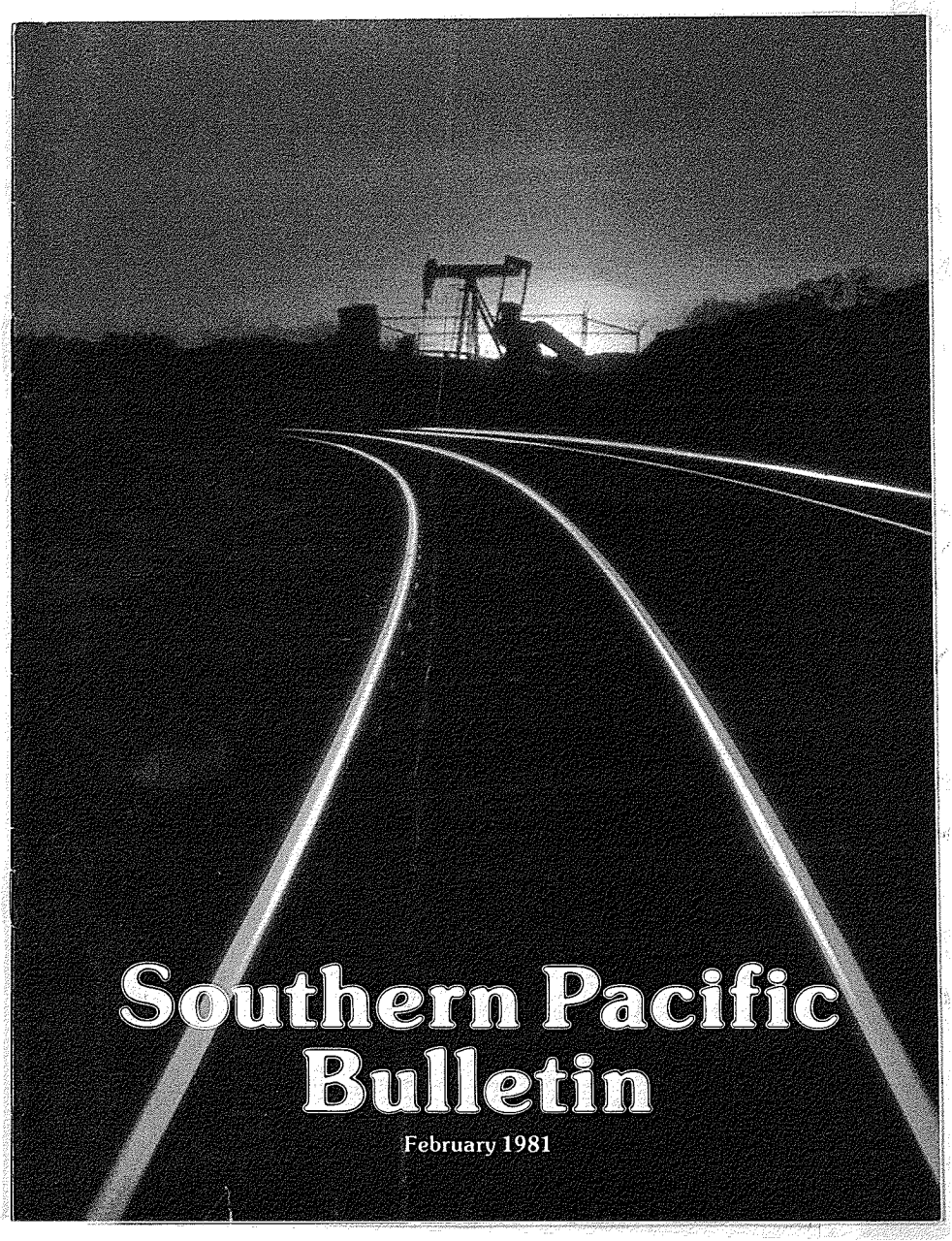
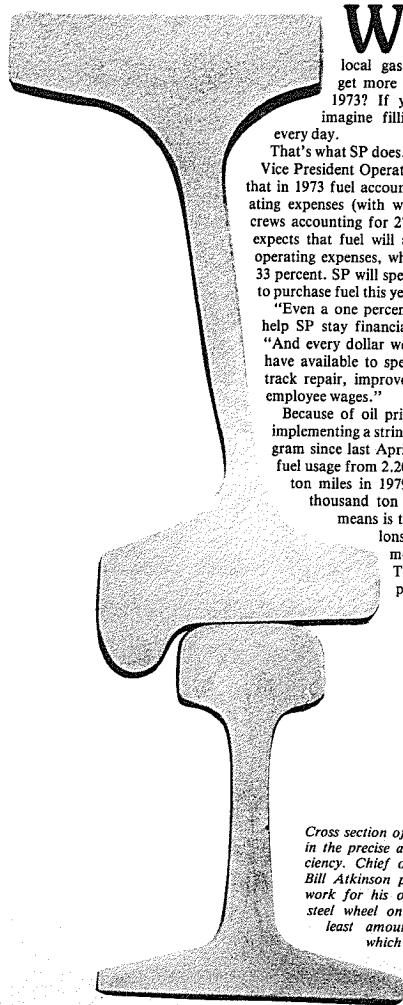




Southern Pacific Bulletin

February 1981

Fuel: Getting Every Penny's Worth



Cross section of rail and portion of wheel in the precise attitude for maximum efficiency. Chief of Equipment Engineering Bill Atkinson produced the original artwork for his office, and he says, "The steel wheel on the steel rail offers the least amount of rolling resistance, which is why rail transport is almost four times as fuel efficient as trucking."

When was the last time you said, "Give me a dollar's worth of regular," at your local gas station and expected to get more than a few drops? Maybe 1973? If you think you're hurting, imagine filling a million-gallon tank every day.

That's what SP does.

Vice President Operations Rob Krebs points out that in 1973 fuel accounted for 9 percent of operating expenses (with wages for train and engine crews accounting for 27 percent.) In 1981, Krebs expects that fuel will account for 32 percent of operating expenses, while wages will account for 33 percent. SP will spend more than \$400 million to purchase fuel this year.

"Even a one percent decrease in fuel use can help SP stay financially healthy," Krebs says. "And every dollar we spend on fuel, we won't have available to spend in other areas such as track repair, improvements in our facilities or employee wages."

Because of oil price increases, SP has been implementing a stringent fuel conservation program since last April. So far, SP has brought fuel usage from 2.20 gallons per one thousand ton miles in 1979 to 2.15 gallons per one thousand ton miles in 1980. What this means is that in 1980, only 2.15 gallons of fuel were required to move one ton 1,000 miles. The 1985 goal is 2.07 gallons per one thousand ton miles.

(For the sake of comparison: a private automobile weighing two tons would have to get about 250 mpg to begin to compete with the fuel efficiency of the railroad.)

Krebs says, "Shutting down idling engines, eliminating spillage, slowing down non-expedited trains and closing boxcar doors to reduce wind resistance were the obvious first steps. Now we're moving on."

Krebs and his Manager of Fuel Utilization Norm Luttrell have learned about dozens of new devices to cut back on fuel use through SP managers in Equipment Engineering and Technical Research and Development. But there's no substitute

In January of 1978, diesel fuel cost SP 34.2 cents a gallon (plus tax). By January 1981, the charge was 85 cents. Projected over a year, each penny price hike costs SP about \$4 million.

for the capable hand on the throttle, they say.

Experience on other railroads and computer studies show that differences in train handling can add or subtract as much as 10 percent from average fuel consumption. Luttrell says, "The days when locomotives could be left idling indiscriminately are over, and in most cases, it's no longer worthwhile to burn up extra fuel to gain five minutes on a schedule."

Cutting down idling engines by only two hours per engine per day, for example, can save SP over \$5 million a year. Train and engine crews can both help tremendously when they realize what an expensive practice leaving an engine idling in the yard can be. SP has guidelines on shutting engines down, and because of potential danger to engines in temperatures below 35 degrees Fahrenheit, these should be followed carefully.

Besides Operating Department energy bulletins to people in the field, Luttrell uses his pocket calculator to show that

the time for a change has come. He likes to recall dropping in on one railroad yard crew and calculating that if all the engines idling that night were idling every night for an entire year, it would make a \$750,000 difference to the company. The dollar figure made an impression.

The capable hand on the throttle is crucial when it comes to fuel efficient braking, for example. To prevent jackknifing or damage to couplings, our locomotive engineers used to keep trains stretched out as they stopped, by applying air brakes and power at the same time. This practice was known as stretch braking, and it was a good idea when fuel was 12 cents a gallon.

Most people don't realize that trains have several kinds of brakes. There are dynamic (or electrical) brakes that control the locomotive only, and there are air brakes that stop both locomotive and cars. When our locomotive engineers can, they're using their dynamic brakes and allowing cars to gradually come together—a technique known as bunch braking. Although a gentle and gradual

stop is possible with bunch braking, it takes extra concentration and planning. On the other hand, it saves large quantities of fuel because power and brakes are not being applied at the same time.

According to Luttrell, SP is beginning to experiment with another train handling technique that saves even more fuel. Starting a slowdown as many as two to five miles ahead of slower speed zones and drifting in low throttle to the lower speed takes thoughtful planning and a few minutes. Nevertheless only a few seconds are lost in net running time while dozens of gallons of fuel are saved in each slow speed zone.

Luttrell is very pleased with the cooperation of people in the field with strict conservation. He realizes that saving energy has meant big changes, extra effort and more attention to detail for many SP employees.

"Even the few holdouts are changing over to fuel efficient practices as the financial implications of skyrocketing fuel costs hit home," Luttrell notes.

In Louisiana, Lafayette Trainmaster



"The major savings will come from efforts of the locomotive engineers and the people who do fueling. It's going to be up to the individuals on this railroad to save energy."

—Roy Clements
General Road Foreman of Engines



"We can do a lot of things to effect fuel savings here in Equipment Engineering, but we lose it all if we have locomotives idling, careless fueling or poor train handling."

—Bill Atkinson
Chief of Equipment Engineering



Vice President-Operations Rob Krebs (left) and Manager of Fuel Utilization Norm Luttrell review daily fuel usage graphs, an innovation for monitoring fuel consumption throughout the system. The Environmental and Mechanical Department recently installed meters to measure fuel use, and the Mechanical Department or division field forces began using the meters to gather data for 24-hour offices in Houston and San Francisco. With the information provided, Luttrell and Krebs pinpoint potential problems.

Ray Duplechain and Road Foreman of Engines Randy Guidry credit communication and teamwork for their district's outstanding success in adjusting to the new realities of an energy-hungry world. SP people in Louisiana are shutting down idling engines in the yard and slowing non-expedited trains on the road.

Guidry says, "We wanted our people to save fuel because they wanted to and because they believe in it. Luttrell's proposals were something we could live with in our territory. The dollar amounts in savings for just one fuel efficient engineer were surprising. We've got our conservation guidelines in our timetable now, and we've followed up to make it more than just textbook."

Duplechain adds, "The oil shortage is a growing thing; it's going to continue; it's going to cost us more money to move our trains, even if we economize."

But train crews are not the only ones working on thrifty use of fuel. Throughout the systems, Mechanical Department employees responsible for fueling locomotives are helping cut down on SP's fuel bill by watching for leaking nozzles and spillage. Diesel fuel on the ground is the worst kind of waste.

The Mechanical Department is also

helping by continually testing devices that either save fuel directly or help our people do it. Many of these devices are ready to be used today; others are still in the testing phase. Some innovations SP people are seeing in action include:

- Diesel locomotive pairs equipped with "Locotrol," which enables our locomotive engineers to cut down power in the rear engine by radio remote control. (On level track, it uses less fuel to have some engines at full power and the rest at idle than it does to have all engines at half power.)

- Devices which reduce engine speed in idle and in dynamic braking.

- Solar-powered batteries for dragging equipment detectors, crossing warnings, CTC installations and VHF radio repeater stations in remote locations.

- Downsized energy efficient cabooses which retain normal crew comforts but cost 25 percent less to heat because of smaller cabs and better insulation.

Close to the testing phase are several other potential innovations:

- On board fuel saving devices which cut down trailing power automatically. Like Locotrol, these permit fuel saving on expedited high speed trains.

- "Hot" wheel detectors which locate sticking brakes for train crews. Stuck

brakes increase horsepower demands on the engine.

- On board heaters to keep engines warm even when shut down in cold climates.

- Improved engine exhaust systems to increase engine efficiency.

With fuel prices rising and no relief in sight, SP is also exploring the potential of alternative fuels. Bill Thomford, manager of technical research and tests, is on the Association of American Railroads Alternative Fuels Steering Committee, which coordinates with the Southwest Research Institute's (SWRI) experiments on alternatives to diesel fuel.

Before any new fuel is tried in our locomotives, it must undergo extensive tests to prove that it will not have any detrimental effects on our engines.

A typical experiment path for testing a potential new fuel is from a complete laboratory analysis at the Research Department's Sacramento laboratory to the group's small engine in Roseville and then to SWRI's big diesels in San Antonio. SP recently donated a full size diesel to the Institute.

"Diesel engines must burn something," Thomford says, and his people have looked at fuel extenders like vegetable oil, safflower oil, sunflower oil, peanut oil, corn oil and soy bean oil. Experiments with powdered coal, alcohols and wood shavings have also been conducted or are contemplated.

Thomford is enthusiastic about electrification although discouraged by the capital investment it would require. Krebs says SP is aware of electrification as a possible long term goal for the railroad industry as a whole. The Federal Railroad Administration has studies which indicate that with electrification of only 14 percent of our nation's most

heavily traveled track, about half of America's total rail traffic could be converted to oil-independent electrical power. About half of SP's main line would be affected under this plan.

But until that distant day, SP, like railroads everywhere, must focus on minimizing the impact of oil price increases. Throughout this article, there has been talk of "saving." SP can save fuel, but the amount of money we spend on it will still increase. As Trainmaster Duplechain says, "It's going to cost us more to move our trains, even if we economize."

Krebs says, "We must make changes now. Even though we are looking at new technology, we can't wait until our locomotives are redesigned or rebuilt or all our main lines are converted to electrical power."

He adds, "Simple things like careful fueling, slowing some trains, closing boxcar doors, shutting down idling engines or well-planned and well-executed speed reductions save only a few gallons at a time. But if every employee involved in fuel usage follows these procedures, our railroad will save millions of gallons of fuel annually . . . which we must do to adapt to constantly changing times. It's a national crisis, and SP employees are in a good position to make a difference." □

Below: Dynamic brakes, which electrically retard the locomotive, are an important element in fuel conservation. The locomotive engineer is shown advancing the dynamic brake handle out past position 6 (about 3/4 full brake capacity).

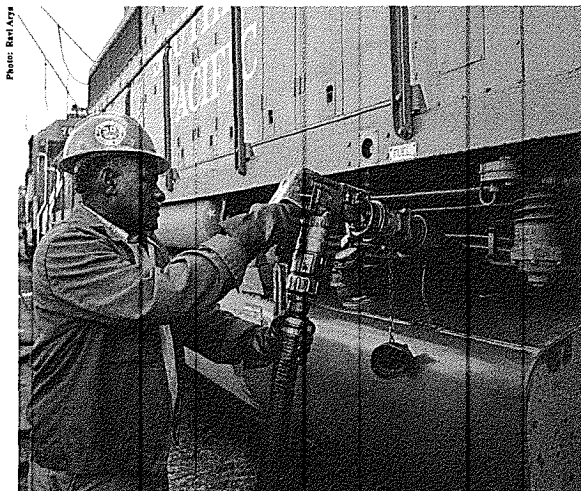


Photo: Tom Brown

Right: If locomotives are shut down for an extended time, water may accumulate in engine cylinders. When the locomotive is restarted, this water can severely damage the engine. By opening engine flashcocks with easy opening steerhorns shown here, Locomotive Engineer Robert Bongiorno can clear any water from the cylinders and then restart his engines without risk. Although it's unlikely water will have accumulated, the potential damage to cylinders justifies this precaution.



Photo: Tom Brown



Fireman-Oiler Louis Parks carefully fuels locomotive in Houston. SP has cut back on spillage through the efforts of Parks and other Mechanical Department employees throughout the system.

Video Review Coming Up

Today's definition of wise train handling includes careful use of fuel. To review the secrets of getting the most out of each gallon of diesel, the Audio-Visual and Operating Departments are getting a show together and sending it on the road. Road foremen of engines will answer any questions the two half-hour video cassette presentations bring up.



An open boxcar door is like a drag parachute on the end of a train. Reducing wind resistance to this train's progress by shutting boxcar doors is Carman Dan Roberts.

AROUND the SYSTEM

Company's Second Highest Earnings Posted in 1980

Southern Pacific's 1980 earnings of \$155,946,000, or \$5.78 a share, were the second highest in the company's history. It was 13 percent below 1979's record net income of \$179,854,000.

The excellent results of the company's railroad subsidiaries, which ended the year on a positive note with \$41.7 million in operating income for the fourth quarter, compared to \$16.4 million in the corresponding 1979 quarter, led to the improved earnings.

Considering the recession in housing and automobiles, two of SP's major traffic groups, Chairman B.F. Biaggini noted that "our railroads' showing for the entire year was encouraging."

SP's freight revenues from coal traffic doubled last year, while grain traffic revenues increased by two-thirds. Rail traffic to Mexico increased to more than 85,000 cars — a 35 percent gain from the previous year. The railroad also showed good gains throughout the year for perishable and other farm products, processed food, chemicals, paper, iron and steel products and petroleum.

Income gains were also reported last year by the company's natural resource and real estate and pipeline subsidiaries.



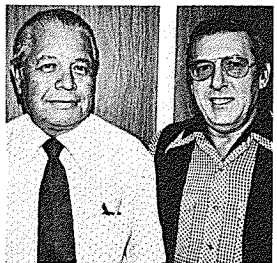
Members of the delegation (left to right) are: Engineer Youding Wu; Deputy Director-Nanchang Railway Society Zhong Xian Li; Vice President Liping Han; Deputy Head-Foreign Liaison Division Jude Zhao; Adviser Zheng Cao Lu; Director Zhong Lai Lang; Permanent Director Jin Xiao; Vice President Yixin Mao; Director Xiyu Shi and Director Yi Fang. Also pictured are Manager of Engineering Jim Wagner and Assistant Chief Mechanical Officer Phil Lively (right).

Chinese Delegation Visits Sacramento, Bay Area

SP recently hosted eleven officers from the China Railway Society for a three-day tour of the company's facilities at Sacramento and the San Francisco Bay Area. The delegation visited the Mechanical Department's shops in Sacramento, received a brief-

ing on TOPS and the management information systems at the General Office and toured the Port of Oakland, including SP's intermodal facilities. SP's Asst. Engineer-Track Design Kung Hung Chiu served as the interpreter for the group.

'Heimlich Hug' Saves Employee's Life at Los Angeles



Los Angeles Engine Crew Dispatcher Andrew Kmietek (right) used the Heimlich Maneuver to save John Diaz' life.

John A. Diaz, chief engine crew dispatcher at Los Angeles, owes his life to a fellow employee who knew how to use the "Heimlich Maneuver."

Diaz had choked on a piece of hard candy. He couldn't get it out of his throat and fell unconscious across his desk in the Crew Dispatcher's Office. Death could have occurred within minutes.

Engine Crew Dispatcher Andrew M. Kmietek, using the "Heimlich Maneuver," put his balled fist under Diaz' diaphragm and dislodged the candy, reviving Diaz in short order.

For those unfamiliar with the maneuver, sometimes called the "Heimlich Hug," here's how it is done: Stand

behind the victim and wrap your arms around his or her waist. Let his head, arms and upper torso hang forward. Grasp your fist with your other hand and put the fist against the victim's abdomen, just above the navel and below the rib cage. Press your fist forcefully into the individual's abdomen with a quick upward thrust. Repeat several times, if necessary. If the victim is seated, stand behind his chair and perform the "hug." If he is lying on his back, kneel astride his hips and do the thrust with the heel of your hand.

Posters picturing this life-saving maneuver may be found on many company bulletin boards.

Management Moves



Rose

Parigini

Balanesi

Anderson

Buckley

Bradshaw

Hall

Purchases & Materials

Three appointments in the Purchases and Materials Department have been announced.

Don Rose has been appointed vice president-purchasing at San Francisco. He had been general purchasing manager for the railroad since 1976.

Harry Parigini, who has been assistant general purchasing manager, has been named assistant vice president-purchasing.

Ralph Balanesi has been appointed assistant vice president-materials. He has been materials manager.

Rose joined SP at San Francisco in 1940. After three years as a naval pilot during World War II, he returned to the company and rose through purchasing department posts to become assistant general purchasing agent by 1975. He was named to head the department a year later. Rose, a graduate of the Executive Management Course at Harvard Business School, is on the board of directors of the Stock Exchange Club.

Parigini joined the company in 1942 at Sparks, Nevada. He held various management assignments within the department and was named assistant general purchasing manager in 1975. He is a graduate of Stanford's Transportation Management Program.

Balanesi joined the company at San Francisco in 1951 as a buyer. He has held various posts within the department and was named materials manager in 1978. He is a graduate of Stanford's Transportation Management Program.

Public Relations Department

Four members of the public relations staff have been promoted.

Andrew Anderson has been named assistant vice president-public relations, based at SP's headquarters in San Francisco. He had been assistant general manager-public relations.

Thomas C. Buckley becomes assistant vice president-public affairs in Los Angeles, with responsibility for public affairs activity of Southern Pacific in Southern California. He has been public relations manager for SP in Los Angeles since 1969. Both Anderson and Buckley move into newly created positions.

Al Bradshaw moves to San Francisco as manager of press relations from Tucson, where he has been SP's Southwestern public relations manager.

Richard C. Hall, who has been assistant public relations manager in Los Angeles, succeeds Bradshaw as public relations manager in Tucson.

Anderson joined SP's news bureau in 1954 after service as a reporter and editor at three California newspapers, and International News Service. He advanced in various news media relations assignments for Southern Pacific and has served as spokesman for SP's diversified operations. He is a graduate of the University of Southern California.

Buckley joined SP in Los Angeles in 1961 after service with a U.S. Army intelligence unit in Europe and four years as publications editor for American Cement Corp. in Los Angeles. He is a graduate of the University of Santa Clara and attended the Harvard Advanced Management Program and Stanford Transportation Management Program.

Bradshaw joined SP in 1973 in Tucson, taking responsibility for public relations activities in Arizona, New Mexico and Western Texas, after 11 years with the *Arizona Daily Star* as a political writer and city editor. He attended the University of Arizona and served in the U.S. Air Force from 1960 to 1964.

Hall, a Tucson native, worked as a reporter for the *Arizona Daily Star* from 1971 to 1975 while attending the University of Arizona. He joined SP's public relations staff in San Francisco in 1975 and was promoted to assistant manager in Los Angeles in 1976.

PR's R. W. King Retires

Robert W. King, general manager-public relations, retired at the end of December with almost 28 years of company service.

King joined the company in 1952 as a news editor in Los Angeles. After advancing to public relations manager in Los Angeles, he was named assistant general public relations manager at San Francisco in 1968. He was named general manager-public relations five years later.

A graduate of Pepperdine University, King also earned an MA degree from the University of Southern California.

Capital Improvements For 1981 Announced

SP plans to invest between \$400 and \$500 million for capital improvements in 1981 with more than half being spent for the railroad subsidiaries and the rest on communications, pipelines and real estate projects.

The capital budget is lower than the record investment outlays of 1979 and 1980, but still substantially above any previous year.

"SP completed a large equipment acquisition program in 1980—more than 7,000 freight cars and 500 diesel locomotives in the past three years—and our fleet is in excellent shape for moving more traffic," Mr. Biaggini said. "The 1981 program emphasizes major improvements in track, roadbed and other facilities throughout our system, including rehabilitation of the former Rock Island line in the Midwest."

RAILROAD CROSSING SAFETY

Story by George Kraus

Two locomotive engineers in Oregon are bringing the Operation Lifesaver message to high schools and civic groups.

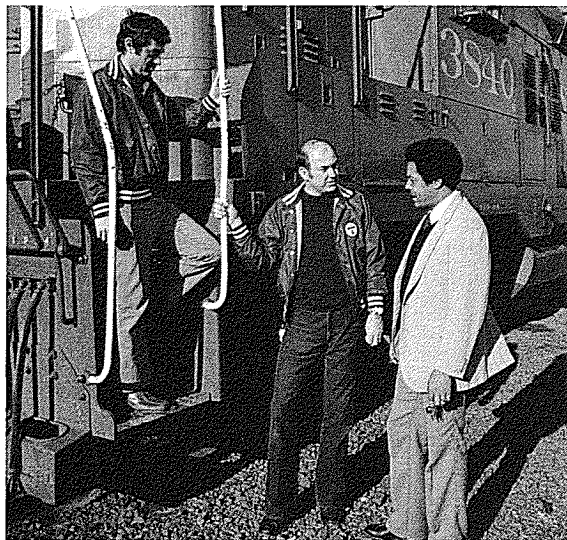
"No other single group is more concerned with improving the record of the railroad/highway crossing accidents than head-end locomotive crews," Lawrence (Larry) Grupp, local chairman of the Brotherhood of Locomotive Engineers at Portland, declares.

Grupp backs up these words with action. He sometimes appears before high school and other civic groups to discuss crossing safety. Now, he and Doyle McCormack, local chairman of the United Transportation Union - Enginemen, are planning a new series of talks by engineers before school groups this spring and next fall under the Oregon Operation Lifesaver program.

Both men know what they're talking about because they've sat in the engineer's seat for years. Grupp, a native Oregonian, has spent 21 of his 39 years on the Oregon Division, working out of Portland and Eugene. McCormack, with about three years on the roster as an engineer-fireman in Oregon, left 13 years of seniority as an engineer with the Norfolk and Western to come to SP. He spent most of 1975-76 as engineer on the nationwide tour of the American Freedom Train. During those years, he was able to observe crossing problems throughout the nation.

"From the standpoint of the engineer—the standpoint of personal safety—crossing-safety education means a great deal," Grupp says. "When you hit a truck or a car, or have a near miss or a series of near misses, it takes about 10 years off your life. It increases stress and places a real weight on your shoulders. I've come to the conclusion that the only answer—aside from more crossing signals—is public education."

McCormack agrees saying: "I think public education is the most necessary element. People think that engines are



Locomotive Engineers Larry Grupp (left) and Doyle McCormack discuss their plans for promoting Oregon's Operation Lifesaver program with Asst. Trainmaster Jim Reed (right).

like cars and can stop almost on command. They've got to learn that trains don't stop on a dime. If a car is hit on the tracks, the public tends to put too much responsibility on the engineer—and that's wrong. The law specifically states that vehicles must stop at railroad crossings, then proceed when it is clear. Law enforcement agencies should be a lot tougher. They should enforce the law more stringently, even in the case of near misses.

"I think we could also do a great deal with more road signs. I particularly like a sign I saw at a crossing in New Mexico. It said, 'It takes the average train 42 seconds to pass through this crossing—whether you're on it or not.'" Grupp notes that European research has shown that signs help reduce driver problems considerably.

Both men agree that the accelerated

Oregon State and Federal crossing-protection programs are helping to alleviate the problem since most motorists will stop at a gated crossing. Last year, 24 crossings were equipped with signals and automatic gates. About 40 more installations are scheduled this year.

Both engineers agree that the greatest dangers to train crews lie in hitting loaded gasoline, log or gravel trucks.

"Few people realize," Grupp says, "that if you hit a car just right, it can rupture a gas tank and cause an awful explosion. You could have a bomb on wheels. One of our engineers recently hit a light semi-tractor, rupturing the batteries. Acid flew over the entire engine but no one was injured. The crew was lucky."

To McCormack's nod of assent, Grupp adds: "We get near misses every trip. Not long back, I just missed a log-

ging truck that knocked down our gates. I got the name and reported it to the police. A few days later, I missed a gravel truck loaded in tandem—just opposite the Indian school at Chemawa—by no more than two seconds. Things like that happen all of the time.

"I had a guy one night who drove hell-bent-for-election through a dead-end street sign, through the railing and a ditch and onto the tracks in front of my train. Fortunately, I saw him and hit the brakes, stopping about 60 yards short of the car. The driver was standing on the tracks behind the car waving a fusee. He doesn't know how lucky he was."

McCormack singles out Southern Pacific for praise because of its use of the rotating Mars light.

"It is far more effective than the strobe lights that many of the railroads use," he says.

Aside from lights, whistles, signals and public education, another factor in crossing safety should be considered—visibility.

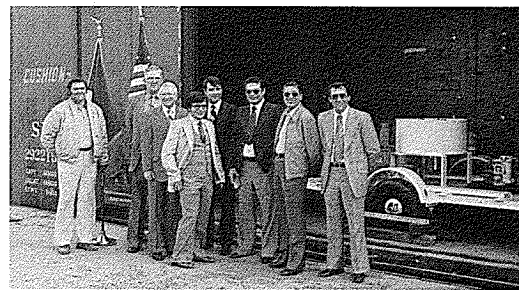
"All public agencies—cities, counties, states—should adopt laws that would prohibit construction or tall landscaping too close to railroad crossings. That would be a great boon to railroad/highway crossing safety," McCormack says. □

Oregon's Successful 'Lifesaver' Efforts

Since Oregon's railroads and state agencies undertook Operation Lifesaver in October 1977, rail/highway accidents at public crossings have declined substantially.

Before the Operation Lifesaver program was begun, Oregon experienced 329 accidents resulting in 22 deaths and 80 injuries. A comparison of 1980 with pre-Operation Lifesaver statistics shows a 50 percent decline in accidents, 21.9 percent in injuries and 27.5 percent in deaths.

Oregon railroad officials commend the aggressive actions of the Oregon Public Utility Commissioner and the railroads in placing grade-crossing protective devices.



Officials of the National Railways of Mexico (NdeM) attended ceremonies at Nogales where the Mexican railroad received a Domemobile from SP. Left to right: Francisco Estopier, assistant chief accident investigator, NdeM; Jack Breen, asst. vice president-traffic service-Mexico; John Tierney, Tucson Division superintendent; Ismael Ortiz, head of NdeM's technical committee on safety; Robert Andre, superintendent of hazardous materials control; Carlos Arreola, comptroller general for Mexico's Ferrocarril del Pacifico; Joaquin Comacho, president of the NdeM safety committee; Carlos Valdes, NdeM assistant safety director for motive power; and Richard O'Connor, port manager-Nogales.

SP Presents Domemobile to NdeM

Besides farm products, machinery and auto parts, SP is sending National Railways of Mexico (NdeM) a learning program on safe handling of hazardous materials.

On January 5 at ceremonies in Nogales, SP handed over one of its well-known Domemobiles to Joaquin Comacho, NdeM safety committee president. The entire Domemobile educational program has been made up in the Spanish language for use in Mexico.

Southern Pacific's hazardous materials experts use the Domemobile, together with printed materials and slide presentations, to instruct firemen, shippers and railroad employees how to deal with possible emergencies. Over 28,000 firemen in communities where SP operates have taken the course.

Now Mexican *ferrocarrileros* can use the Domemobile to do the same.

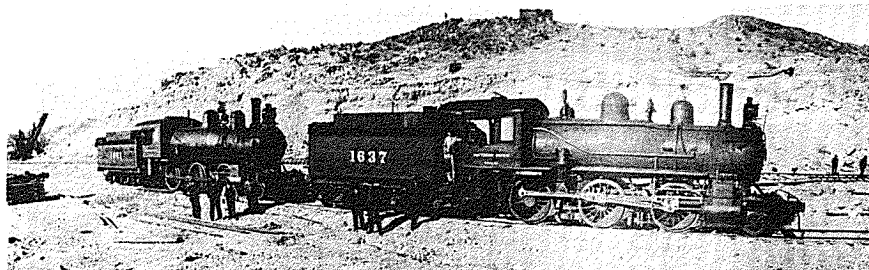
The Domemobile is a specially-

designed vehicle equipped with every kind of dome head and valve generally used on railroad tank cars. It is used to teach proper handling of rail cars containing potentially hazardous materials. There are over 2,000 materials defined by the U.S. DOT as hazardous.

The U.S. is importing Mexican petrochemicals in ever increasing volume: SP and NdeM officials hope that the Domemobile will help assure their safe transport.

Traditional cooperation between the NdeM and SP has continued in the past year as railroad business grows to meet the needs of Mexico's rising population and economy.

More gateways to Mexico are served by Southern Pacific than any other U.S. railroad. These include Brownsville, Eagle Pass, and El Paso, Texas; Douglas and Nogales, Arizona and Calexico, California. □



Steam locomotives brought rock, clay and debris to the Imperial Valley to build the dam that held the flood.

February 10, 1907: The Day SP Defeated the Colorado

For thousands of years, the Colorado River emptied into the Gulf of California or into the fertile area now called the Imperial Valley. The last time the River tried to abandon its Gulf course, it endangered the farms and towns springing up along its old riverbed. SP was there to force the River back to the Gulf.

Strawberries in January. Melons in December. What a fantastic dream of opulence fresh winter fruit and vegetables were to most Americans once. No wonder the California Development Company found Southern California's old Salton Sink enticing back in 1896 and opened it for development under the name "Imperial Valley." Within a two-year period, farm population grew from 2,000 to 10,000, and grapes, melons and vegetables flourished with the help of water from the Colorado River. SP shipped the produce to market.

The dream turned into a nightmare in 1904. The Colorado River began to revert back to its northwest channel and breached the company's canals, sending water and sediment howling through the Valley at up to six billion cubic feet every 24 hours. The waters trapped at the bottom of the Valley formed the Salton Sea, which you can see on any map still.

Unable to cope with the disaster, the California Development Company called on Southern Pacific for help, and SP President E. H. Harriman authorized a rescue. SP's Epes Randolph led the two-year battle. Although he lived until 1921, Randolph suffered from tuberculosis throughout the ordeal, and his per-

severance and dedication were an inspiration to his men.

In all, SP made seven attempts to force the River back to its old channel. It was a dangerous, desperate and discouraging battle against the elements. Temperatures went as high as 130 degrees, long hours of backbreaking work went on and on and at least two men were lost in the mud and water.

A branchline was built to the break and hundreds of side-dump cars carried rock, brush, dirt and clay to a trestle above the breach. Dynamite had to be used to break up the largest boulders before they could be dumped into the flood below.

Not surprisingly, manpower was short. Randolph brought in local Indian tribes—the Pimas, Papagoes, Marico-

pas, Yumas, Docopahs and Dieguenos—and they played their part in making the desert bloom.

As the cost of all this labor grew, Harriman warned President Theodore Roosevelt that the railroad could no longer bear the burden of rescuing the Imperial Valley alone. President Roosevelt implored the company to try one more time, and on February 10, 1907, the dam finally held.

SP was reimbursed for a large part of its expenses several decades later.

Today the Imperial Valley is protected from Colorado River floods by the Hoover Dam, and its farmers continue to rely on SP for shipment of their lettuce, carrots, melons, tomatoes and broccoli to waiting markets, even as they did at the turn of the century. □



Southern Pacific tracks had to be moved to higher ground in the Imperial Valley several times to avoid the destructive Colorado River floods of 1904-1907.

PMT's Fleet Maintenance Program Combines Repair Parts with Computers

Pacific Motor Trucking's K² computer system, originally conceived as a maintenance management system, now helps prepare the payroll and is taking on dispatching responsibilities. What's next?

Ray Bolin, PMT's maintenance manager at City of Industry, Calif., didn't panic when he discovered his inventory of fuel pumps was depleted. Frantic phone calls to suppliers or other PMT facilities in search of the needed part were not necessary. Instead, Bolin turned to the video display terminal in his office and started typing away.

Moments later the answer flashed upon the screen: PMT's nearby Los Angeles repair shop had a spare fuel pump. Bolin called Richard Swayzer, assistant supervisor of stores at Los Angeles, and asked him to transfer the fuel pump.

After checking with Assistant Manager of Equipment Fred Higgins, Swayzer sat down at the terminal in his office and keyed in the necessary information. In less than a minute all the documentation required for the transfer was completed. The computer adjusted the inventories—subtracting the fuel pump from the LA repair shop's inventory and adding it to the City of Industry's. It also performed the necessary accounting functions—debiting and crediting the appropriate facility's account for the part. Then it produced the packing slip that would accompany the fuel pump to the City of Industry.

"It's a very good system," Swayzer says about the K² (pronounced K-Squared) computer system. "It's versatile and has a lot of information right at hand. It keeps track of the inventory,



Tom Swarts, asst. to manager of equipment, oversees the processing of information for PMT's Equipment Department. The K² system relies upon mini-computers, like this one at Oakland, to process the data.



Top: K² provides Jerry Harleston, chief line dispatcher at Los Angeles, with an advance forecast that helps him plan his work. Above: Secretary Kathy Romero prepares fuel reports that she enters into the computer each day.

"The beauty of the system is its efficient use of information."

gives you the location of parts in the stockroom, tells you how much the item costs and even how many were issued last month or last year. And that's just some of the information that's stored in the computer."

K² is an on line, real-time maintenance management system that immediately updates its records as new information is added. PMT's Equipment Department uses it for determining equipment and parts inventories, fuel usage, labor costs and payroll preparation.

The K² system presently consists of 65 video display terminals installed in 42 PMT facilities. Information from each of the terminals is fed into one of five regional mini-computer centers located in Los Angeles, Fresno, Oakland, Texas-arkana and Dallas.

"It's basically a gathering mechanism," explains Tom Swarts, assistant to manager of equipment. "It keeps an accurate inventory of 60,000 different parts which are used to repair and maintain our fleet of trucks, yard equipment and company cars. We use it to open and close the work orders that are required to perform repairs and preventive maintenance to our equipment. It also accounts for equipment costs by breaking down the amount of labor and parts expended on each piece of equipment."

The information gathered from the daily maintenance activities at each PMT facility is used by the computer in many ways.

"From a single input—such as a mechanic's report showing the repair work he performed—the computer builds a storehouse of information that may be used for payroll accounting, an

update to the history record of the equipment, or to figure the facility's daily budget. All of this is accomplished with one entry on the computer. The beauty of the system," Swarts says, "is its efficient use of information."

The K² system also provides a statistical portrait for management to study the cost-effectiveness of its operations. This information may reveal procedures that need improvement.

For instance, K² keeps statistics on fuel economy or maintenance costs for a single piece of equipment or an entire class. It can call attention to equipment that is costly to repair or operate. Analysis of this information may suggest changes that could save thousands of dollars.

Another example of the system's usefulness is its ability to identify "dead inventory"—spare parts that do not turn over quickly and tie up large amounts of capital. In one location, the K² system revealed that 46 percent of the inventory was not used during a 12-month period. Rather than stock these seldom-used parts in every facility, the company elected to allocate one for every three facilities. Now, when the part is needed, the K² system locates the nearest facility which has it in stock and arrangements can be made to have it transferred.

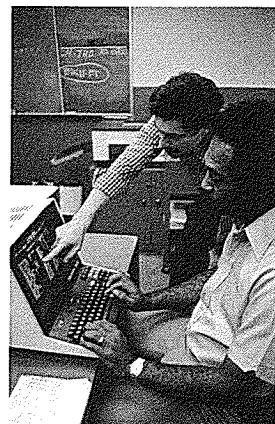
Now K² is expanding beyond maintenance management into the areas of payroll accounting and dispatching.

"The more we work with it," says Paul Garin, vice president-equipment, "the more applications we find for it. It is a computer system that can expand to meet our needs." □

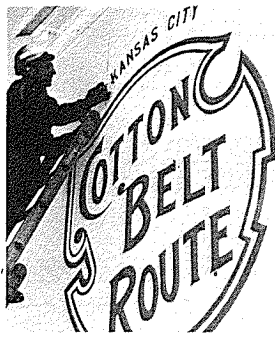


James Ezell, superintendent of maintenance at Los Angeles, likes the up-to-the-minute information that is available from the K² system. "When you're managing equipment on a day-to-day basis, you need reports that are current, not 30 days old," he says.

Photographs: Randy Doyle



Top: Every part issued by Stockroom Partsman John Chachere is entered into the computer. Above: Richard Swayzer (right) and Tony Ressa, both assistant supervisors of stores, use their video display terminal to check inventories or transfer parts.



Introducing the Kansas City and Pine Bluff Divisions

Kansas City freight carman Ted Denk puts the finishing touches on the new Kansas City Division sign at Kansas City's Armorydale yard office. The former Rock Island territory from Tucumcari to St. Louis, via Kansas City, was renamed Kansas City Division on Jan. 15. At the same time, the former Cotton Belt Division (East St. Louis to Texas, via Arkansas) was renamed the Pine Bluff Division. □

Bulletin Board

These SP employees have achieved professional recognition:

Gerald Pera, manager commute services, is on special assignment as a participant in the 1981 State of California Executive Fellows Program. Pera is one of 10 persons selected by California Governor Jerry Brown for this honor. During Pera's leave of absence, Bob Rodell will be acting commute services manager.

Emile Farah, shop superintendent for truck repair shop for SWT and SPT of T&L at Dallas, has been elected chairman of the Maintenance Council of the Texas Motor Transportation Association.

William Hardwick, assistant to the manager of industrial facilities for Southern Pacific Industrial Development Company, has been awarded an Oak Leaf Cluster to the Meritorious Service Medal after completing 37 years of service in the U.S. Air Force. □

Appointments

EXECUTIVE DEPARTMENT: At San Francisco: Ms. P. J. Blaz to administrative assistant.

INDUSTRIAL RELATIONS DEPARTMENT: At San Francisco: E. F. Koenig to assistant manager.

LAW DEPARTMENT: At San Francisco: D. W. Long and Ms. C. A. Harris, both to assistant general attorney; at Sacramento: V. E. Russell to assistant general attorney.

PURCHASES AND MATERIALS DEPARTMENT: At San Francisco: Ms. R. A. Cornely to chief clerk; D. E. Newell to manager-material information systems; at Oakland: R. J. Mount to assistant manager, purchasing and services.

TRAFFIC DEPARTMENT: At San Francisco: R. L. Angel to general manager, traffic services; Ms. A. Z. Bara to forecast analyst; W. C. Breslin to assistant manager, equipment utilization; Ms. R. Donohue-Moss to assistant manager, market development-chemical; T. R. Foster to manager, backhaul coordination; Ms. V. S. Henry to equipment planner; Ms. K. T. Jordan to assistant manager, market development-consumer products; D. K. Kanagali to manager of sales administration & research; G. W. Larson to assistant manager, traffic service bureau; F. A. Lucky to pricing analyst; M. J. Morgenthau to assistant manager, projects; Ms. A. Naves to manager, market development-consumer products; R. L. Tierney to assistant product manager; A. A. Palumano to analyst-TDS; at St. Louis: D. J. McGee to sales representative.

TRANSPORTATION DEPARTMENT: At San Francisco: S. H. Kates to supervisor of car service.

COTTON BELT: At San Francisco: C. O. Mann to material coordinator.

Retirements

GENERAL OFFICE, SAN FRANCISCO: E. F. Anater, secretary; V. L. Campbell, senior rate & division clerk; J. M. Crouley, calculating machine operator; H. K. Duff, secretary to general purchasing agent-system; J. Diaz, chief timekeeper; M. C. Fulks, assistant manager of signals; R. A. Hamann, construction engineer; M. C. Horvath, senior billing clerk; A. M. Levaggi, special assistant; C. L. Cantor's Office; E. Maki, manager commerce-traffic; G. E. Power, stenographer; G. E. Stark, head clerk; C. V. Wall, voucher clerk; W. V. Williamson, superintendent operating and terminal systems; K. M. Myan, keypunch operator.

DALLAS DIVISION: J. P. Wilson, senior rodman-Ennis. **HOUSTON DIVISION:** T. L. Adams, messenger clerk; L. Balhazar, mailroom operator; J. Broussard, carman helper; N. M. Burns, engine foreman; E. R. Cuff, switchman; R. M. Duvet, engine telegrapher; R. L. Dietz, machinist; C. D. Ebel, head clerk; C. Gaddy, engine foreman; L. Morris, gang boss; F. B. Mosley and L. T. Shirley, locomotive engineers; H. H. Singleton, typist-mail clerk; D. T. Slay, signal inspector; H. T. Spalding, cashier; E. R. Stallworth, electrician; C. R. Standridge, lineman; P. O. Stinebaugh, brakeman; E. E. Tucker, carpenter; E. L. Tucker, car inspector; J. Walker, industry clerk; C. Williams, laborer.

LAFAYETTE DIVISION: J. Bertrand, bridge tender; C. Dant, inspector; J. Johnson, porter; C. J. Leblanc, brakeman; W. E. Marshall, locomotive engineer; L. W. McMahon, switchman; H. P. Moulton, relief district MOW manager; O. Owens and L. L. Voorhis, machine operators.

LOS ANGELES DIVISION: R. W. Adams, engine foreman; D. O. Ashline, signalman; R. B. Banks, investigator; E. B. Bell, clerk; A. H. Brocato, fireman; G. M. Brooks, car inspector; N. N. Cabral and W. M. Covarrubias, laborers; R. L. Camini, freight carman; J. T. Devlin, head TOFC clerk; J. O. Eapen, carman; J. H. Farley, signal operator; M. J. Ferlie, laborer; G. H. Garcia, machinist; E. V. Gonzales, foreman; A. O. Heren, assistant general yardmaster; M. R. Hooper, new dispatcher; G. W. Keller, head rate & bill clerk; O. E. Leonard, conductor; A. R. Medina, crane crane operator; W. G. Mitchell, switchman; W. C. O'Connell, conductor; H. E. Phillips, locomotive engineer; J. P. Pace, A. G. Quero, S. C. Rivera and J. H. Ruiz, laborers; R. D. Robles, painter; M. Rodriguez, grinder-helper; H. M. Schenck, cashier; L. A. Sene, clerk; W. H. Shurtliff, signal operator; M. S. Sisk, S. Soukous, machinist welder; R. C. Stuart, train dispatcher; F. E. Swazey, clerk; R. M. Terrones, electrician; J. R. Thompson, conductor; R. B. Wallace, machinist; W. H. Winkelman, cashier; J. H. Wurzel, locomotive engineer; M. B. Zacherson, steno clerk.

OREGON DIVISION: M. N. Alf, locomotive engineer; W. T. Campbell, conductor; C. A. Crumblin, mechanic; J. E. Ryan, track laborer; J. H. Green, assistant head timekeeper; P. P. Lemke, fuel oil attendant; H. R. Loose, laborer; J. E. Prevost and D. J. Ray, freight carmen; W. L. Rice and R. O. Solad, train clerks; N. D. Smith, switchman; T. D. Snyder, switchman; A. F. Sprague, switching clerk; D. W. Tucker, locomotive engineer; M. E. Wice, conductor.

SACRAMENTO DIVISION: L. R. Alberg, motor car mechanic; B. D. Alworth, switchman; M. M. Arroyo, crane operator; A. F. Barker, machinist; R. B. Butler, electrician; J. T. Caldeira, locomotive carpenter; E. J. Cheney, shop clerk; A. S. Corona, laborer; D. Cushman, track laborer; P. N. Donagan, clerk; A. I. Eapen, freight carman; A. A. Farley, signalman; E. M. Galligos, senior rate clerk; W. Hogan, signal maintenance; G. G. Gousley, track laborer; L. R. Hardly, locomotive engineer; D. D. Hayes, engine foreman; W. M. Marke and B. Marks, locomotive engineers; F. Masie, sheetmetal worker; J. W. Myers, machinist; E. S. O'Bray, conductor; O. N'Neil, production supervisor; Lovelock; E. C. Poente, lead car inspector; V. E. Suits, conductor; M. L. Stuart, extra gang foreman; J. O. Tharp, switchman; E. Treadale, brakeman; A. L. Verza, conductor; C. S. Winger, carman; C. S. Winger, carman; C. S. Winger, carman.

SAN ANTONIO DIVISION: W. B. Barrow, car inspector; C. Barkley, laborer-driver; L. A. Durham, utility clerk; R. Franco, laborer; L. B. Frezza, engine foreman; D. D. Gaines, car clerk; E. H. Hudgins, district manager; J. H. Hill and J. L. King, laborers; A. J. Lazzarini, junior communications supervisor; D. T. McVay, locomotive engineer; F. M. Mills, towerman; H. E. Nana, carman; C. O. Perkins, fork lift crane operator; A. L. Williams, laborer.

TUCSON DIVISION: R. E. Ashby, welder; V. E. Bingham, locomotive engineer; E. B. Carrigan, safety officer; Phoenix; W. E. Filer and A. McGuire, conductors; J. G. Lopez, boilermaker; J. Montelongo, track driver; T. G. Novi, rules and training officer; El Paso; W. D. Patterson and G. L. Salisbury, locomotive engineers; I. V. Sana, pipefitter; R. L. Smith, brakeman; S. A. Sullivan and M. M. Sullivan, locomotive engineers; M. R. Trujillo, track bulldozer operator.

WESTERN DIVISION: R. S. Allen and T. P. Deeb, switchmen; D. L. Clark, conductor; R. D. Davidson, fuel oil cleaner; G. E. Ensign, locomotive engineer; F. C. Epple, supervisor of scales-Oakland; C. Fox, pipefitter; C. W. Kelley and R. B. Kough, locomotive engineers; M. W. Knapp, chief clerk; Salinas; J. F. Krasne, head TOFC clerk; J. H. McKee, R. L. Merrill and C. W. Perdue, conductors; E. L. Parline, locomotive engineer; P. A. Radabaugh, operations manager; Merced; R. F. Raines, telegrapher; C. R. Raudel, claim adjuster; P. Rojas, laborer; D. N. Seidger and D. Simons, locomotive engineers; A. B. Sieff, carman; J. L. Smith, fuel oil cleaner; M. B. Thayer, W. W. Thompson, assistant car distributor; W. C. Torres, carpenter; P. A. Trainer, locomotive engineer; W. C. Wyatt, boilermaker; F. A. Young, conductor.

COTTON BELT: S. D. Foster, foreman; R. F. Bernhardt, crossing guard; A. A. Garcia, signal maintainer; E. G. Dipma, conductor; S. L. Foster, laborer; D. George and D. J. Hane, freight carmen; G. D. Hay, general clerk; W. L. Hogan, chief telegrapher; F. M. Marchand, yard clerk; G. E. Motors, yardmaster; C. M. Orr, clerk; J. P. Patten, switchman; C. E. Payton, brakeman; W. L. Perrell, signalman; V. E. Pate, locomotive engineer; L. G. Riebart, clerk; J. Smith, motor track operator; R. J. Spencer, GEB clerk; W. L. Spence, telegrapher; A. E. Tabb, locomotive engineer; T. H. Watts, carman; C. B. Welch, clerk; H. J. Wriston, engine foreman.

OTHERS: C. W. Clanton, chief clerk-traffic, Buffalo; R. L. Begen, conductor and S. S. Seaman, brakeman, both with NWP; J. E. McCann, sales representative, SPT of T&L, Houston; E. S. Vashsweden, assistant supervisor line operations, SPT of T&L, Dallas.

Deaths

GENERAL OFFICE, SAN FRANCISCO: J. W. Boswell, staff auditor; Pensioners: M. M. Anderson and M. L. Corvelli, clerk; T. P. Checkett, architectural designer; D. G. Compton, traveling auditor; J. V. Grant, terminal clerk; H. A. Holms, S. Soukous, machinist welder; R. C. Stuart, train dispatcher; F. E. Swazey, clerk; R. M. Terrones, electrician; J. R. Thompson, conductor; R. B. Wallace, machinist; W. H. Winkelman, cashier; J. H. Wurzel, locomotive engineer; M. B. Zacherson, steno clerk.

C. S. Paulsen and L. C. Tissot, clerks; C. S. Young, traveling passenger agent.

HOUSTON DIVISION: F. J. Miller, machinist; J. G. Taylor, switchman/brakeman; Pensioners: J. H. Butler, clerk; J. H. Chaps, crane operator; B. Cook, laborer; O. B. Corley and C. B. Hendrick, locomotive engineers; J. F. Jasty, machinist; H. A. Jackson, electrician; B. A. Jeffers, train attendant; G. L. Jennings, engine foreman; S. S. Zepeda, laborer.

LAFAYETTE DIVISION: R. J. Will, track laborer; Pensioners: W. T. Bledsoe, clerk; L. J. Bledsoe, clerk; W. Mathews, carpenter; F. A. Murray, locomotive engineer; O. Roberts, laborer; E. E. Ruste, yardman; H. H. Sharp, engine foreman; W. J. Verden, crossing flagman; J. J. Walraven, locomotive engineer; T. Williams, laborer.

LOS ANGELES DIVISION: J. A. Moore, train dispatcher; F. B. Pierce, clerk; Pensioners: C. E. Abbott, district clerk; P. Albano and P. B. Boughter, machinists; J. R. Berumen, trucker; E. Berry, clerk; J. Bralovich, carman; R. A. Breed, crossing watchman; T. Ceredes, steward; D. W. Craig, clerk; R. A. Dodge, brakeman; H. T. Eckert and E. I. Erickson, clerks; T. J. Estling, assistant trainmaster-Fresno; J. B. Fittler, locomotive engineer; R. B. Graham, traveling passenger agent; C. L. Graychik, yard helper; W. F. Heflin, locomotive engineer; J. R. Hendricks, machinist; J. E. Howard, chief clerk; G. W. Hutchison, clerk; C. L. Ibe, sheet metal worker; C. G. Jones, locomotive engineer; J. J. Keith, foreman; E. R. Lemelle, machinist; M. Lohman, clerk; K. R. Lohr, roadmaster; R. J. Martin, passenger car painter; M. G. Martinez, laborer; E. E. McCall, freight carman; J. A. McGuire, switchman; A. B. McNell, machinist; F. H. Miller, foreman; G. A. Morillo, D. Najjar and A. B. Margala, laborers; J. S. Pacheco, machinist; F. G. Padillo, clerk; M. M. Pierno, upholsterer; J. C. Rankin, manager-F. Building; J. Ross, motor car mechanic; W. J. Schaller, chief clerk; V. Schille, elevator operator; L. M. Sorenson, carpenter; H. R. Taylor, sheetmetal worker; B. Tussion, coach cleaner; M. R. Villar, claims inspector; G. J. Wallace, yard helper.

OREGON DIVISION: R. O. Bray and R. K. Cool, locomotive engineers; V. E. Chasael, car inspector; I. D. Clark, switchman; W. Oliver, track laborer; Pensioners: E. R. Benedict, pipefitter; W. Carter, machine operator; E. E. Cooper, welder; H. W. Davis and D. L. Dunkson, conductors; W. M. Ellis, switchman; G. Galvan, laborer; C. Glanno, carman; L. E. Griffin, clerk; W. N. Harris, driller; L. Olson, locomotive engineer; E. M. Perry, clerk; H. L. Porter, assistant B&B supervisor; H. R. Rodgers, carpenter; R. S. Rodgers, conductor; D. W. Soares, painter; C. E. Tiller, shovel operator; C. L. Van Housen, wire chief; C. P. Vinyard, yardmaster; H. R. Williams, foreman; R. B. Wood, laborer.

SACRAMENTO DIVISION AND REPAIR PLANTS: G. F. Anderson, boilermaker; M. W. Burton, boilermaker regular operator; J. J. Farrell, laborer; J. E. Hansen, foreman; Pensioners: I. G. Atkins, carman; E. L. Bowman, brakeman; J. G. Carpenter, train dispatcher; J. A. Carrillo and N. Castillo, laborers; G. Cernigli, carman; G. Diaz, yard cleaner; G. A. Donaghy, passenger carman; B. A. Duxan, machinist welder; F. Erazas, blacksmith; G. H. Fough, conductor; L. W. Fough, conductor; W. M. Foot, water service pump; A. A. Freitas, moldler helper; D. E. Gibson, brakeman; C. Goereza, car inspector; M. Harris, clerk; S. U. Haspel, freight carman; H. Highland, car foreman; C. Jewell, machine operator; W. Jones, brakeman; J. C. Mena, signalman; H. O. Morell and D. E. Niskey, machinists; J. W. Osborn, machine operator; N. Parloa, upholsterer; T. D. Preston, clerk; O. Proctor, electrician; J. Ramirez, yard sweeper; W. H. Ryan, blacksmith; F. J. Schin, switchman; S. C. Vasquez, machinist; C. C. Young, yardman.

SAN ANTONIO DIVISION: Pensioners: R. H. Adams and J. Cardenas, laborers; D. O. Bennett, carman; C. H. Chandler, conductor; A. Hernandez, caboose operator; E. K. Jimenez, laborer; J. C. Lowenberger, clerk; F. J. Mack, junior; C. W. McCaskill, conductor; E. W. Morrison, brakeman; J. A. Peters, locomotive engineer; H. O. Saxona, brakeman; H. H. White, signal maintainer.

SAN JOAQUIN DIVISION: Pensioners: J. W. Hawkins, fuel oil attendant; J. G. McKenna, water service mechanic; W. C. Northman, clerk; S. Roca, junior; H. Taylor, locomotive engineer.

TUCSON DIVISION: Pensioners: F. R. Alvarez, laborer; T. B. Ansell, lift truck operator; E. R. Ashby, laborer; L. M. Bassett and E. B. Birchfield, locomotive engineers; V. E. Bennett, business car chief; C. L. Bishop, brakeman; W. C. Carter, conductor; J. S. Collins, switchman; R. R. Coons, telegrapher; J. A. Gonzalez, laborer; J. H. Hines, laborer; J. H. Hines, laborer; H. H. Hines, laborer; F. C. Jimenez, laborer; C. R. Langston, agent-telegrapher; A. K. Metch, locomotive engineer; W. F.

More than 50 Years of Service

J. B. "Broadway" Brown recently made his last run as a brakeman aboard Amtrak's Coast Starlight, ending a 52-year career in freight and passenger service on the SP in Southern California.

Brown, who turned 80 years old last June, was given a retirement sendoff at Los Angeles Union Passenger Terminal before his last run by D. M. Mohan (right), Los Angeles Division superintendent and R. W. Cosner (not pictured), local chairman for the United Transportation Union.

Brown began his SP career on May 18, 1928 after working several years for a Midwest western railroad. "I came out to California to visit, and just decided to stay here permanently," he recalled. □



Murman, switchman; J. E. Moore, section foreman; J. P. Munoz and T. Rodriguez, laborers; M. P. Sanaalago, car inspector; J. F. Savage and C. R. Simpkins, clerks; E. E. Steele, utility tractor operator; E. J. Sweigel, brakeman; C. L. Wells, yard office supervisor-El Paso.

WESTERN DIVISION: M. C. New, train clerk; Pensioners: A. M. Allison, agent; C. Bains, coach cleaner; J. R. Breeden, machinist; W. J. Bryant, pipefitter; H. Burrell and W. V. Carter, clerks; A. T. Caldwell, dining car waiter; A. L. Clet, electrician; R. S. Clutch, carman helper; T. M. Corrigan and J. D. Cross, clerks; M. Duane, laborer; R. M. Gabbart, conductor; W. D. Grady, clerk; F. M. Hanner, freight handler; P. L. Hernandez, carman; R. A. Hernandez, machinist; H. H. Heurkens, blacksmith; R. W. Hill, lead carman; H. H. Hudson and R. E. Hough, conductors; L. M. Hoffman, clerk; F. M. Huddleston, telegrapher; R. H. Imman, steward; H. W. Keil, clerk-baggageman; K. L. Kerr, pipefitter; G. W. King, machinist; J. R. Lane, clerk; C. D. LeVine, steward; V. G. Lindley, boilermaker; R. H. McDonald, conductor; W. A. McClain, chair car porter; F. A. Miguel, herder; A. Molina, laborer; P. J. Moore, clerk; R. C. Nollner, locomotive engineer; F. A. Ornelas, secretary to superintendent-Oakland; A. Payton, car inspector; M. M. Sabel, foreman; A. B. Scott, locomotive engineer; L. Stadel, head inspector; E. M. Stewart, carman; M. Testa, motor car mechanic; D. E. Tracy, B&B supervisor-West Oakland; M. L. Weddel, car inspector; H. M. Winfield, dining car chef; R. W. York, chair car porter.

COTTON BELT: C. M. Meak, machinist; Pensioners: J. C. Barrett, general attorney-Jonesboro; B. M. Calpepper, city freight and passenger agent-Shreveport; C. F. Fildes, general counsel-Tyler; B. F. Garcia, commercial agent-San Francisco; T. O. Johnson, steno-clerk-Tyler; J. H. Hines, laborer; K. Reese, clerk-telegrapher; N. R. Schumann, conductor.

LAUPT: Pensioners: O. Clemmons, baggage & mail handler; C. P. Parson, carman; E. J. Tweedle, clerk; C. Wilson, mail & baggage handler.

OTHERS: C. A. Yerkins, conductor, NWP; Pensioners: G. W. M. Cook, regional sales manager, Cleveland; D. F. Diagram, assistant to vice president and general manager, UTP, Los Angeles; L. B. Eliot, foreman, P&T, South Gate; J. Gavia, laborer and R. D. Howell, laborer, both with SD&AE; A. Cooper, locomotive engineer and T. Scialo, brakeman, both with NWP.

SOUTHERN PACIFIC BULLETIN
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ROBERT B. HOPPE
Editor

NATALIA ALLEN
Assistant Editor

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COVER

The energy crisis: Southern Pacific's fuel conservation program is leading to efficient use of the fuel we buy, while SP trains carry petrochemicals safely and economically. This oil pump near SP lines at Valencia, California, was photographed by special effects expert Carl Heinz. He used a variable filter to alter the color in two different shots, then split the two 35 mm slides to create the final effect on the cover of this issue.



Machinist Bob Leamons shows his wife, Kathy, and his son, Bryan, around the Pine Bluff Locomotive Maintenance Plant.

Open House at Pine Bluff

Approximately 1,200 employees, their families and guests, turned out for the Pine Bluff Locomotive Maintenance Plant's open house. Employees guided their families on tours of the plant, explaining their jobs and the work that this Cotton Belt facility performs for the railroad.

As souvenirs of their visits, children received T-shirts with the facility's colorful emblem on it, while adults were presented with Cotton Belt mugs. Everyone—young and old—could climb aboard and inspect a new locomotive and a caboose.

Plant Manager D. L. Minter and Pine Bluff Mayor Dave Wallis announced the winners in the safety poster contest—the first event in the facility's 1981 safety program. The twelve young artists whose clever slogans and colorful drawings were selected as the best entries received U.S. Savings Bonds, a windbreaker and a personalized hardhat. The posters will be used in the plant's 1981 safety calendar. The winning artists are: Jason Anderson, son of Machinist R. J. Anderson; Jenny Callahan, step-

daughter of Electrician D. A. Wright; Corey and Nicole Clayton, children of Clerk C. A. Clayton; Andy and Kyra Crossett, children of Sheetmetal Worker A. E. Crossett; Teri Grimmert, daughter of Clerk T. C. Grimmert; Kevin Kalkbrenner, son of General Foreman H. F. Kalkbrenner; Heather McDowall, daughter of Asst. Plant Manager W.C. McDowall; Jason and Michael Robinson, sons of Machinist A. S. Robinson; and Johnny Temple, son of Asst. Mechanical Training Officer J. B. Temple. □

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