

was appealed and in the summer of 1963 a trial was held in the court of federal Judge Sherrill Halbert in Sacramento. Not guilty was the verdict! But with red tape and more appeals from the government, it was not until November of 1964 that the #8 and the Quincy RR were com-

pletely vindicated. The result of this unnecessary situation meant that #8 never ran again under steam. She was moved from her pad at the Quincy RR depot to the Plumas County Fairgrounds where she sat quietly for twenty two years. But the day soon will come when she

will feel steam in her boiler and will be a very lively part of the Portola Railroad Museum. (We have the complete text of the trial, etc. for anyone interested in the whole story.)

The following article is from a March 1942 "TRAINS"

Feather River Route

★ Western Pacific, newest of the transcontinentals, crosses the high Sierras with only one per cent grade.

By A. C. Kalmbach.*

GEORGE GOULD, son of Jay Gould, worked late in his office on the fifth floor of the old Western Union Building on lower Broadway in New York. He worked hard with shirt sleeves rolled up, and he carried bulging cases of papers out to his country place over the week ends. It was 1905, and Gould was the overlord of some 15,000 miles of railroad, not just a financial manipulator but a progressive, fighting operating officer.

The Gould lines centered about the wealthy Missouri Pacific, dominating the Mississippi Valley and extending along the Arkansas River Valley to the foot of the Rockies. The connecting Wabash rolled east over the corn country and the Great Lakes Basin to Toledo and Buffalo. The Wheeling & Lake Erie brought the system within plunging distance of Pittsburgh, originating point of as much tonnage as Chicago, New York, and Philadelphia combined. The new Wabash Pittsburgh Terminal audaciously put the Gould lines right into this traffic fortress of the Pennsylvania. The Western Maryland, with a few more miles of connecting up, would be the seaboard end of this mighty aggregation of mileage.

To the west the Denver & Rio Grande carried the Gould banner from the Missouri Pacific connection at Pueblo across the Rockies to Salt Lake City and Ogden. But here the Gould trackage ended, with no hope of friendly traffic connection, for west of Ogden was only the Southern Pacific, then united with the Union Pacific under Harri-

man. Even any hope of using Senator Clark's new Los Angeles & Salt Lake as a West Coast feeder was stymied when UP secured an interest in the Los Angeles road. But Gould's eyes lit on a new venture, the Western Pacific Railroad. It had been

chartered in 1903 by a group of San Francisco bankers to build a competitive route across the high Sierras to Great Salt Lake but Gould soon took over.

The ukase came down that the Western Pacific must be built so well that it could efficiently compete with the solidly estab-

lished Southern Pacific, the one-time Central Pacific and first of the transcontinentals. The Denver & Rio Grande, solid, substantial road safely embedded in the rich local traffic of the Colorado Rockies, took two-thirds of the capital stock and guaranteed the interest and sinking fund payments for Western Pacific. The bond trust agreement provided that the new road must have no grade steeper than one per cent compensated, no curve sharper than 10 degrees (573-foot radius) in its thousand miles or so of main line.

Little does it matter that in the panic of 1907 the Gould financial house of cards toppled under the weight of the Pittsburgh Terminal and the Western Pacific extension. The individual roads were sound. Denver & Rio Grande and its affiliate, Missouri Pacific, went right ahead. They needed a friendly West Coast connection, and they got it. The last spike was driven November 1, 1909, near Keddie, Calif., and marked the completion of the last major transcontinental railroad.

In four years the road had been built complete almost as it exists today, and engineers called it the finest railroad construction job since the West Shore. In the new picture, Southern Pacific had competition in its home territory and Denver & Rio Grande had its West Coast extension.

"FEATHER RIVER ROUTE," says the Western Pacific herald. And Feather River Route has been advertised in timetables, tourist circulars, and on the sides of box cars so well and so often that the route is almost better known than the railroad itself.

The three forks of the Feather River flow down into California's Sacramento Valley from the east and north, from sources high in the Sierra Nevada Mountains. These are the mountains that must be conquered by any railroad entering the Central Valley of the Golden State from the east; and appropriately

named they are, for Sierra is Spanish for jagged or saw-tooth

mountains and Nevada means white as snow. The range is, geologically, a giant granite block some 350 miles north and south and 80 miles east to west, heaved up at an angle by some prehistoric convulsion.

Through this formidable natural barrier the Feather River (named because early explorers found pigeon feathers floating on the water) cuts a natural path from the summit to the great level valley of Central California. In its upper reaches the Feather River Valley is broad and green, in its lower portions a veritable canyon cut deep in the red and brown rock, with feathery foam rising from boiling rapids.

Before the coming of the railroad the Feather River was well known. The miners of '49 worked the canyon and the surrounding hills, and Rich Bar, a station on the Western Pacific 16 miles below Keddie, was the scene of a veritable bonanza. There are no official records extant, but estimates of the gold taken from this one spot range from 14 million to 23 million dollars.

The old histories record that in July of 1850 a man named Greenwood realized \$2900 from two pans of gravel from the river bar, whence the name Rich Bar. Thereupon a stampede of gold seekers ensued and Rich Bar's population rose to 2500. "So rich was the gravel," says George Mansfield in a booklet on the Feather River Canyon, "that claims on the bar were limited to 10 feet square."

In the later gold boom days, when the chartering of the Central Pacific made railroad connection with the East seem a near reality, the Feather River Valley was considered for the route by that grandfather of Sierra railroad surveying, Theodore Judah. He ran a line through the valley of the Middle Fork, south of the present Western Pacific North Fork Route, but the construction work would have been too heavy for the pioneering railroad. Grades and operat-

* With the assistance of the following people in gathering illustrations and data: T. B. Aldridge, W. C. Whitaker, Guy Dunscomb, and Thomas E. Brown, publicity manager of the Western Pacific Railroad with offices in San Francisco.

more rocky. Blairsden, 11 miles below Portola in Mohawk Valley, is the starting point for trips to Johnsville, which lies in the shadow of Mount Eureka, where the famous Plumas-Eureka mine was discovered in 1851.

Just when the train is really getting into a deep valley, it dives into the 7343-foot-long Spring Garden Tunnel, in the construction of which engineers were compelled to fight for months against obstacles such as boulders and sands of an ancient river-bed and the waters of an underground stream. When the line emerges into the North Fork watershed it is in a beautiful high mountain meadow surrounded by forest trees, and but a short distance farther swings about this meadow in the famous Williams Loop.

Quincy Junction at milepost 288 (reading from San Francisco) is the junction point for the Quincy Railroad, which leads off in a southwest direction to the little city of Quincy, in the American Valley, protected by pineclad mountain slopes and snow-capped peaks. Although it is five miles distant, it can readily be seen from the Western Pacific. Quincy is headquarters of the Plumas National Forest.

Below Quincy Junction the train plunges through a long tunnel and then the railwise traveler starts to keep his weather eye peeled for Keddie. Here the railroad jumps from the north to the south side of the valley over one leg of a high steel wye bridge. The other leg

of this wye bridge carries the track for the Northern California extension by which the Western Pacific connects with the Great Northern. For a mile or so the tracks of the Northern California extension can be seen climbing along the opposite side of the canyon.

By comparison with the early days, Rich Bar, which once was a trading post and principal town in the Feather River Canyon of the gold rush era, is now a ghost town. However, a number of persons still dwell at Rich Bar, which has a little hotel-resort; and the old diggin's are still being worked.

Fishing abounds and, in fact, Tobin, at milepost 253, is one of the many points in the Feather River country which has caused it to be known as the paradise of trout fishermen.

The truly rocky character of the canyon becomes more and more evident in its lower regions. It is practically a rock gorge at points, and the train snakes along on a shelf blasted into the edge. Up high on the slope are the remains of one-time prospectors' cabins. Below, at the bottom of the crevice, the river foams and boils over rocks with a feathery spray rising in the sun. At Las Plumas is a power plant of the Pacific Gas & Electric Company which is across the canyon from the Western Pacific Line. The water comes through a three-mile tunnel from a dam 11 miles farther up the river.

More suddenly than it began, the deep rocky gorge flattens out into a tranquil wooded ravine and the train pulls into Oroville. This is at an elevation of 203 feet above sea level, and the descent from the Sierras is accomplished.

From here the Western Pacific track points nearly straight south across the smooth valley through Marysville, Sacramento, and Stockton—crossing, recrossing, and at times using tracks jointly with the electric Sacramento Northern. From Stockton the road turns west, crosses the summit of the Coast Range at Altamont (a great mountain pass in miniature), threads and twists through Niles Canyon, and swings north into Oakland, where it terminates on a mole or ferry landing. Passenger trains have used Southern Pacific ferries and passenger facilities since 1933.

Here is a railroad conceived in the era of expansion at the beginning of the century, well built to last, and playing an important part in the commerce of a still-growing part of our country.

WESTERN PACIFIC 40' PULLMAN PS-1's

Part III, Specially equipped.....

This is the last part on Western Pacific's 40' Model PS-1 type box cars built by Pullman-Standard. This part will cover the specially equipped and lettered cars ordered after the group of unequipped MX boxcars. WP ordered many more PS-1's but in 50' length and that will be another story.

WP 1952-1953 were experimental cars from Pullman used to test the then new cushion underframe. WP was the first railroad to put cushion underframe cars into service. The two test cars were owned by Pullman but sported a colorful paint scheme making it clear that they were special cars in use by the Wobbly.

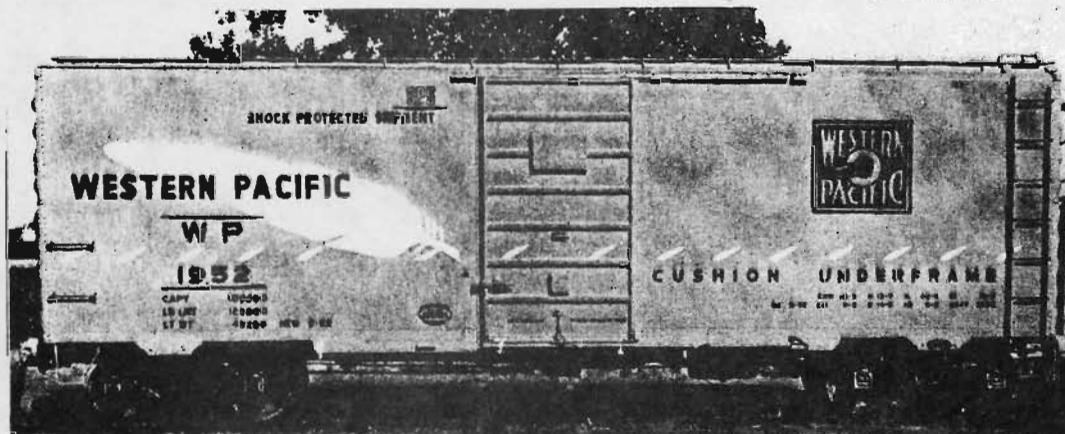
In 1960 WP bought the two cars from Pullman and they ended their service in 67 and 74. They were never repainted or renumbered.

WP 1952 and 1953 are the easiest models in this series. At the request of the Union Pacific Historical Society, McKean has come out with a PS-1 with a seven panel 6' wide Superior door. This is ready to paint right out of the box!. Use Micro-scale set 87-433 to decal after painting it completely reefer orange. Add a little yellow to fade the orange if painting it at the end of service. MDC has #1075 a AAR box car painted in this scheme. It's done correctly, I supplied

the info, but the ends and roof are not PS-1 plus the door is off a panel. But close.....

The success of the cushion draft gear in controlling cargo damage prompted the WP to order ten PS-1 cars equipped with 8' Superior panel doors and cushion draft gear in 1954. They were delivered in a solid orange with large silver feather paint scheme. In 1959 they were renumbered as 3401-3410, equipped with DF-2 loaders, and repainted into the box car red, orange feather, yellow lettering scheme. By 1980 only 3 were still running with 1 renumbered into the 23001 series XM class with loader removed.

In 1961 4 40' PS-1 type boxcars were bought by WP, series 3423-3426, the last new 40 footers delivered to the railroad. These cars were delivered with roller bearing



it was a huge 4-8-4 with Rio Grande splashed across the tender. The next morning it will be one of the 170 series ex-Florida East Coast 4-8-2's on the front end as the train swings wide on the curves leading into the Humboldt River Valley.

It's 11:35 p. m., Pacific time, when the conductor lifts his lantern and No. 39 leaves Salt Lake City. Straight west run the tracks, until, lifting the shade, one can see the Great Salt Lake stretching north in the moonlight. Western Pacific is built right on the south edge, so close that much trouble was experienced at first because the small, but insistent, waves wore down the rock riprap along the embankment and continually threatened to slide the railroad into the inland sea.

It's still too early in the morning for anyone but a milkman when the train pauses briefly at Shafter, Nev. Here the Western Pacific crosses the Nevada Northern, which runs 121 miles south to Ely, location of some of the richest copper mines in the world. There is no longer passenger service on this railroad but it's still handling a very healthy freight business. Apparently at one time high hopes were held for it, as an early prospectus of the Western Pacific mentions the possibility of the Nevada Northern extending to Los Angeles and providing the WP with a valuable connection. (This wasn't WP's only hope for getting to Los Angeles. Plans were made for extending south in the San Joaquin Valley from Stockton to Los Angeles.)

If he's awake at 4:15 in the morning, and if an early Summer sun will permit him to see the right of way and structures, the sharp-eyed traveler may notice a change, for west of Wells the *Exposition Flyer* will be running on the tracks of the Southern Pacific. From Wells to Winnemucca both railroads follow the valley of the Humboldt River, winding from side to side in its canyon and sometimes cutting beneath sharp rock palisades. The Southern Pacific track is used for all westbound trains and the Western Pacific track for all eastbound trains of both roads. So here is a Western Pacific train stopping at Southern Pacific stations, controlled by the typically Southern Pacific semaphore signals,

and perhaps passing side-tracked Southern Pacific freight trains. The two tracks are quite close together most of the way. Battle Mountain on the Southern Pacific and North Battle Mountain on the Western Pacific are the stations farthest apart, the distance being about five miles.

The paired operation continues until about 8 o'clock, when the train reaches Win-

Winnemucca. The smart traveler has timed his breakfast so that he can get off the train at this station and walk up and down the platform while the engine takes water. The dry Nevada air is a treat, Winter or Summer.

Now the railroad climbs from the Humboldt River Valley, edging westward into the desert while the Southern Pacific disappears to the southwest. Distances here are deceptive. From Gerlach, 94 miles west of Winnemucca, a gypsum plant seems hardly a mile away to the south and yet it is five miles off! The utterly lifeless and arid earth seems to stretch endlessly to distant mountainous horizons. It is practically trackless, with automobile tire imprints occasionally leading a path in one way or another. Sometimes medium sized or even quite large lakes can be seen from the train. At other seasons of the year these lakes dry up completely. As the track winds on into hillier country, closer to the Sierra Nevadas and the California-Nevada state line, Pyramid Lake appears toward the southeast. This is the last remnant of prehistoric Lake Lahontan, which extended several hundred miles and had a depth of 880 feet.

Somewhat before noon and some 10 miles west of the view of Pyramid Lake, the Western Pacific crosses, at an acute angle, the Southern Pacific Alturas Line, a short-cut connection between the Southern Pacific's main line in Nevada and its Cascade Line in Oregon. Far across the desert there may be a powerful cab-forward articulated pulling a long SP freight train.

Angling up the barren and steep east slope of the Sierra Nevada Mountains, with a rul-

ing grade of only eight-tenths of one per cent, the Western Pacific reaches Reno Junction and the east portal of the Chilcoot Tunnel, in which it crosses the summit at 5018 feet above

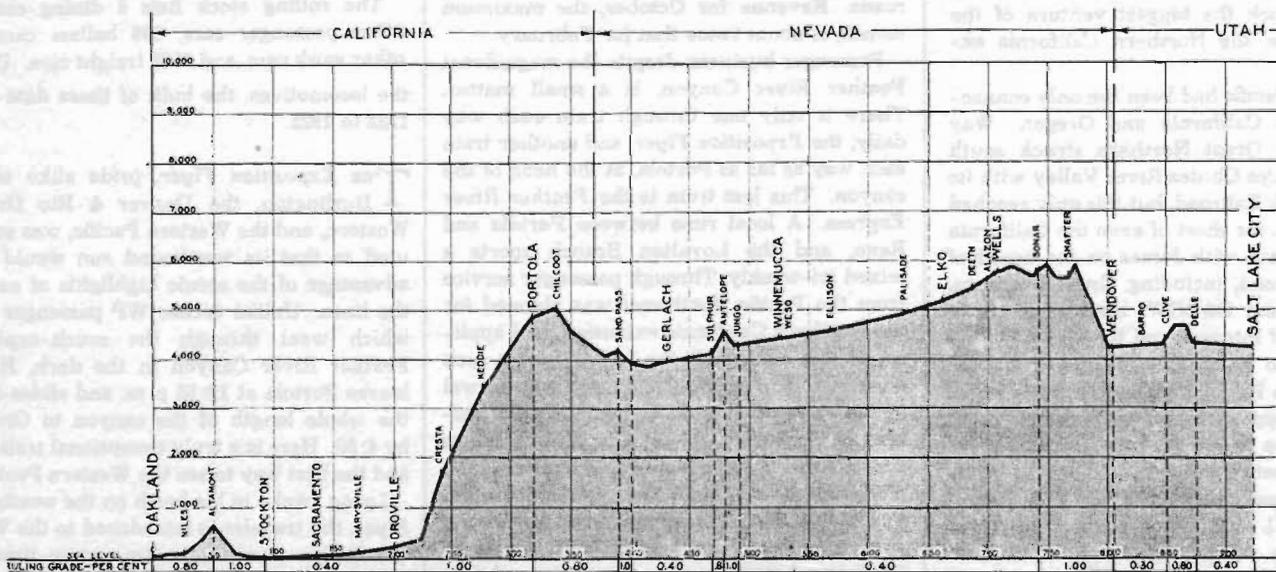
sea level. The Reno Branch of the Western Pacific is 33 miles long and is operated primarily for freight service. About 15 miles of this is on the right of way of the old Nevada-California-Oregon Railroad, which was a narrow gauge line running from Reno to Lakeview, Ore., via Plumas Junction and Hackstaff. There was a branch line from Plumas Junction to Clio, Calif., in the upper Feather River Canyon. WP purchased the line between Reno and Hackstaff and the branch between Plumas Junction and Clio. The latter was eventually abandoned. Total mileage acquired by WP was 105 miles. The Southern Pacific purchased the remainder of the line from Hackstaff to Lakeview, but most of this has been relocated and made standard gauge, some parts abandoned.

Reno Junction first was named Rainbow. The story of how it came to be so named comes from the correspondence of Virgil Gay Bogue, chief construction engineer when the railroad was built:

"A few days ago, having inspected the progress on Chilcoot Tunnel, and having had a very hard day, I walked over the surface of the ground. It had been raining all day, but as I neared the eastern portal of the tunnel, the sky cleared and there was a beautiful rainbow. I took this as a good omen and a promise that our efforts would be crowned with success."

Coming out of the west end of Chilcoot Tunnel, a startling change is evident. The western slope of the mountain has much more vegetation. In the broad mountain-rimmed Sierra Valley, the Western Pacific rolls westward down an easy grade to Portola, division point and top of the famed 100-mile one per cent grade of the Feather River Canyon.

Below Portola the valley starts in earnest. First it seems but a pretty wooded glade, and then it gradually widens out and becomes



herald came to be emblazoned on Pacific Fruit Express cars.

Thus ended an era for Western Pacific.

ARTHUR CURTISS JAMES is dead. But he lives on in the Western railroad picture of today. For Arthur Curtiss James was the last of the great railroad builders, the last successor to the heritage of Colis P. Huntington, E. H. Harriman, and James J. Hill. And it was Arthur Curtiss James who made the Western Pacific the railroad it is today.

James was the son of one of James J. Hill's chief lieutenants, born with railroading in his blood and money in his pocket. It was he who built the El Paso & Southwestern, hoping to push it through to the Pacific Coast. And when it was blocked, he sold it to Southern Pacific, in 1926, for a fortune in stock and bonds. This made him the largest individual stockholder in Southern Pacific and gave him the capital to buy Western Pacific. He was a firm believer in the future of the West, and he felt that Western Pacific could be built up as an independent competing railroad. No time was lost putting theory into practice. A vast improvement program was inaugurated: more modern power, widening of subgrade,

deeper ballast, new rail, more ties. The network of branches projected in 1905 had never been built, and Western Pacific lacked feeders, while its big competitor extended fingers into every town of size in central California. So James revived branch line projects, and improved the WP-owned electric line, Sacramento Northern [March 1941 TRAINS], which gave Western Pacific connections spreading well over the Sacramento Valley. An all-rail route into San Francisco, via Niles and Redwood City, was even projected and authority was asked of the Interstate Commerce Commission.

The Southern Pacific—Arthur Curtiss James, largest stockholder—fought Arthur Curtiss James' Western Pacific every step of the way. Its offer to haul WP carload traffic into San Francisco was instrumental in finally killing the San Francisco extension. But it could not block the biggest venture of the James regime, the Northern California extension.

Southern Pacific had been the only connection between California and Oregon. Way back in 1909 Great Northern struck south through the Des Chutes River Valley with its Oregon Trunk Railroad, but this only reached to Bend, Ore., far short of even the California state line. Now, with James on the board of many a railroad, including Great Northern, Burlington, and D&RGW, there was a new community of interest, and the Great Northern's plans to reach California were linked with Western Pacific's plans to stretch north. Despite SP opposition and its construction of a parallel line to the east, the I. C. C. agreed that a competitive north and south route would be a good thing, and the lines met at Bieber in 1931 with James driving the golden spike. Three years later came the Dotsero Cutoff on the D&RGW [January 1942 TRAINS] and the community of roads had a

transcontinental route comparing favorably with any competition.

The western end of the old Gould empire had been built far better and with more strategic connections than Gould had even dreamed. Now, as the *Exposition Flyer* streaks from Chicago to San Francisco on a schedule equal to any other no-extra-fare train, it is a living monument to Arthur Curtiss James. And as separate roads with strong traffic alliances but no Eastern ownership connections, the Burlington-Great Northern-Missouri Pacific (MP now joins with WP in 50-50 ownership of D&RGW)—Denver & Rio Grande Western-Western Pacific group is perhaps much better off in the present-day traffic strategy than would be the coast-to-coast railroad Gould visioned. Can one imagine the Pennsylvania routing a car via Western Pacific with a trunk of the same system strongly entrenched in its own back yard? An independent Western transcontinental has a much better chance fighting for its traffic among the Eastern trunk lines, and vice versa. Perhaps that's why no road has followed the Gould coast-to-coast intentions.

THE yellow reefers roll east up the 100-mile continuous one per cent grade in the Feather River Valley behind the giant 4-6-6-4 articulateds built by American in 1938, or behind the four-unit 5400-horsepower Electro-Motive freight Diesels. The company's 7768 freight cars are seen from coast to coast with interchange loads. The fulfillment of Arthur Curtiss James' vision of a growing West is seen in the fact that 43 per cent of all Western Pacific tonnage originates on the road.

Manufactured goods furnish most of the freight tonnage on the road, with 41 per cent of all tons from connections and 28.7 per cent of originated tonnage. Products of mines come next, with far more originated on the line than received from connections, and then come products of agriculture, of the forests, and finally a small two per cent of animals and animal products and about an equal amount of less than carload freight. Such single items as lumber,

shingles, and lath make up the greatest bulk, while the westbound train you pass in Nevada may be mostly soft coal. Connections in California deliver fresh grapes in quantity to make up the third largest bulk item on connecting-line billings, and sugar also rates third in on-line billings.

The seasonal variation is considerable, but approximately in line with other Western roads. Revenue for October, the maximum month, is about twice that for February.

Passenger business, despite the magnificent Feather River Canyon, is a small matter. There is only one through train each way daily, the *Exposition Flyer*, and another train each way as far as Portola, at the head of the canyon. This last train is the *Feather River Express*. A local runs between Portola and Reno, and the Loyalton Branch sports a mixed tri-weekly. Through passenger service from the Pacific Northwest was planned for the Northern California extension, and application was made with the I. C. C. to run such a service. The depression caused withdrawal of the application in 1933, and the only passenger service on the line is Winter sports specials run to Lake Norvell, 52.5 miles north of Keddie on the main line. Lake Norvell is in a high mountain meadow, virtually on the summit of the Cascade Mountains, and is an ideal site for snow sports, including skiing, tobogganing, and ice skating.

Motive power to move the traffic includes 168 locomotives, 102 of which date from 1920 or earlier. The most unusual specimens on the roster are the 170-series Mountain types, used for fast passenger trains. These seem a bit out of place with the other power, and indeed they are. In 1936 the Western Pacific purchased the 10 sleek 170's from the Florida East Coast Railway!

The rolling stock lists 8 dining cars, 53 other passenger cars, 398 ballast cars, 555 other work cars, and 7768 freight cars. Unlike the locomotives, the bulk of these date from 1921 to 1925.

THE *Exposition Flyer*, pride alike of the Burlington, the Denver & Rio Grande Western, and the Western Pacific, was scheduled so that its westbound run would take advantage of the scenic highlights of each of the lines. Unlike earlier WP passenger jobs, which went through the much-exploited Feather River Canyon in the dark, No. 39 leaves Portola at 12:55 p. m. and slides down the whole length of the canyon to Oroville by 4:30. Here is a truly exceptional train ride and the best way to see the Western Pacific.

Lying awake in his berth on the westbound *Flyer*, the traveler is introduced to the Western Pacific at midnight (mountain time) as he hears the sound of switching and engine-changing at Salt Lake City. The night before

ing cost were then not so important as low first cost. The Central Pacific therefore built in the American River Canyon, south of the Feather River country, and crossed the Sierras at Donner Pass, a higher crossing and a route with steeper grades than the Western Pacific.

Arthur Walter Keddie originally surveyed the North Fork Route in 1866 and

campaigns for a railroad through the Feather River to such an extent that he is today known as the Father of the Western Pacific. The first definitely projected railroad along this natural grade was the Oroville & Virginia City of 1869, which was followed by many another unsuccessful project, including the San Francisco & Great Salt Lake (1892) and the Stockton & Beckwourth* Pass (1902).

When Gould took over the San Francisco company in 1905 he found a route surveyed, a route allowing easy construction and located mostly along the North Fork of the Feather River. But the maximum grade was a short stretch of 2½ per cent.

Gould chose not to use this route but to take a somewhat different line over Beckwourth Pass which would allow for a maximum of only one per cent grade. Beckwourth Pass, the lowest saddle in the Sierras for hundreds of miles in either direction, was named for Jim Beckwourth, early Indian scout. Unlike the Central Pacific, and with the necessary capital to do as he wished, Gould decided the easier grade would be worth the added construction cost.

Following the ultimatum of a maximum one per cent grade, Gould's surveyors went to work. Down from the pass they flung a line across Sierra Valley, leading into the Middle

* Many references spell this *Beckwith*.

Fork of the Feather River. But the natural grade this way grew too steep, so the line was swung across a divide into the North Fork Valley. This necessitated the expensive 7343-foot-long Spring Garden Tunnel. Even then the natural grade was too steep, so the engineers created Williams Loop, a complete circle of track nine-tenths of a mile in circumference, by which the line drops 45 feet.

Because the Feather River Canyon is very rugged, and because its sides are steep, the making of the line survey and the driving of location stakes involved great hazards. It is a fact that the surveyors had to be let down the faces of cliffs by ropes. Harry Ardley, now with the industrial department of the Western Pacific, worked as a helper when the surveys were being made. He says that at one time he and a transit were being lowered by rope. "It was tough going," says Ardley. "I arrived at a point where either I or the transit had to drop to the bottom of the canyon, and so I let the transit go."

The detailed choice of route on the west slope of the Sierras was much influenced by snow records. Southern Pacific has miles of snowsheds on its Donner Pass Route, and is often faced with 20-foot drifts. Western Pacific, coming in to fight under competitive odds, couldn't risk the high operating expense of continued snow fighting, so the engineers

put as much of the line as possible on the sunny side of valleys, knowing that the snow in mountains doesn't come all at once, but is an accumulation of unmelted snowfalls from many weeks. Using their advantage of many years of snowfall records, they also found that snowfall in the Sierras is a local matter, and that certain areas seem to attract snow while other places seem sheltered from it. So they located the Western Pacific in such a way that it has but 50 miles of bad snow, and seldom more than two feet of depth.

Across the mountain-sprinkled Nevada plateau the route was clear. The Humboldt River cuts across the center of the state from east to west, and although Southern Pacific already occupied the valley, Western Pacific found room to squeeze in another location. The two single-track lines are, in fact, so nearly parallel that since March 7, 1924, they have been used jointly as double track, the Western Pacific for all eastbound moves and the Southern Pacific for all westbound moves.

At the east edge of the Nevada plateau, snaking down from the Toana Mountains into the Great Salt Lake Desert, the engineers met another obstacle to the maximum one per cent grade. The natural location called for three per cent. But the men with the rod and transit swung wide to the north along an escarpment, and laid out Arnolds Loop, really a horseshoe curve, averaging some 2000 feet across but at one spot only 250 feet between the calks. The salt flats, bed of old Lake Bonneville, giant inland sea of which Great Salt Lake is now the largest remnant, are crossed with a 43-mile continuous stretch of straight track.

Many a famous racer has set new world records for automobile speed on hard shelled portions of these flats which, in the moonlight, look like another inland sea. Railroad construction here was no small problem. Workmen walked out on planks to lay the first ties and on the skeleton track gondola cars were gingerly pushed forward to dump ballast material which was worked under the ties to form a wide, firm base. Solid bottom is at some points beneath 14 feet of oozy mud.

The operation of the road received as careful engineering attention as the location. It was carefully figured, for instance, that Consolidation locomotives could move 1000-ton freight trains up the one per cent grades, and that while double-headers could move 1700 tons it would be cheaper to use single engines and standardize on 1000-ton trains over the mountains. Division points were placed as close to the 100-mile average as was consistent with good water supply, crew quarters, and so on. A stretch too much more than 100 miles would mean excess overtime for freight crews. A standard design of engine terminal was adopted, with the lead tracks to the turntable lining up exactly with some of the roundhouse tracks on the opposite side. The Oakland terminal, cleverly arranged in a cramped space between two Southern Pacific lines, included a loop for turning passenger trains. The price of coal and oil per b. t. u. was computed, including freight to each division point, and oil was

picked as standard fuel west of Winnemucca, Nev., while coal is standard east of there.

The grade was cut through the hills and laid across the desert flats from many a focal point. Except for heavy bridge work which awaited the coming of the rails, the substructure was finished far ahead of track laying. The steel was 85-pound section, new for the main line, second hand from D&RG for the sidings. West crept the track from Salt Lake City. Tri-weekly service was inaugurated into Nevada. The power shovels and electric draglines were still biting into the Coast Range at Altamont Pass, southeast of Oak-

land, and dynamite still resounded in the depths of Feather River Canyon.

The first locomotives, 20 for construction purposes and original end-of-line traffic, came from Baldwin. Then came the fleet, from American. The road was equipped completely new at the start, 88 brand new locomotives, a tremendous advantage over competition using a variety of locomotives of various vintages. But what a disadvantage later on, when the WP roster showed a preponderance of 1908 vintage power, and when on other railroads larger locomotives, superheated, were replacing the older power! Fortunately, Western Pacific started business right at the beginning of the steel car era, and so its passenger equipment was right in step for many years to come.

Thus was a new railroad born, track, stock and locomotives. But even with the fine construction, even with the brand new locomotives, even with the favorable Eastern traffic connection, it couldn't pay its way. The time came, all too soon, when Western Pacific defaulted on its first mortgage bonds, and sued the Denver & Rio Grande for its guarantee of interest and sinking fund payments. This threw both roads into receivership, and lo and behold, the upshot of it was that Western Pacific, the child of the D&RG, turned about and bought its parent for five million dollars at foreclosure sale!

There came, as there usually does between competitors who have proved their mettle, a period of amicable understanding between Western Pacific and Southern Pacific. The agreement of March 7, 1924, in addition to providing for joint double-track operation of 182 miles of track in Nevada, also provided that Western Pacific would act as a bridge for Southern Pacific traffic between Chico (via Sacramento Northern) and Weso, Nev., and guaranteed a minimum over this bridge of one-half of all Southern Pacific traffic between Oregon and Ogden, excluding perishables and livestock. Further, the SP would act as a bridge for the Western Pacific between Suisun and Sacramento. At that time Suisun was on an entirely isolated section of the Sacramento Northern. The deal also included a sale to Pacific Fruit Express of all Western Pacific refrigerator cars, and a guarantee by that company of Western Pacific's refrigerator car supply. That's how the WP