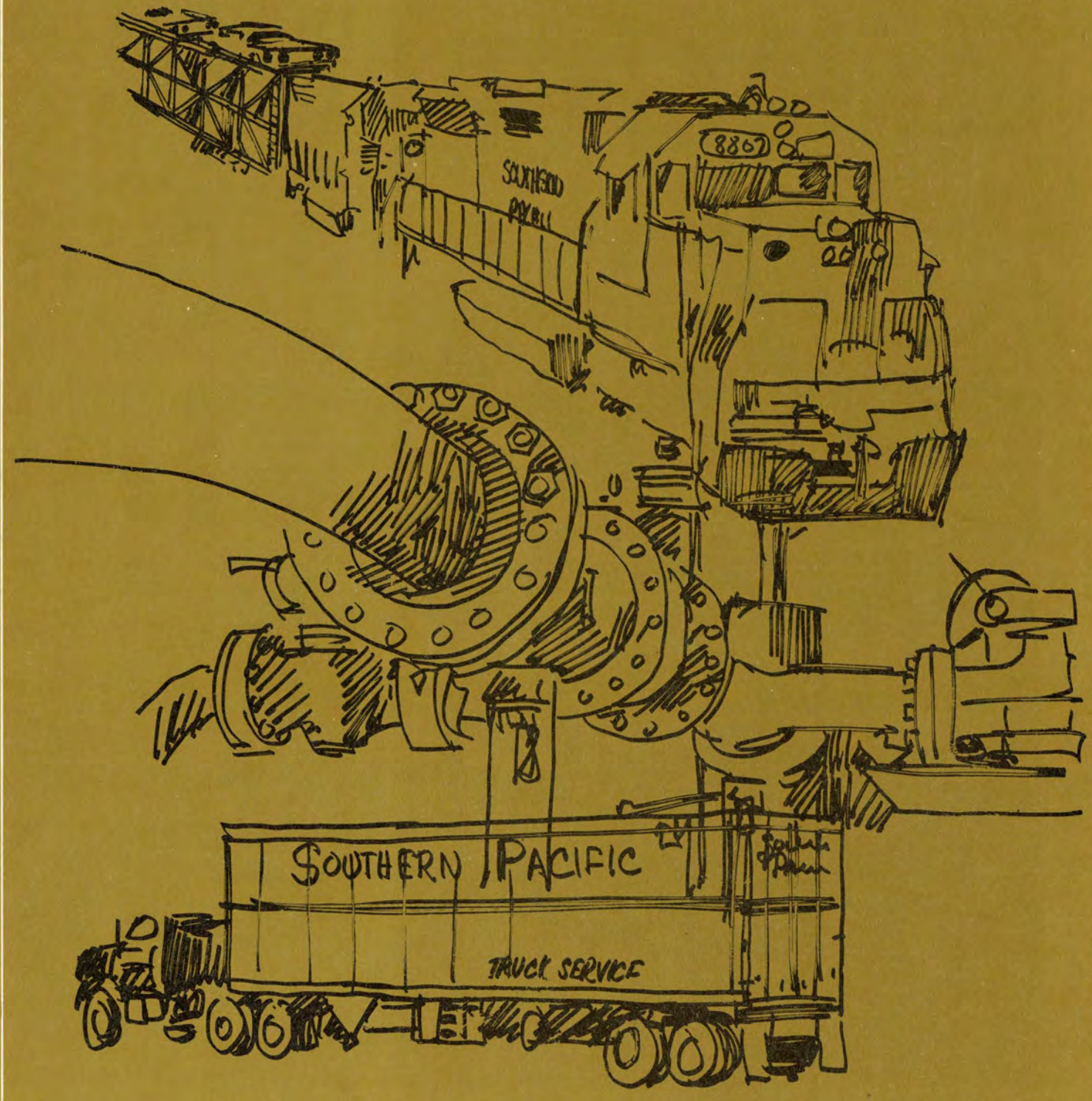
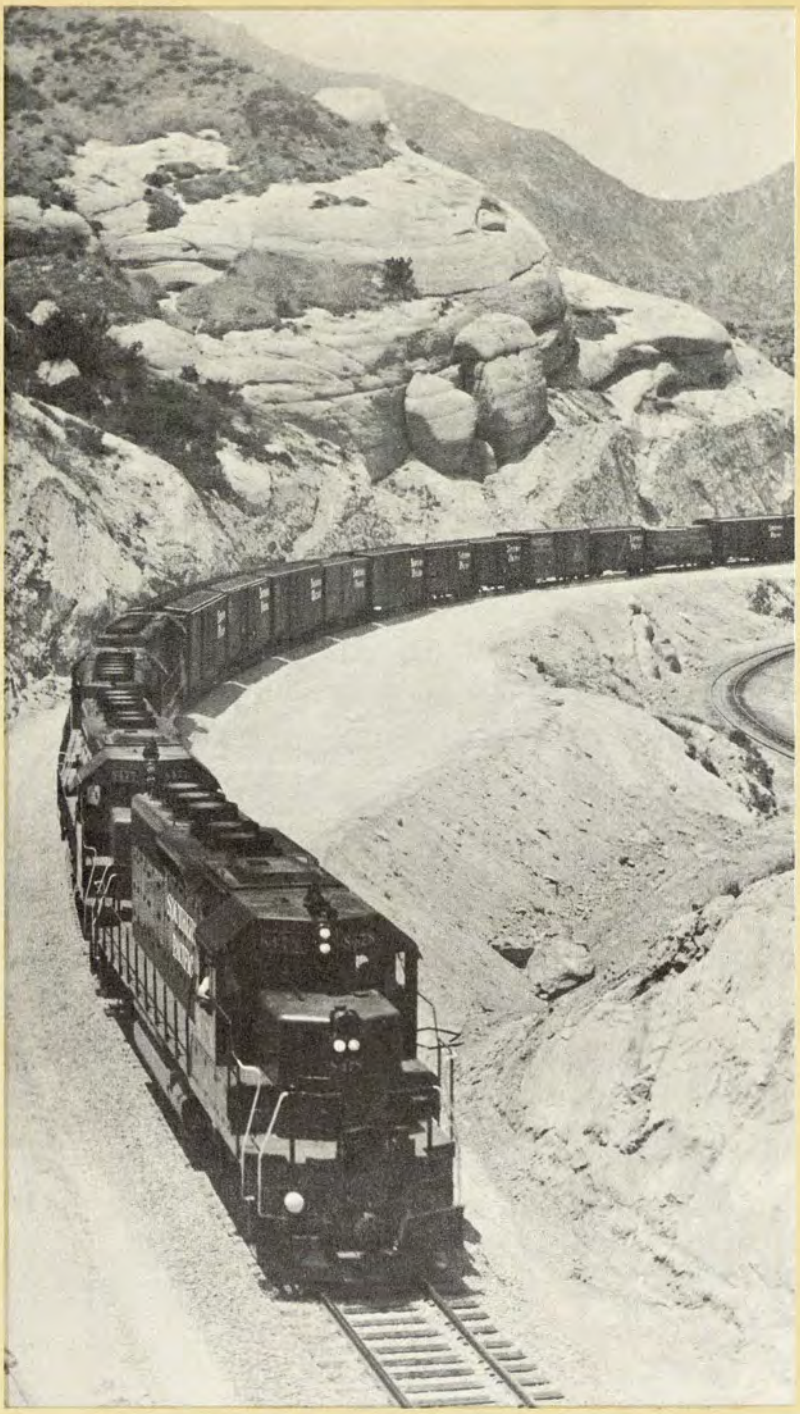
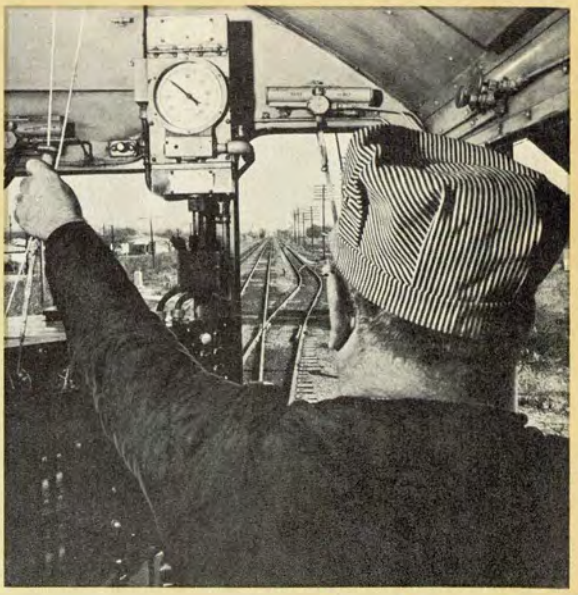
This is Southern Pacific





SP freight train rolls over the railroad's 78-mile Palmdale-Colton Cutoff line through Cajon Pass in Southern California. The line provides a 46-mile short-cut for transcontinental traffic.



Locomotive engineer pilots freight train near Houston, Texas, one of about 750 trains operating daily over SP's "Golden Empire."

Passing San Francisco's historic Ferry Building is highway unit operated by one of SP's three trucking subsidiaries which offer service over 26,000 miles of highway routes.

Southern Pacific *Bulletin*, December, 1967

This special issue was prepared by the Southern Pacific Public Relations Department, 65 Market St., San Francisco 94105, to provide information for active and retired employes and others interested in West's greatest transportation system.

This is Southern Pacific

☐ Southern Pacific is a busy railroad. On an average day, 750 SP trains move freight over 14,000 miles of line serving 12 states. Annually, SP produces more than 9% of all the rail freight service in the U.S., as measured by revenue ton miles.

☐ But Southern Pacific is *more* than a railroad. It is the most diversified transportation system in the United States, augmenting its trains with:

- Trucks — one of the world's largest and most modern fleets covers 26,000 miles of highway routes.
- Pipe lines — 2,300 miles carry petroleum products in six western states, and a coal slurry pipeline is under construction.
- Piggyback and container services — SP pioneers in new methods to coordinate advantages of rail, highway and water transport and plans to extend the concept through air freight forwarding on an international scale.

☐ Southern Pacific is a modern company. Its $1¼ billion investment in capital improvements over the past 10 years — nearly 11% of the total capital expenditures of all U.S. railroads — has given it one of America's most modern rail systems.

☐ With assets of $2.8 billion, Southern Pacific ranks among the country's 20 leading industrial corporations. It is a leader among U.S. transportation companies, with annual revenues exceeding $1 billion in recent years and net profits which topped $100 million in 1966.

☐ Southern Pacific is a developer of industry: An average of *one new industry per day for the last 30 years* has built a plant requiring spur track service along SP lines in the West and Southwest. For more than a century, Southern Pacific has led the way in promoting and developing the 12-state "Golden Empire" it serves — the fastest growing area in the country. SP's low rates and service innovations have kept western industry and agriculture competitive in transcontinental markets.

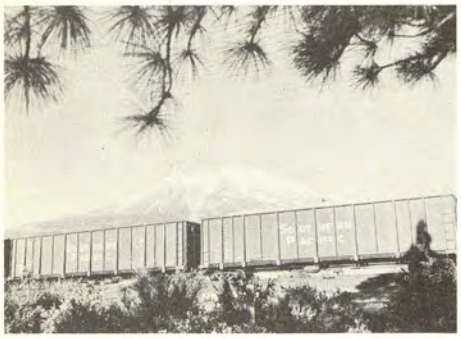
☐ Southern Pacific is a heavy contributor to the Golden Empire's economy in many ways: Each year it spends nearly a half-billion dollars for wages and benefits for its employes, purchases more than $260 million in materials, supplies and new equipment, and pays about $120 million in taxes to federal, state and local government.

☐ Ownership of Southern Pacific is woven into the whole fabric of the free world's economic system. Its 27,141,366 shares of common stock — listed on the New York and Pacific Coast Stock Exchanges — are held by over 80,000 shareowners from 50 states and 40 foreign countries. They include many educational and charitable institutions and 3,200 SP employes who purchase stock through a company-sponsored monthly investment plan. More than half these stockholders own 100 shares or less, and larger holdings—by mutual funds, for example — represent the investments of thousands of other individuals. Since SP's borrowed capital comes mostly from insurance companies and pension funds, countless others have an indirect investment in Southern Pacific.▼

Yardmaster in tower oversees operation of SP's most advanced gravity yard at Eugene, Oregon.

Southern Pacific's

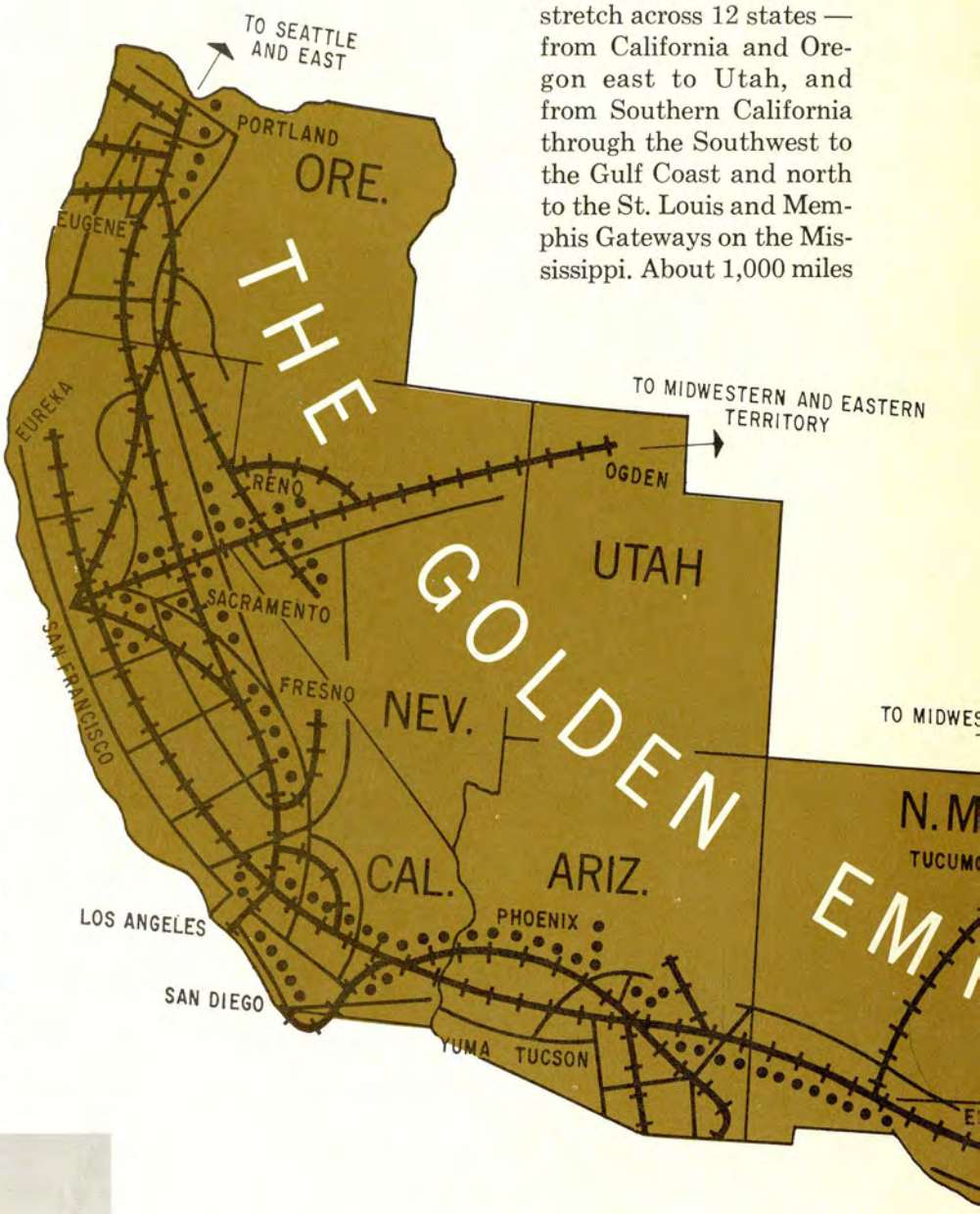
This is the crest of the Cotton Belt's gravity yard at Pine Bluff, Ark.



Wood chip cars, enroute to paper mill, pass snow-covered Mt. Shasta in Northern California.

Busy SP "locals" serve two firms half a continent apart: above, a refinery near Port Arthur, Texas; below, a cement plant at Monolith, Calif.

Southern Pacific's 14,000 miles of railroad line stretch across 12 states — from California and Oregon east to Utah, and from Southern California through the Southwest to the Gulf Coast and north to the St. Louis and Memphis Gateways on the Mississippi. About 1,000 miles



Main Line Crosses 12 States

of second main track and 6,500 miles of yard track and sidings bring SP's total trackage to about 21,500 miles.

This far-flung rail system serves all the major markets of the West and Southwest, and 35 ports of entry — more than any other railroad — on the Pacific and Gulf Coasts and along the U.S.-Mexican border.

Southern Pacific itself is operated in two major units. SP's *Pacific Lines*, covering the railroad from El Paso west, and its *Texas and Louisiana Lines*. Southern Pacific's corporate headquarters are in San Francisco; Houston is headquarters for the Texas and Louisiana Lines segment.

Subsidiary railroads, which operate under their own names but help make up the Southern Pacific system, include:

St. Louis Southwestern Railway Company (Cotton Belt Route) which operates 1,565 miles of rail line from the St. Louis Gateway to its main connection with SP at Corsicana, Texas, and to Memphis, Little Rock, Shreveport, Dallas and Fort Worth. SSW headquarters are at Tyler, Texas.

Northwestern Pacific Railroad which has a 328-mile line extending from connections with SP north of San Francisco Bay into the redwood lumber producing region of Mendocino and Humboldt Counties in Northern California. NWP headquarters are at San Rafael, Calif.

San Diego and Arizona Eastern Railway Co. which operates 180 miles of line, mainly between San Diego and El Centro, Calif., including a 44-mile line which dips into Mexico, owned by SD&AE's subsidiary, the Tijuana & Tecate Railway. SD&AE headquarters are at San Diego.

Modern Equipment

Southern Pacific's freight fleet is one of the largest and most modern anywhere; it contains nearly 88,000 cars, most of them specialized to meet shipper needs, and a rapidly-growing pool of container and piggyback equipment.

Motive power on SP consists of almost 2,300 diesel locomotive units, including the latest and most powerful types.

To keep this huge fleet moving fast and smoothly, SP is constantly improving its equipment, methods of freight handling and systems of traffic control and communications, and employs the most advanced electronic devices and data processing equipment.

Diversity: SP Offers Trucks Piggyback, And Pipelines

SP helped develop the Piggy Packer, a versatile monster with 18-foot-wide jaws capable of lifting up to 70,000 pounds.

Southern Pacific believes it should be able to offer a customer whatever form of transportation service—or combination of modes of transport — may best suit his particular needs.

This is the philosophy behind Southern Pacific's position as the most diversified transportation firm in the United States.

As early as the 1920's, Southern Pacific foresaw the important functions trucks were destined to perform, thanks to their flexibility and efficiency in shorter hauls. The railroad got into the trucking business early, first offering pick-up and delivery service for rail customers, then moving into over-the-highway service, particularly to carry LCL (less-than-carload) traffic which is more suited to trucks than rail cars.

PMT trucks load up with new automobiles at assembly plant, ready for early morning delivery to dealers in the Los Angeles area.

Today, SP is one of the nation's major truckers, well ahead of any other railroad in this diversification. SP's three regional highway subsidiaries are *Pacific Motor Trucking Co.*, operating in SP states west of El Paso; *Southern Pacific Transport Co.*, in *Texas* and Louisiana, and *Southwestern Transportation Co.*, with routes north from Dallas to St. Louis and Memphis, in the Cotton Belt area.

These subsidiaries, while subject to certain operating restrictions imposed by regulatory agencies, provide a wide variety of trucking services and assist the parent company in the handling of piggyback traffic.

They offer service over 26,000 miles of highway routes, and have 104 modern loading terminals throughout the West and Southwest. They operate more than 8,000 highway units, including specialized equipment to fill specific shipper needs — such as mechanically-refrigerated vans, hopper-type trailers for bulk commodities,

and stainless steel tankers.

Nowhere is Southern Pacific's ability to provide complete, flexible service more evident than in its coordinated rail-highway services. SP pioneered piggybacking in the West — moving highway trailers on rail flatcars — and has seen this business grow in the past 12 years from 18,000 to 2.2 million tons per year. Piggyback loading ramps are situated at 65 strategic locations throughout the railroad for the convenience of off-rail shippers and receivers.

While the highway trailer is still the principal container for domestic piggyback, SP is developing new container services, particularly in cooperation with steamship lines.The new sealed containers can move efficiently by rail, highway or water, and new types of container-handling equipment — like SP's "Piggy-Packer" — are being placed in service to speed intermodal movement.

Petroleum products in volume move much more efficiently in pipe lines than by rail or truck, so SP's subsidiary, *Southern Pacific Pipe Lines, Inc.*, was formed in 1954. The pipeline network, representing an investment of $100 million and handling about 100 million barrels in 1967, extends for over 2,300 miles in six systems in California, Arizona, New Mexico, Texas, Nevada and Oregon. Linking major refining areas with key centers of population, industry and defense installations, the pipe lines, in most cases, have been built on the railroad's right-of-way.

Newest venture in the pipeline field is an SPPL subsidiary, the *Black Mesa Pipeline, Inc.*, now constructing what will be the world's longest coal slurry pipeline. The 275-mile line, to be in operation by 1970, will extend from northeastern Arizona to a vast electric generating plant being built near Davis Dam on the Colorado River in southwestern Nevada. The $30 million line will carry 117 million tons of coal over a 35-year period.

SP Pipe Line worker descends graceful curve of storage tank ladder at the firm's Tucson, Ariz., facility. SPPL now operates 2,300 miles of pipelines.

Good transportation at low rates is a key factor in placing agricultural products in transcontinental markets at competitive prices. *Pacific Fruit Express*, jointly owned by Southern Pacific and Union Pacific since it was formed in 1906, has America's largest fleet of refrigerator cars

PFE's fleet of refrigerated cars and trailers, largest in the U.S., keeps western produce cool and fresh enroute to eastern markets.

SP provides coordinated truck-rail service at 35 ports of entry — more than any other railroad.

SP and PMT cooperated recently in a demonstration of coordinated truck-air container service.

and trailers. PFE's 9,500 mechanical refrigerator cars represent 50% of the nation's supply.

PFE operates major shops and servicing facilities at Roseville and City of Industry, Calif.; Tucson, Ariz.; and at Nampa and Pocatello, Idaho; with icing docks at numerous other points.

In July, 1967, Southern Pacific took another major step toward transport diversification by applying to the Civil Aeronautics Board for authority to develop a domestic and international air freight forwarding service. *Southern Pacific Air Freight, Inc.*, would utilize SP's existing trucking facilities to bring air freight service into thousands of smaller communities where it is not now available. Handling everything under a single charge, SP trucks would pick up shipments, take them to airports and turn consolidated shipments over to existing air carriers.

Even more recently, *Southern Pacific Marine Transport, Inc.*, was formed to consolidate shipments into containers and container pick-up and delivery service to and from ocean carriers at ports served by SP.

Another one of SP's diversified interests is *Bankers Leasing Corp.*, headquartered in Boston, one of the nation's largest equipment-leasing organizations. SP purchased it in 1964, principally as a means of stimulating new freight car acquisition by other railroads. Bankers Leasing recently extended operations into international computer leasing and will carry on the marketing and financial administration of *Diebold Computer Leasing, Inc.*

Southern Pacific Land Co. and the *Bravo Oil Co.* are among several SP subsidiaries which manage an ownership of 4 million acres of non-railroad land. This is mostly held for industrial, agricultural, timber or mineral development.

SP forest lands are managed under a "sustained yield" program, so new trees replace those cut.

Service to Shippers: Low Rates, New Cars

Switchman is dwarfed by size of big Hydra-Cushion car, one of 10,000 in SP's fleet equipped with cushion underframes for fragile freight.

In the transportation trade, Southern Pacific is known as "shipper oriented."

This means that SP looks at the *total* transportation picture which its customers face — all the costs of movement from raw material sources to manufacturing plants, to distribution centers, and finally to points of sale. It encourages customers to look upon transportation at a *reducible* cost and to call upon SP to help find ways to make the reduction.

In the 1950's, Southern Pacific pioneered the idea of encouraging shippers to load cars more heavily in return for lower rates per hundred pounds. This "incentive rate" concept has since become widely accepted by shippers and the railway industry.

The results have been dramatic in terms of cost savings for customers, increased availability of freight cars, and in more efficient operation for the railroad.

Incentive rates were a major factor in making it possible for the railroads to *reduce* their average charges per ton-mile 14% between 1957 and 1967, while average consumer prices *rose* 15%.

Before SP established its first volume rates, average loadings of perishable fruits and vegetables were 20,000 pounds per car. Now they run 40,000 pounds and up, thanks to the lower rates per hundred pounds offered the shipper for loading more heavily.

Incentive rates apply to many agricultural, forest and manufactured products. In the 10-year period 1956-1966, they brought savings of over $250 million to California and Oregon shippers alone, and at the same time Southern Pacific regained substantial traffic from other modes of transport.

Between 1955 and 1966, SP's average loading of originated traffic of all kinds increased 15 tons per freight car, from 34.9 to 49.9 tons. Without these heavier loadings, SP would have needed an average of 2,600 more freight cars available each working day to handle the same volume of business—the equivalent of 36,500 more cars in its fleet, a 41% increase which would have cost about $657 million.

SP's lower rates are essential to western shippers who must meet market competition in the East. For example, a 75,000-pound carload of lumber moves from Eureka, Calif., to New York at only 31.5 cents a mile, as against 49.5 cents per mile for competing lumber moving from Mississippi to New York. A carload of lettuce moves from Salinas, Calif., to New York for only 30.8 cents per mile, vs. a similar carload from Texas to New

Thousands of waybills will be stored on videotape when Videofile system goes into service early in 1968. They can be viewed on TV screen or reproduced as full-sized copies in less than two minutes.

A trainload of large diameter steel pipe manufactured in California rolls eastward over SP's main line near Palm Springs.

York at 38.9 cents.

Southern Pacific hauls just about every commodity there is. Some of the main items moving eastward are forest products; fresh, frozen and canned fruits and vegetables; and manufactured goods. Rolling westward from states east of the Mississippi are auto parts, household appliances, and many other items for individuals and industry.

88,000 Cars

The new freight cars are expensive. Today, the standard box car costs about $15,000 and some of the new specialized cars cost up to $35,000 each. Southern Pacific has been vigorously acquiring new cars of all types for two decades. Its present fleet of about 88,000 cars is the most modern in the country.

Shippers have a broad choice of specialized cars, each designed specifically to save them money. For example:

- **Wide-door box cars** permit mechanized loading and unloading and save customers substantial money at each end of the haul. SP has the industry's largest fleet.
- **Hydra-Cushion cars** have a cushion underframe developed by Southern Pacific and Stanford Research Institute, to reduce damage to fragile freight. SP has 10,000 of these, more than any other railroad.
- **Hy-Cube cars,** with 10,000 cubic feet of loading space, carry automobile parts. They're 86½ feet long.
- **Giant covered hopper cars** carry many dry materials in bulk which formerly required expensive packaging.
- **Piggyback flat cars** carry two 40-foot trailers.
- **For extra-heavy loads,** SP has flatcars which can carry up to 300-tons.
- **Multi-level auto rack cars** carry up to 15 automobiles as compared to the three or four which used to be carried in a box car. Auto rack cars have regained a major part of long-haul transport of new automobiles from the trucks.

Rolls of paper are loaded by fork lift into wide-door car at Portland, Ore. SP offers a broad choice of specialized cars to save shippers money.

Silos of California cement plant tower over hopper cars. Total investment in new plants along SP lines runs into billions.

SP completed a $53 million causeway across Great Salt Lake in 1959.

One New Industry Every Day

Southern Pacific serves more of the West and Southwest than any other transportation company. For this reason it can provide detailed information about the widest choice of industrial properties — anywhere along 14,000 miles of line — quickly, confidentially, and without bias affecting any particular community.

For more than a century, SP has worked actively to help industries find the right locations for their manufacturing, processing and distributing facilities.

How successful has this effort been? Over the past 30 years, Southern Pacific has experienced an average net gain of one new carload-producing industry a day along its lines, and the pace has further increased since the end of World War II. In 1966, SP's industrial department located nearly 600 industries on the railroad.

Total plant investment of new industries brought to its territory by SP in recent years is measured in billions of dollars, and their employes in hundreds of thousands.

At any one time, the railroad's industrial specialists may be working actively with as many as 700 prospects — industries interested in finding new plant sites, including the long-term development of large manufacturing complexes.

A tremendous selection of good industrial sites is available in major population centers of the growth territory served by SP. Keeping these properties available is a key objective of the railroad's industrial development program. Southern Pacific representatives are in constant touch with community officials and planning commissions to encourage constructive zoning and balanced economic growth.

While most industrial sites along Southern Pacific are owned by others, the railroad continually acquires and develops properties itself to guarantee the availability of desirable land for industrial use. Many of these properties have been established as attractive industrial districts and parks, zoned to maintain high standards and provide adequate room for expansion, parking and traffic flow.

Last bolt is tightened on a trainload of ribbon rail — 5.8 miles of it in quarter-mile lengths. This load was used for Palmdale-Colton Cutoff.

After standard rail lengths have been welded together to make ribbon rail, the weld area is ground smooth. Sparks fly as grinding takes place at SP's Tracy, Calif. rail-welding plant.

Locomotive units for Southern Pacific's high
East St. Louis, Mo., for the train's 10 p.m. dep

Innovatio

Every night at 10, a freight train known as the *Blue Streak Merchandise* leaves the Cotton Belt yard at East St. Louis, Ill., and heads west with 80 to 90 cars of "hotshot" merchandise. For several years the BSM has been America's fastest transcontinental freight train. In 50 hours and 30 minutes, it travels 2,452 miles to Los Angeles, at an average speed of 49 m.p.h. including stops along the way to add new cars, change crews and make 500-mile inspections.

The BSM is a product — one of many — of the transportation revolution taking place on Southern Pacific and other U. S. railroads.

Southern Pacific has streamlined its railroad, improved service, and cut costs for its customers — through efficient use of the wide range of skills possessed by SP people and by management's will-

speed **Blue Streak Merchandise,** are readied at arture.

Southern Pacific's electronically-controlled classification yards, like Englewood Yard, Houston, handle thousands of cars, hundreds of trains daily.

on is the Keynote of SP Operations

ingness to innovate and invest heavily in modern equipment and facilities.

Train schedules on all SP routes have been speeded up, so shippers can meet their competition and keep inventory costs under control. Freight schedules between Chicago and the West Coast, for example, have been cut more than in half since World War II — 57 hours westbound from Chicago to Los Angeles, vs. 129 hours in 1947.

Faster Terminals

SP moves freight cars through terminals in a fraction of the time once required, as a result of its $64 million investment in terminal improvements from 1956 to 1967. The most sophisticated freight classification yard — on any railroad anywhere — was recently completed by SP at Eugene, Ore., in the center of the Pacific Northwest lumber country. An advanced "digital" computer is the heart of the $7 million Eugene yard's new automatic systems. This not only directs a freight car to the proper classification track, but also controls its rolling speed so it couples gently with other cars being assembled into trains.

Major improvements have also been made at SP's three other giant classification yards — at Houston, Los Angeles, and Roseville — and to terminals at Sacramento, Tucson, El Paso and Dallas. Smaller automatic gravity switching yards have been constructed at City of Industry (east of Los Angeles), Richmond, Calif., and Beaumont, Texas.

For many years, Southern Pacific has also emphasized "blocking" freight cars — carefully planning the make-up of trains so cars bound for the same destinations are grouped together. They then can be moved long distances without reshuffling the train at intermediate terminals. In this program, it also cooperates with other railroads.

The Newest Rail Line

The longest stretch of new rail line built in the United States in the past quarter-century is also helping speed SP traffic flow. This is the $22 million, 78-mile Palmdale-Colton Cutoff line through Cajon Pass in Southern California, completed in July, 1967. Thanks to new construction methods and track-laying equipment developed by SP people, the line was built in 15 months, 6 months ahead of schedule.

The line, by-passing the congested Los Angeles area, offers a 46-mile shortcut for trains moving between SP's Valley Line in Cali-

fornia and its southern transcontinental route. At the same time it has opened up more capacity in SP's Los Angeles terminal for handling local business.

More Muscle

Faster schedules and heavier loading of freight cars obviously mean more horsepower is needed up front. SP is buying 3600 HP diesel-electric locomotives, the most powerful ever built with single engines. They cost close to $300,000 each, but they can drag heavy loads over the mountains like a mule and run at high speed like a racehorse in the valleys. These third-generation diesels are six times as powerful as SP's first freight diesels — the little switchers acquired in 1939 — and have more than twice the muscle of the diesels which replaced steam locomotives in the late 1940's and early 1950's.

Space science suggested to SP a way to help keep expensive locomotives running at top performance. An adaption of rocket circuitry testing, the electronic "SEARCH" unit automatically checks out the entire complex electrical system of a locomotive in little over an hour. Connected to locomotives by a wiring harness, SEARCH units at key SP locations run through a sequence of tests pre-programmed on tape and pinpoint defects for faster correction.

Communications

Today's faster schedules call for precise operational control, and the latest units in Southern Pacific's electronic Centralized Traffic Control system provide this. Trains approaching one another on a single track advance on signals they automatically clear by their forward progress. So precise is timing that more than half the train meets can be made non-stop, using long passing tracks.

CTC mileage on SP now totals 2,832, most of it constructed since 1958. There is either CTC or double-track all the way from Portland to Los Angeles and through to Sierra Blanca, Texas, as well as from San Francisco to Ogden.

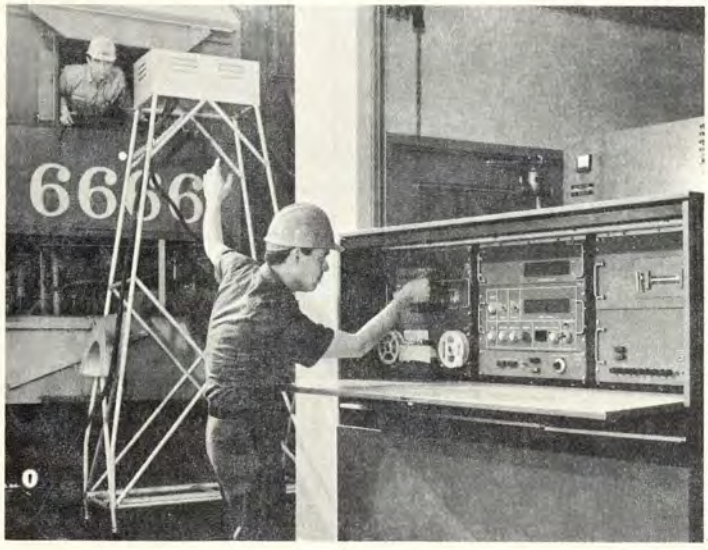
The stepped-up tempo of operations also requires reliable and versatile communications — train radio, closed-circuit TV, high-speed data transmission, intercity telephone dialing, and facsimile transmission. Carrying much of this message traffic is SP's microwave network, begun in 1957 and now extending from Portland to El Paso, and over the Sierras into Nevada. A 760-mile extension to Houston in 1968 will provide a continuous 3,415-mile microwave system with 122 terminal and repeater stations.

Research on the Railroad

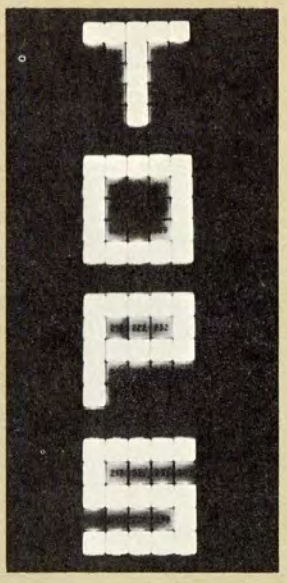
Research is carried on extensively by several Southern Pacific departments — operating, engineering, mechanical, communications and traffic, among others. Probably 75 active research projects will be underway at a given time, some in cooperation with outside research organizations, such as Stanford Research Institute.

Research and development projects have covered a wide range: automatic hot box detector systems, new car designs, future containerization possibilities, computerized grade crossing "predictors," automatic car identification, traffic flow analysis; a host of technical innovations and studies of future markets. They may not all prove useful — but some will, and these will help Southern Pacific improve its efficiency and service.

SEARCH unit, with computer equipment, can check out diesel's entire electrical system in about an hour.



Third generation diesels like these 3,600-horsepower units help SP maintain fast schedules.



The Computer Age Comes to SP

Transportation managers have a special problem in exercising control over their businesses. The "plant" they operate is not a self-contained unit, with all the company's people and equipment working in a central area, close at hand and easily available. Information needed to make decisions, to plan ahead, and to maintain efficiency can be difficult to acquire on a transportation system, such as Southern Pacific, where actual operations are spread over thousands of miles. Modern data collection and processing techniques using new communication networks therefore play a crucial role in both SP's advance planning and its day-to-day management.

In 1960, a combined Southern Pacific-IBM team began development of one of the most advanced computer applications in American industry — SP's *Total Operations Processing System.* TOPS, a $22 million project, is already in partial operation and will be complete and "on line" in 1971, the railroad industry's first complete "real time" data processing system. (TOPS is known as "real time" because it will keep track of things that are happening at the time they are happening — in time to do something about it, if necessary.)

Southern Pacific started using automatic data processing devices 50 years ago when it acquired a pioneer punched card machine in the World War I era, and it has been a large-scale user of computers for several years. But TOPS will be a comprehensive "total" system, with some 400 input-output units at strategic points across the nation. These will feed information, mostly through SP's microwave communication system, into a central computer installation in San Francisco — as events actually occur. This information will then be instantly available throughout the system, wherever and whenever required.

Information will be available at all times on the current location and status of each of some 89,000 freight cars of all ownerships and 2,300 SP locomotives moving over the railroad. Dispatching and yard offices will know the consists of all arriving and departing trains, well in advance of the time in which they must take action. Accounting offices will get timely information on shipments billed, bills presented and paid, interchange reports, trainmen and enginemen timekeeping. SP's traffic people will receive information on all classes of commodities moving, all consignor and consignee information necessary for more effective solicitation of business, along with car location and other information desired by our customers.

Major benefits of TOPS will come from increased utilization of equipment. The importance of this is obvious — if SP can get just one more day's work per month out of each car on the railroad, it will save more than $3 million per year. Today, no railroad can afford to let expensive freight cars sit around idle. Information supplied by TOPS of the current location and status of cars, crews and motive power will enable management to match quickly equipment supply with demand.

What SP expects to achieve, on a gigantic scale, is the ability to observe at a single glance the op-

erations of its entire system. There will be available, at every level of supervision and every point of action, the information that the railroad man needs to do a superior job of modern-day railroading.

The "Carloc" Program

While TOPS soon will be keeping track of all cars and trains on Southern Pacific lines, SP already has a computerized "car location" service for major shippers. Daily reports are given shippers on the location of 60,000 cars. The program helps shippers keep smaller inventories and improve production schedules.

System Management Services

As important as the TOPS program is and will be, it represents only part of the uses to which Southern Pacific is putting its $16 million worth of computers in San Francisco, Houston, Los Angeles, and Eugene. In the System Management Services Department, computer-related operations are carried out by four main groups.

Southern Pacific is putting about $16 million worth of computers to work at various points throughout its 14,000-mile system.

Systems Research works with departments throughout the company on the design and installation of systems oriented to information retrieval, corporate planning and control, management science, and computations.

Field Data Control directs and coordinates office procedures at Southern Pacific's many field locations throughout the 14,000 mile system. Raw data is assembled from these offices and converted to forms useful in the TOPS system and other computer programs. Freight charge collection and other paper work functions are regionalized, centralized and fitted into punched card procedures.

Analytic Services is concerned mainly with the application of new management science techniques to railroad situations. One of these programs is called "train simulation" in which imaginary trains are run over a magnetic tape duplication of the physical characteristics of SP's rail network, thus helping operating officers determine the most efficient horsepower-per-ton ratio for any given part of the railroad and allowing experimentation with variations of power - tonnage - speed ratios. In this way, information can be obtained in a matter of hours that would take months and even years to acquire by actually running trains hundreds of times under various combinations of operating conditions.

Data Processing is the production division of System Management Services and TOPS. It operates and controls the computer equipment which processes programs designed by all other groups. In addition, this office handles many routine computer programs, such as the printing of payroll and stockholder checks.

SP Chief Executives

Leland Stanford: President, Central Pacific, 1861-93; President, Southern Pacific, 1885-90; Chairman, Executive Committee, 1890-93.
Collis P. Huntington: President, 1890-1900.
Charles H. Tweed: Chairman of Board, 1900-1903.
Charles M. Hays: President, 1900-1901.
Edward H. Harriman: Chairman, Exec. Comm. and President, 1901-09.
Robert S. Lovett: Chairman, Exec. Comm., 1909-13; President, 1909-11.
William Sproule: President, 1911-18 and 1920-28.
Julius Kruttschnitt: Chairman, Exec Comm., 1913-25; President, 1918-20.
Henry W. de Forest: Chairman, Exec. Comm., 1925-28; Chairman of Board, 1929-32.
Hale Holden: Chairman, Exec. Comm., 1929-32; Chairman, 1932-39.
Paul Shoup: President, 1929-32; Vice Chairman, 1932-38.
Angus D. McDonald: Vice Chairman, Exec. Comm., 1925-32; President, 1932-41.
Armand T. Mercier: President, 1941-1951.
Donald J. Russell: President, 1952-64; Chairman, 1964-.
Benjamin F. Biaggini: President, 1964-.

Passenger Train Bows To Auto And Plane

The long-haul passenger train is rapidly passing into history as the speed of the airplane and the flexibility of the automobile have revolutionized public travel habits.

The decline was already substantial as early as 1954, when SP's passenger service was operating at a deficit of $58 million. After World War II, Southern Pacific did its best to attract travelers by providing luxurious equipment, low fares, and heavy promotion. Between 1945 and 1954, the railroad spent $40 million for a fleet of fine new streamliners and $1 million a year in advertising them. SP introduced the traveling public to expedited reservation and ticket delivery systems, and automatic baggage elevators, public address systems, barber shops and telephones on trains. It tried slashing prices. Fares on the *Daylights* were the lowest in the country — not gimmicky fares, good only in special circumstances, but the lowest fares 365 days a year. None of this helped.

The businessman, who had been the backbone of rail passenger traffic, could no longer afford the time to travel by train.

As the number of SP passengers declined from 4½ million in 1952 to under 1 million in 1966 (not including commuters), unneeded trains were gradually discontinued. By tailoring passenger service to fit declining demand, SP was able to trim its passenger deficit to about $16 million a year. But this still represents a continuing drag on the railroad's ability to keep its rates down, buy new equipment and make other needed improvements.

Commute Trains: Service the Public Wants

While the need for the long-distance train has virtually disappeared, SP's commute service on the San Francisco Peninsula — the only railroad commute operation west of Chicago — continues to perform a useful public service.

Each weekday, 12,000 commuters ride 22 SP trains each way on the 47-mile main line between San Jose and San Francisco. Peak commute business was in 1954, when about 16,000 commuters rode Peninsula local trains — but this number dropped in the late 1950's, as new stretches of freeway were opened, and has held steady at about 12,000 since 1961.

About 400 employes are engaged in operating SP's San Francisco Peninsula commute service.

Fast schedules, an outstanding on-time performance and low fares make this service one of the nation's best. SP commute expresses run three minutes apart in the evening rush: the 5:14 from San Francisco reaches California Avenue, 32 miles away, in 37 minutes, for example. A monthly commute ticket for the 25-mile trip from Redwood City is $24, while comparable tickets on Chicago and New York commute railroads cost $29.62 to $40.40.

About 400 persons, 23 diesel locomotives and 106 cars are employed in operating the commute fleet. Because the trains are only busy for a couple of hours a day, commute service has been running a deficit of about $1 million a year. It serves a genuine public need, however, and Southern Pacific expects to be in the commute business for a long while yet. It has ordered 15 more air-conditioned, double-deck commute cars, at a cost of over $3 million, for delivery in mid-1968.

Fifteen more air conditioned, double-deck commute cars similar to this one are being purchased at a cost of over $3 million for delivery in 1968.

Education To Meet Challenge

People who combine technical skills with broad outlooks are essential for a company such as Southern Pacific, as the transportation business changes and grows more complex. To help SP people prepare themselves for the challenge of increasing responsibility, Southern Pacific conducts a variety of educational programs, ranging from brief orientation sessions to a year or more of full-time work in college.

Southern Pacific's Training and Development Bureau offers courses, both in formal classes and by correspondence, in job-related subjects from work simplification to "Coordination of Freight Rates and Sales" or "Key Punch Training for Computer Input."

Professional conference leaders have been retained by Southern Pacific to conduct seminars over its entire system, in a program which began during World War II. These seminars are aimed at broadening the outlook of SP people and creating better understanding of rapid changes taking place in the world and the effect of these changes on Southern Pacific and the transportation industry.

A formal training and development program was instituted in 1961 by Southern Pacific. Designed to provide rapid initial training for a limited number of young men with potential for advancement to positions of considerable responsibility, the program recruits as trainees both those who have just graduated from college with bachelors' or advanced degrees and existing employes whose potential has caused them to be recommended for the program by their superintendents or department heads.

Senior Draftsman H. L. Jones of Houston is completing work toward an engineering degree at the University of Houston.

Completion of work for college degrees is encouraged by SP. The company reimburses full-time employes for their tuition and required fees when they receive suitable grades on college courses taken for credit and are recommended by their superintendents or department heads on the basis of potential for increased responsibilities and demonstrated interest in an SP career.

Full-time college work is sponsored by Southern Pacific for a selected number of employes who have made substantial academic progress toward a bachelors' degree but need more time in college. In this program, which provides for one academic year (occasionally more if needed), Southern Pacific pays all tuition, fees and related academic expenses, in addition to salaries of those selected.

Management development programs and seminars at universities throughout the country each year include a number of Southern Pacific representatives. Since 1950, the company has sent officers to advanced management or middle-management programs at such schools as Harvard, Stanford, Massachusetts Institute of Technology, Carnegie-Mellon University, and the Universities of California, Pittsburgh and Houston.

A Good Citizen

SP prides itself on being a good corporate citizen. It was the first railroad to become a member of "Plans for Progress," pledging itself to be an "equal opportunity employer."

It participates in numerous programs aimed at helping minority individuals qualify for and obtain positions in industry, and it is a leader in the redevelopment of depressed urban areas, bringing in industry needed for payrolls.

It encourages SP people to participate in a broad range of civic and educational activities. For example, many officers and employes work tirelessly on behalf of community charity drives. Through the SP Foundation, the Company contributes substantially to these drives as well as to scores of privately-supported colleges, universities and hospitals along its lines.

K. W. Dixon (center), asst. trainmaster, San Joaquin Division, is working toward an engineering degree at Fresno State College.

This crowd gathered at Promontory, Utah, May 10, 1869 to celebrate the driving of the gold spike uniting the Central Pacific and the Union Pacific to complete America's first transcontinental railroad.

SP Helps Develop the West

■ Few people today realize the extent to which the history of Southern Pacific and the development of the West and Southwest are intertwined. SP and its predecessor, the Central Pacific Railroad, were directly responsible for attracting hundreds of thousands of people west through an extensive advertising and publicity campaign conducted from 1869, the year in which the first transcontinental railroad was completed, through 1920. An intensive effort to attract new industries to the West and Southwest continues to this day.

A typical Central Pacific ad in 1875 read "Ho for California! The Laborer's Paradise! Salubrious Climate, Fertile Soil, Large Labor Returns, No Severe Winters, No Lost Time, No Blight or Insect Pests!"

Once tempted by the golden promise of the West, the Easterner was offered the opportunity to travel there at extra low fares on one of CP's transcontinental "emigrant trains."

Emigrant trains were sociable affairs. People got acquainted, shared their food, washed clothes, cooked on the stove at the end of the car, played instruments and sang. Meetings and marriages occurred aboard these trains — just as they had in the covered wagon trains along the Overland Trail, but without the rigorous five-month journey and the hazards of cholera and Indians.

Once arrived, the settler was aided by the railroad in many ways. One example of this was the "land-seeker's ticket," a method by which the fare paid would be applied on the purchase of railway-owned land. Railway land was sold at $1 to $10 an acre by installments and special reduced "group" rates were given to colonists who traveled and settled together. Through these methods Southern Pacific helped settlers succeed in agricultural and manufacturing pursuits which assured the future of the West and transportation business for the railroad.

When the new Westerners were established and began to produce goods, SP promoted nationwide markets for them as aggressively as it had promoted the influx of settlers. Transcontinental freight rates were established at levels low enough so Western farmers and manufacturers could compete directly with producers much closer to Eastern markets.

Southern Pacific's success in promoting its "Golden Empire" was demonstrated by a quadrupling of population of the region in the years from 1870 to 1920. These

people produced an economy that today has grown into the richest and most diversified in the nation.

Southern Pacific's history dates from 1851, when its oldest link — the Buffalo Bayou, Brazos & Colorado Railway — was started in Texas, its first line stretching from what is now Houston, on Buffalo Bayou, to Alleyton 80 miles to the west.

In 1852, the New Orleans, Opelousas & Great Western Railway began building 80 miles of line west from New Orleans to what is now Morgan City, La. For a time, during the Civil War, this railroad was operated by Union troops at one end and Confederate forces at the other. Reorganized after the war as Morgan's Louisiana & Texas Railroad, it was later linked with the BBB&C and other pioneer lines to form what now are SP's lines in Texas & Louisiana.

Theodore Judah

In the West, the oldest component of the Southern Pacific system is the 23-mile line from Sacramento to Folsom, Calif. This was the route of the Sacramento Valley Railroad, first steam railroad in the Far West, built in 1856 by Theodore Dehone Judah.

Judah, a Connecticut-born civil engineer, was the original driving force behind the search for a suitable route eastward over the Sierra Nevada mountains for a transcontinental railroad. He was the first advocate of such a railroad who had practical engineering know-how to add to sincere enthusiasm. He made many surveys on foot across the Sierra and was convinced of his plan's feasibility. After laying out a proposed rail route, he took his plan to Congress several times seeking support, only to have his proposal labeled fantastic and preposterous.

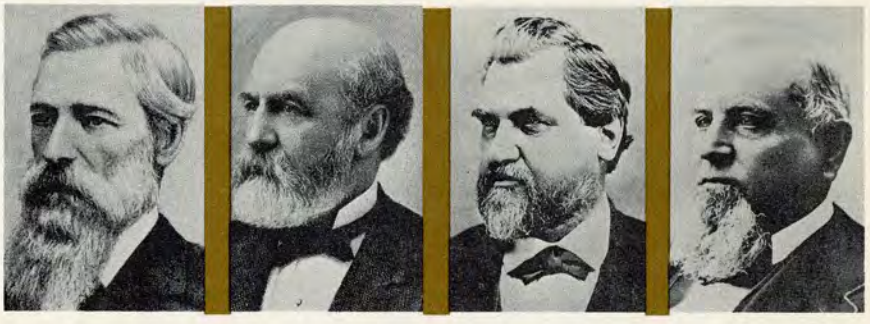
Enroute to Promontory, Utah, for driving of gold spike, Stanford's train was met by one of the last wagon trains near Great Salt Lake.

Then Judah met four Sacramento businessmen who backed his belief in a transcontinental railroad: Leland Stanford, dealer in groceries and provisions; Charles Crocker, dry goods store proprietor; Collis P. Huntington and Mark Hopkins, partners in a hardware establishment. Against opposition and in the face of ridicule they joined forces with Judah, putting their entire resources and personal credit into the project.

Thus encouraged, Judah again went to Washington and played a leading role in the final passage of the Pacific Railroad Bill, which was signed by President Lincoln on July 1, 1862. Huntington wired his associates from New York where he had gone to raise money; "We have drawn the elephant. Now let us see if we can harness him." On January 8, 1863, ground was broken at the western end of America's first transcontinental railroad. Huge crowds attended the impressive ceremonies held at Front and K Streets in Sacramento.

In his speech, Leland Stanford, by then Governor of California, said that the work would go on with "no delay, no uncertainty in the continued progress," and assured his attentive war-time audience they could look forward with confidence "to the day, not too far

Mark Hopkins Collis P. Huntington Leland Stanford Charles Crocker



distant, when the Pacific will be bound to the Atlantic by iron bands that shall consolidate and strengthen the ties of nationality and advance with giant strides the prosperity of our country."

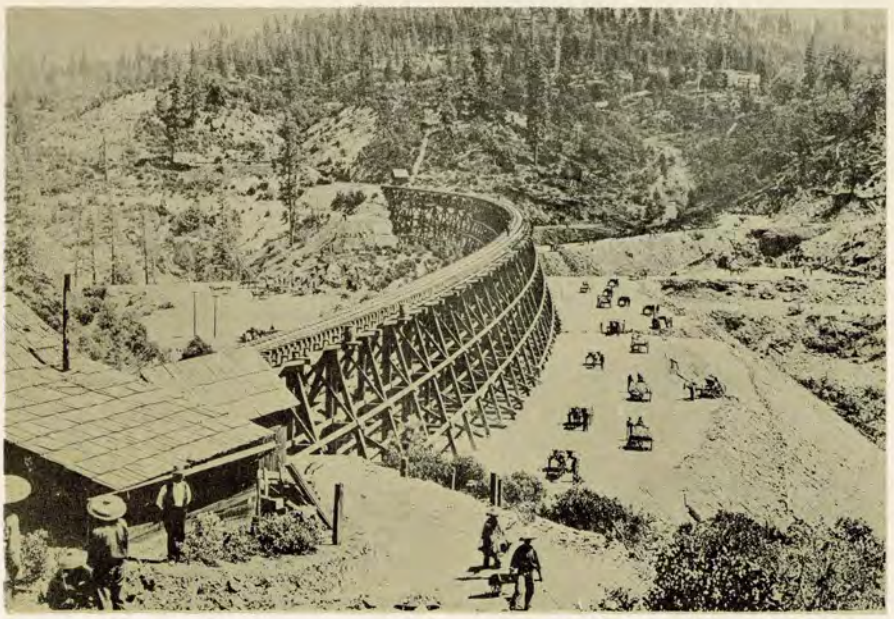
Judah made no speech, but he was there, and we may assume he was a jubilant man on that January morning. He died from yellow fever less than 11 months later, and the mantle of responsibility to see that the project was carried to successful conclusion fell upon the shoulders of Central Pacific's "Big Four" — Stanford, Crocker, Huntington and Hopkins.

The country to be opened by the Central Pacific was then almost entirely wilderness. Mountain trails so steep that covered wagons had to be lowered down by ropes were still fresh in the minds of emigrants who crossed the plains to settle in the West.

But eventually the Sierra was conquered by the men of Central Pacific who overcame almost unbelievable obstacles. Chinese laborers carved a line through the Sierra granite, working only with picks, shovels, horsedrawn sleds and wagons, black powder and human brawn and muscle.

While Central Pacific was forging eastward, Union Pacific pushed west from its home base at Omaha, Neb. Both railroads engaged in spirited competition as they approached a junction to see which could build more line. After UP forces laid 6 miles of track in one day, the CP responded shortly thereafter by laying 10 miles in one day — a construction record that has never been equalled.

Then finally — on May 10, 1869 — America received the exciting news she had long been waiting for: the first transcontinental railroad in history had been completed. Standing nose to nose on a single track on a remote plateau at Promontory, Utah, were two tiny locomotives, the eastbound Central Pacific's "Jupiter" and No. 119 of the westbound Union Pacific.



More than 12,000 Chinese workers were used to help build the Central Pacific. Pictured is 1,100-foot trestle over Secrettown Ravine, about 64 miles east of Sacramento, Calif.

Leland Stanford, who had wielded a silver shovel at the ground breaking ceremonies in 1863, now had the pleasure of driving the last spike — a gold one —to signify the completion of the railroad which would forever alter the face of America.

During the next several years the Big Four continued to expand the railroad, completing a southern transcontinental route from Los Angeles to New Orleans and extending lines north and south along the Pacific Coast. By 1900, when Huntington, last survivor of the "Big Four," died, Southern Pacific trains ran 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 to Havana.

Centennial Sites

For years, Promontory, Utah, site of the Gold Spike ceremony, has been marked simply with a concrete monument. In the near future, the U.S. Dept. of Interior plans to recreate part of the original right-of-way there, and will install replicas of CP's "Jupiter" and UP's No. 119, facing each other as they did in 1869, uniting a nation for the first time by rail.

Also planned, by the Sacramento Historic Landmarks Commission, is the restoration of "Old Sacramento," along the river front where the Central Pacific got its start. This project includes reconstruction of the "Big Four" building on K Street, originally the Huntington and Hopkins hardware store.

Also to be displayed at the new California Exposition in Sacramento will be the famous diamond stack locomotive, "C. P. Huntington," one of about 60 steam locomotives of various types donated by SP to museums, parks and playgrounds throughout its territory.

Mileposts in

The "General Sherman," Locomotive No. 1 of the Buffalo Bayou, Brazos & Colorado Ry.

1851: Work starts on Buffalo Bayou, Brazos & Colorado Railway (Houston to Alleyton, Texas), oldest part of SP system.

1852: Construction begins on New Orleans, Opelousas & Great Western Railroad (New Orleans to Morgan City, La.), second oldest part of SP.

1855: First track laid for 23-mile Sacramento Valley Railroad (Sacramento to Folsom, Calif.), first railroad in West. Built by Theodore Judah, completed in 1856; now part of SP.

1861: Central Pacific Rail Road Company of California formed by the "Big Four" — Collis P. Huntington, Leland Stanford, Mark Hopkins, and Charles Crocker — to build transcontinental rail link from Sacramento eastward over Sierra Nevada.

1862: President Lincoln signs Pacific Railroad Act, authorizing construction of railroad between Missouri River and Pacific Coast . . . Union Pacific is organized to build line west from Omaha to meet the CP.

1864: CP starts service between Sacramento and Newcastle, with Locomotive No. 1 — the "Governor Stanford." CP's third locomotive, the famous diamond-stacked "C. P. Huntington," later became honorary No. 1 of SP.

1865: California & Oregon Railroad, an SP ancestor, incorporated to build from Marysville, Calif., to Portland, Ore. . . . Southern Pacific Railroad Co. is formed to build from San Francisco to San Diego, then eastward to meet another projected transcontinental railroad. (The "Big Four" were later numbered among SP's backers.)

1868: Central Pacific completes its line over the Sierra to Reno, Nevada.

Sunset Route between El Paso and New Orleans was completed Jan. 12, 1883. Site of last spike was in western Texas, near confluence of Pecos and Rio Grande Rivers.

1869: CP track forces lay 10 miles of track on one day as they race toward Promontory, Utah. The historic "Golden Spike" ceremony takes place May 10, marking completion of first transcontinental railroad . . . Sacramento and San Francisco linked by rail via Lathrop . . . CP begins building San Joaquin Valley line south from Lathrop.

1872: Through freight and passenger service from San Francisco Bay Area to Chicago begins; passenger train time, 133 hours. CP opened for traffic to Fresno . . . Occidental & Oriental Steamship Co. founded by "Big Four" to develop trade with Orient . . . Houston & Texas Central Railroad, now part of SP, operates first train into Dallas.

1876: Charles Crocker drives gold spike at Lang (near Palmdale, Calif.) completing San Joaquin Valley line linking Los Angeles with San Francisco and the East . . . Special "Lightning Express" makes run from Jersey City to Oakland and thence by ferry to San Francisco in 84 hours, 17 minutes.

"C. P. Huntington," CP's third locomotive, later honorary No. 1 of SP. The "Governor Stanford," CP's No. 1 locomotive, now owned by Stanford University, is on loan to the San Francisco Transportation Museum.

1877: SP reaches Yuma Sept. 30 — first railroad in Arizona . . . Galveston, Harrisburg & San Antonio Railroad, now part of SP, operates first train into San Antonio, Texas . . . Tyler Tap Railroad Co., first component of Cotton Belt, begins operating in Texas.

1879: SP tries burning oil in locomotives (adopted for general use after 1900).

1880: Line completed from Los Angeles to Tucson . . . CP purchases Pacific Mail, steamship line operating to Far East.

1881: First train arrives in El Paso . . . Connection with AT&SF at Deming, N.M., forms second transcontinental rail route.

1883: Last spike driven January 12 near Pecos River, Texas, completing Sunset Route from Los Angeles to New Orleans. Eastern link — Morgan's Louisiana & Texas Railroad & Steamship Co. — acquired with steamship lines to New York (operated until World War II) . . . Huntington begins Mexican International Railroad from Eagle Pass, Texas, to Durango, Mexico. This 900-mile line was completed in 1892; sold in 1910 . . . Mojave-Needles line completed; conveyed to A&P (Santa Fe) in 1884 . . . Silver spike driven August 12 at Rob Roy, Ark., to celebrate completion of Cotton Belt Route (Texas & St. Louis Ry.) from Bird's Point, Mo., to Gatesville, Texas.

1884: SP Co. is incorporated in Kentucky, bringing numerous pioneer rail lines under its single banner.

1885: SP buys its first Westinghouse air brakes.

1886: Del Monte Hotel, most famous of several hotels operated by SP, built on Monterey Peninsula . . . Early refrigerator car developed by SP to move fresh produce across nation . . . Cotton Belt changed from narrow to standard gauge. Extensions to North Little Rock, Ark., Shreveport, La. and Fort Worth, Texas, completed in 1888. Corporate name changed to St. Louis Southwestern Ry. Co. in 1891.

1887: SP takes over and completes Oregon & California Railroad, linking Portland and all points on the SP system . . . Santa Fe and SP, in a fierce rate war, slash passenger fares from Missouri River to West Coast to $1.

1888: SP promotion campaign sends "California on Wheels" trains to Middle West to exhibit Golden State's products . . . Famed Arcade station opens in Los Angeles.

1890: Sequoia National Park formed with strong support from SP. (Ten years later, SP helps bring Yosemite Valley into National Park System.)

1898: SP acquires Sonora Railway to Guaymas, Mexico. SP Railroad Co. of Mexico formed in 1909 to extend line along west coast to Guadalajara; completed in 1927 (total mileage: 1370) and sold to Mexican Government in 1951. SP begins publication of "Sunset Magazine" as part of campaign to bring settlers to West. "Sunset" was sold in 1914 to private publisher.

1900: C. P. Huntington, last of "Big Four," dies.

1901: Coast line, via Santa Barbara, completed. E. H. Harriman, who won control of Union Pacific in 1897, moves into SP as chairman of Executive Committee, then as president, with 45% ownership of SP stock . . . "Colonist fares" from Chicago and Missouri River points to Coast of $33 and $25 bring nearly 800,000 settlers to West over SP between 1901 and 1916.

1902: El Paso - Santa Rosa & Tucumcari, N.M., connection made with Rock Island.

Southern Pacific's History

1903: SP sends lecturers abroad to attract immigrants to West . . . Cotton Belt gains access to St. Louis; to Memphis in 1912.

1904: Original "Gold Spike" route around Great Salt Lake, Utah, becomes a branch line as the Lucin Cutoff, involving a trestle and fill across lake, is opened.

1905: Colorado River floods almost wash Southern California's Imperial Valley out of existence. SP takes on two-year fight to return river to its channel, moves its rails many times as Salton Sink becomes an inland sea.

1906: San Francisco earthquake and fire. SP rushes relief supplies and evacuates 224,000 persons . . . Pacific Fruit Express incorporated by SP-UP.

1907: Northwestern Pacific Railroad formed, with SP and Santa Fe as joint owners, from 41 small predecessor companies. SP took over sole ownership of NWP in 1929 . . . SP's $9 million Bayshore Cut-Off opened on San Francisco Peninsula.

1909: The last of Central Pacific's debt to the government, plus interest, is paid off — total amounting to $58,813,000 . . . E. H. Harriman dies.

1910: First cab-ahead "Mallet" engines on SP.

1913: Supreme Court decrees UP must sell its SP stock.

1917: Federal government takes over U. S. railroads, including SP, from Dec. 1917, to March, 1920.

1919: San Diego & Arizona Railway (a subsidiary; later the San Diego and Arizona Eastern) completed to El Centro in the Imperial Valley.

1923: SP control of CP found to be in public interest by Interstate Commerce Commission.

1924: El Paso & Southwestern system, extending from Tucson, Ariz., to El Paso, Texas, and north to Tucumcari, N.M., merged into SP by exchange of stocks and bonds.

1925: Double-tracking of CP line over Sierra, including construction of 10,326-foot tunnel, completed.

1926: SP purchases narrow gauge Nevada - California - Oregon Railway; widens and extends its line to Klamath Falls, Ore. in 1929 to form the Modoc Line . . . Cascade Line (Oregon) opened . . . Main line through Phoenix, Ariz., completed.

1927: SP Motor Transport Co. begins bus operations in Oregon. Service later extended to other states; subsequently sold to Greyhound . . . Line to Rio Grande Valley (Falfurrias to Brownsville, Texas) completed.

1929: Pacific Motor Transport Co. begins first of SP truck operations.

1930: Coordinated train-truck overnight merchandise freight service established . . . $10 million Martinez-Benicia bridge across Suisun Bay, near San Francisco, completed . . . First centralized traffic control installed on 40-mile stretch betwen Stockton and Sacramento.

1932: Revenue ton-miles drop 50% from 1929 level due to depression . . . SP gains control of St. Louis Southwestern (Cotton Belt).

1935: Fast "Overnights" (merchandise trains operating at passenger train speeds between Los Angeles and San Francisco) introduced . . . Waybills teletyped for first time.

1936: "City of San Francisco" — first diesel-powered train on SP, placed in service between Chicago and San Francisco on 39¾-hour schedule . . . Bridges built across San Francisco Bay spell doom for most of SP's ferries, which had carried 40 million passengers per year.

1937: Streamlined "Coast Daylights" introduced . . . Sacramento Shops build their last steam locomotive; more than 200 built in previous 63 years.

1938: SP line in Northern California relocated for Shasta Dam and Lake.

1939: Official headquarters moved from New York to San Francisco, and Board of Directors reorganized with all-western Executive Committee . . . Last SP commuter ferry run on San Francisco Bay . . . Interurban Electric Railway (an SP subsidiary) begins service between San Francisco and East Bay via Bay Bridge; service discontinued in 1941 . . . First diesel switchers appear on SP . . . First radio installation in Sierra to fill in for wire line in emergencies.

1941: World War II — 19,980 SP men and women eventually join armed services.

1942: Promontory, Utah, scene of Gold Strike ceremony in 1869, ceases to be on the railroad map as last rails are removed from historic site in war-time scrap drive.

1944: Peak year of huge war-time freight and passenger traffic . . . Last new steam locomotive goes into service.

(Continued on back cover)

The Railroad Land Grant Myth

One of the more persistent and harmful myths about U.S. railroads is that during the 19th century they received enormous land grants absolutely free from the federal government. This is definitely not accurate history.

- Railroads were *not* given the land grants — they were required to pay, and did pay, for them — ten times over. Repayment was in the form of reduced rates on government traffic — passengers, freight and mail.
- When the reduced rate requirements of the land grants were repealed by Congress in 1945, a Congressional committee reported: "It is probable that the railroads have contributed over $900 million in payment of the lands which were transferred to them under the Land Grants Act . . . the total value of the lands at the time they were granted was not more than $126 million."
- Reduced rates on most government traffic continued in effect until October 1, 1946, raising total estimated payments by the railroads to $1¼ billion, or about *ten times the value of the land received.*
- No federal land grant aid was involved in the construction of 90% of the railroad mileage in existence today.
- Railroads benefitted from the land grants, of course. But the greatest beneficiary by far was the American public.

The Colorado River overflowed in 1905-1907, creating Salton Sea and threatening to inundate Imperial Valley. SP, after long battle, sealed the break at cost of about $3 million.

Mileposts in Southern Pacific's History

(Continued from Page 23)

1945: Start of SP's $2 billion post-war improvement program.

1947: First SP diesel-electric main line freight locomotives put into service . . . Corporate residence of SP moved from Kentucky to Delaware.

1948: Dieselized "Golden State," a fast (45-hour) streamliner owned jointly with Rock Island, goes into service between Los Angeles and Chicago.

1949: Streamlined and diesel-powered "Shasta Daylights" installed on the San Francisco-Portland passenger run . . . New overnight "Cascade" goes into service over same route in 1950.

1950: New streamlined "Sunset Limited" goes into service between Los Angeles and New Orleans, makes trip in 42 hours, five hours faster than earlier schedule . . . Train radios installed on freights between Bakersfield and Los Angeles.

1951: First tape-to-card and card-to-tape installations made for SP's mechanized system of car reporting.

1952: D. J. Russell becomes President . . . "City of San Francisco" marooned for three days by raging blizzards in the Sierra; rescued with no major passenger injuries . . . Earthquake twists rails and damages tunnels on Tehachapi line; reopened in 25 days.

1953: SP starts "piggyback" hauls of truck-trailers on railroad flat cars.

1954: $4 million Puente By-Pass Line built to speed traffic around congested Los Angeles terminal area.

1955: SP, working in conjunction with Stanford Research Institute, develops Hydra-Cushion freight car which gives superior protection to fragile freight. Now in use on many railroads.

1956: First SP pipeline, an 800-mile line for transmission of refined petroleum products, goes into service from West Texas and Southern California into Arizona . . . Advanced electronic car classification yard goes into service at Houston.

1957: SP's motive power is fully dieselized.

1958: Last SP ferry on San Francisco Bay makes final trip . . . Last steam engine makes symbolic run from San Francisco to Reno.

1959: $53 million earthfill causeway across Great Salt Lake completed, replacing wooden trestle built in 1904 . . . To spur heavier loading of freight cars, SP introduces incentive rate program.

1960: A new service using bi-level and tri-level freight cars to haul new automobiles is introduced and proves highly successful . . . SP and IBM begin work on development of TOPS program.

1961: Texas and New Orleans Railroad Co. merged into SP Co.

1962: SP diversification efforts suffer setback when ICC denies application by SP and Illinois Central to acquire John I. Hay barge line . . . SP is first railroad to join President Kennedy's "Plan for Progress," pledging to be an "equal opportunity employer."

1963: SP develops giant Hy-Cube car, with 10,000 cubic feet of loading space, to carry automobile parts.

1964: D. J. Russell elected to newly-created office of Chairman and chief executive officer. B. F. Biaggini elected President . . . Severe storms and floods cause $15 million damage to the Northwestern Pacific in Northern California and to SP lines in Oregon. NWP restores 100 miles of flood-damaged railroad to service by June, 1965 . . . SP acquires Bankers Leasing Corp. of Boston, one of the nation's largest leasing companies.

1965: Consolidated revenues from all SP operations exceed $1 billion for the first time . . . ICC rejects SP's bid to acquire control of Western Pacific Railroad. (SP's application was filed in 1960.) . . . Pacific Electric Railway Co. merged into SP.

1966: Black Mesa Pipeline, Inc., incorporated as subsidiary of SP Pipe Lines, Inc. By 1970, Black Mesa will have in operation longest and largest coal slurry pipeline in U. S. . . . Net ton miles of freight carried on SP reaches all-time high, exceeding the peak year of World War II (1944) by 48%.

1967: 78-mile Palmdale-Colton Cut-off completed at cost of $22 million, permitting SP trains to by-pass Los Angeles. This is longest new railroad line built in the U. S. in a quarter-century . . . SP asks Civil Aeronautics Board for permission to enter domestic and international freight forwarding business as SP Air Freight, Inc.