butterfield stage coaches, 13; 1871 Eugene-Redding stage coaches, 16; 1869 Portland-Sacramento stage coaches compared with 1887 train, 17; "City of SF", 38; 1922-24-26-37 Coast "Daylight", 38; "Forty-Niner", 39
Tres Pinos, 18
Trinidad, 23
Troop sleepers, 43, 48 (plc)
"Treasure Island Special", 34
Truckee, 6, 7, Tahoe line, 29, 30, 31
Trucking companies, 36, 37, 38
Tucson, 13, 30
Tucumcari, 27, 30
Tunnels, Sierra summit, 6, 30; Tehachapi, 12; San Fernando, 12; Siakiyu summit, 17; Chatsworth, Santa Lucia and Santa Susana, 21; Bayshore, 21; Mexico line, 30; some "daylighted", 56; Shasta dam route, 40
Tulare, 11
Turntables, 34 (plc)
U
Ukiah, 23
Union Pacific RR, Pacific Road, 3, 5, 6, 7, 9; terminal with CP at Ogden, 9; into Portland, 16; acquires SP, 20; PFE Co., 23; U. S. suit to separate SP, 23, 25; LAUPT, 35
Union Term. Warehouse Co., LA, 36
V
Vallejo, 11, 16
Ventura, 17
Vernon, Henry, 16
Visalia Electric RR, 36
W
Wadsworth, 21
War Service Days of SP, 51
Watsonville Jct., 18, 30
Weed Lumber Co., rail line, 27
Weo, 30
Western Pacific RR, first company, 36; War World II, 25; joint track agreement with SF, 30; "West Side Side Ore" line, 16
Willamette Pacific RR, 23
Willcox, 13
Willits, 23
Wilmington, 12
Women in men's jobs, War World II, 50
Wood, fuel for pioneer loco., 36
Woodlake, 36
World War I, began, 25; railroad operations, 25; aftermath of govt. operations, 26; comparisons with War World II in traffic and equipment available, 43, 47
World War II, 42-51; rail percentage Army-Navy traffic, 42; all-time SP traffic records, 42; western aircraft, ship production, 42; military establishments on SP, 42; SP port compared with NY, 42, 43; hooded lights, 42 (plc), 46; increase pass. traffic, number govt. trains, 43; more traffic, 43; during peace time peak periods, 46; petroleum traffic, 44, 45, 46 (plc); Roseville yard peaks, 46; function of govt., military, railroad, 44, 47; pass. train curtailments, added features, 47, 48; train reservation services, 48; dining car service, 48; advertising campaign, 48; equipment maintenance, 44, 49; shops aid other war industries, 49 (plc); major SP plant improvements, 49, 50; Stores' stock; reclamation, scrap, 50; employment, manpower shortages, 50; employees in armed forces, 50, 51; Military Railway Service units from SP line, 51; homefront activities, 51; Gen. Eisenhower message to SP, 51; Pres. Mercer Victory message, 51
Y
Yaquna, 23
Yuma (Arizona City), 12, 13, 15 (plc), 22; new bridge, station, yard expansion, 30
DWARFED alongside one of SP’s mighty “General Service” locomotives is the tiny “C. P. Huntington.” The 29-foot pioneer woodburner is actually only a little more than half as long as the tender of the 108½-foot red-orange-black oilburner. The modern giant is twenty-two times more powerful and heavier. Twenty of this type, most of them more powerful than No. 4412, shown here in “Daylight” service, were delivered to SP during 1937. Since then forty of these 4-8-4 type locomotives, the newest without the red-orange-black “Daylight” colors or streamlinedskirting, were placed in service on SP lines. The “C. P. Huntington,” a 4-2-4 (without separate tender), was the smallest locomotive operated by Central Pacific. It was shipped around Cape Horn, as were all the railroad’s first engines, and went into service at Sacramento in April, 1864, as CP’s No. 3. It was sold to Southern Pacific Railroad Company in 1869 and became that road’s No. 1 engine. In recent years it has been on display at SP’s Sacramento station.