What the "W" stands for in D&RGW

Imagine a mountain which holds a dozen diesels down to 12 miles per hour with 9000 tons in tow . . . steel mills in the desert . . . a streamliner with five domes . . . mellow memories of articulateds and 2-10-2's. This is Rio Grande's Salt Lake Division — or what those rails find after going "through the Rockies, not around them"

BY DONALD SIMS

HELPER is not a particularly rare name for a railroad town, and for one located at the foot of a mountain range it's downright logical. Helper is also an appropriate spot in the state of Utah to dispel any notion that the Denver & Rio Grande Western becomes a passive railroad upon leaving the Colorado border. Although the engineering feats and the renown rightly belong to the trackage which crosses the Rockies, the road's Salt Lake Division takes no back seat when it comes to mountain railroading. Or for that matter when it comes to variety — because you'll also find some flatland country and over a dozen branches included on a map of Rio Grande's westernmost division.

"Out west" on the Rio Grande is synonymous with a diversity of traffic. Red Ball trains of general merchandise move swiftly across fertile Utah Valley fields while at the division's opposite end a four-unit road engine assisted by double that number of helpers struggles upward with 9000 tons of coal train. Behind these indications of a railroad's prowess are the geographical and human differences that make one railroad, one division, unlike the others. Union Pacific's Idaho Division is a gatherer with 1300 miles of branches; Southern Pacific's Salt Lake Division is through trackage; but Rio Grande's Salt Lake Division is a bit of both — bridge traffic moving steadily in both directions and a healthy percentage of carloadings generated locally.

THE HOUR of 10 p.m. always brings a flurry of activity to a large stone structure in downtown Salt Lake City. A yellow neon sign proclaims that here two railroad companies, Western Pacific and Rio Grande, share a common interest in the revenue passenger. Several taxicabs wait eagerly in front of the station as a stainless-steel streamliner inches to a halt beside a covered platform. The domed *California Zephyr* from Denver and points east has completed another run on the D&RGW. Fifteen minutes later it will journey on behind a fresh diesel, one with a feather painted on its nose to advertise the slogan of a new management.

On a warm summer evening the sounds that are No. 17 for a motionless 15 minutes wander upstairs through an open second-floor window. Mingling with the noise of motive power being changed and the undercurrent of human conversation is the steady clatter of a teletype. In one window sits a dispatcher, his view of the *Cal Zephyr* obscured by lights on a C.T.C. board. In another, a busy clerk watches a freight consist come through on wires from Grand Junction, Colo., emerging as a printed list. When the CZ pulls out behind a Western Pacific engine it's forgotten. Too many other trains up and coming to think about one that has fulfilled its obligations.

The second floor of Salt Lake City's passenger station effects control of a territory that reaches from the important Ogden Gateway southeasterly to a region where coal dumps and box cars intermingle in Helper Yard. Between is a predominantly double-

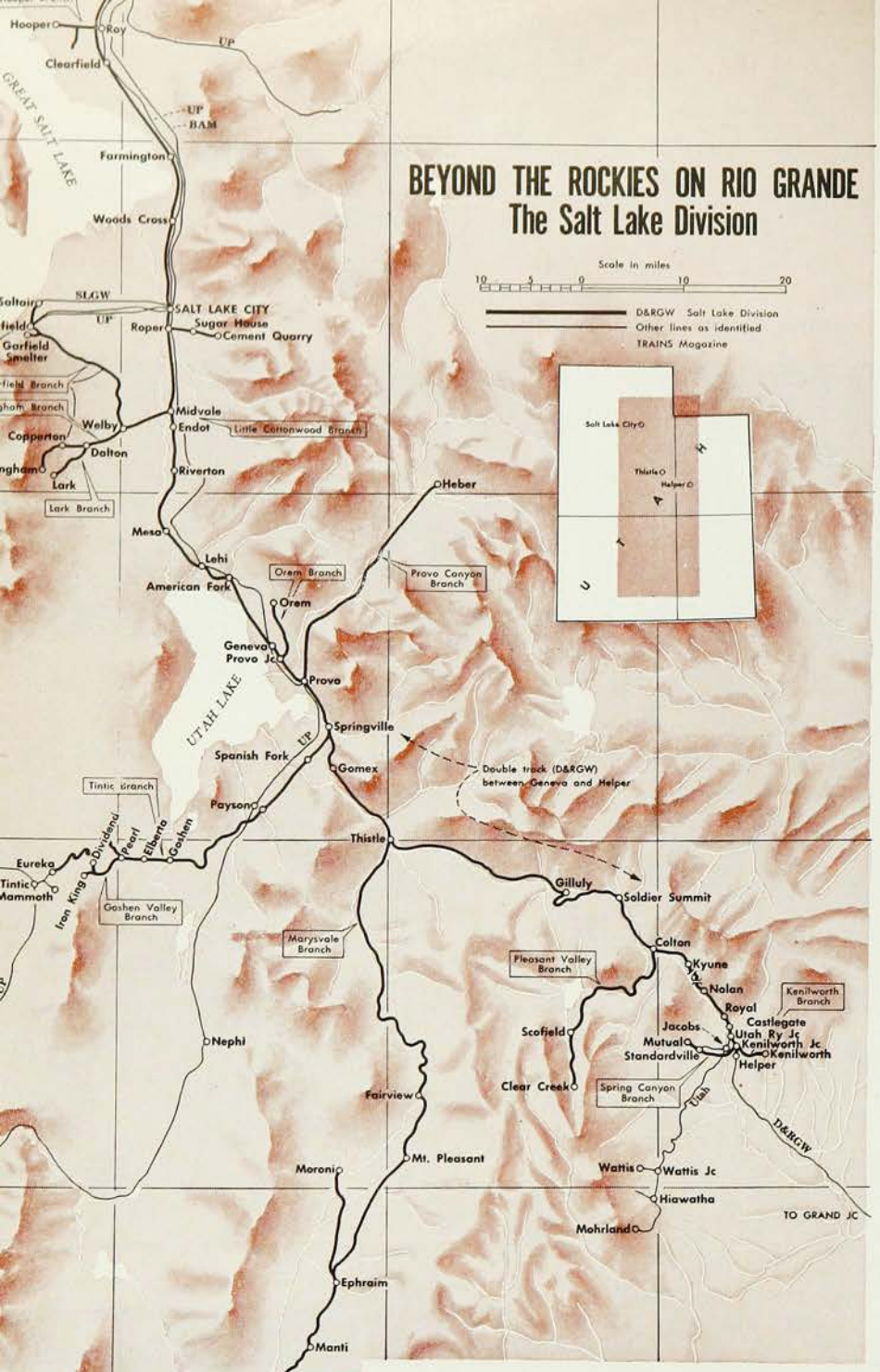
A ROCK OF AGES bounces back the chant of a 5400-horsepower diesel near Castle Gate.

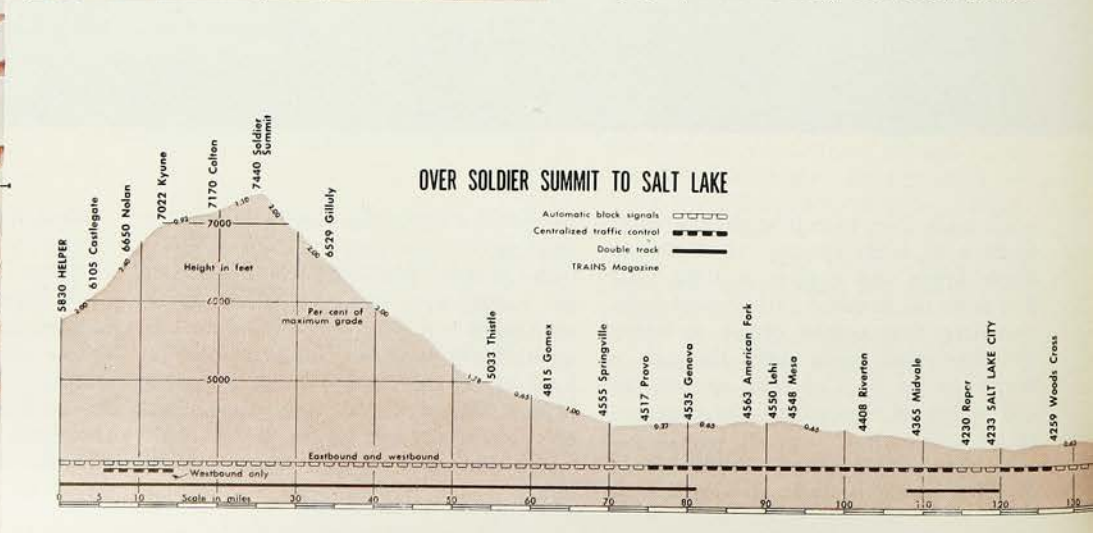
Robert Hale.

track main line, with branches tapping sources of such diverse products as sugar beets and copper bullion. All this adds up to some rather neat railroading that comes close to being overshadowed by a path through a tough range of Colorado mountains and a bit of the wistful in narrow-gauge trackage.

For sheer brute force applied to a drawbar you'll have to go a long way to beat the show the Rocky Mountain road puts on hauling coal out of Carbon County. Multiply 100 tons gross per loaded coal car by a 90-car limit on a solid train and the total comes to around 9000 tons per full train. And a load other than capacity is a rarity. Mixed trains of coal cars and other equipment can exceed the 90-car limit up to the same tonnage figure or 110 cars.

Most of the coal handled in Rio Grande's trains is destined for industrial use. U. S. Steel's mammoth plant at Geneva, 82 miles by rail from Helper, gulps down 100 loads per day. Other cars are transferred to Union Pacific rails at Provo Yard and are forwarded by UP to Kaiser Steel in Southern California. A fair amount of tonnage travels to Pacific Coast ports at Long Beach, Stockton and



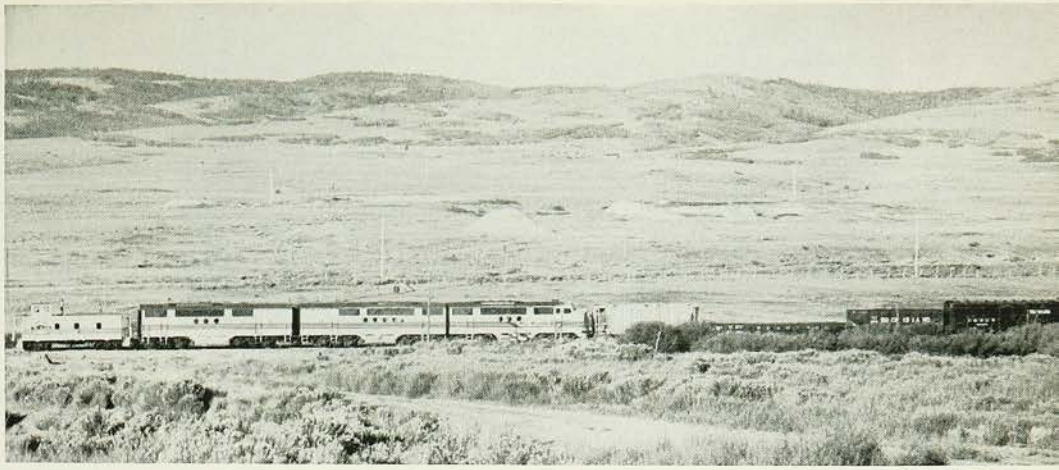


Seattle for export to Far East markets.

With such a background of demand, the Carbon County yield holds up steadily on a year-round basis, running 350 to 400 cars a day five days a week. This is heavier during winter months, but usually five slow-gaited drags will take care of a day's coal production. A like number of empties return to the mines, either in solid trains or as fillout tonnage for eastbound merchandise runs. In 12 months a goodly number of coal cars wend their way across a mountain range that forms part of Subdivision 6, one of the two subdivisions that make up the SL Division.

To the north, 150 miles removed from the shafts of Carbon County, another strand in the web of Salt Lake Division's operation is being spun. A long, dusty train of reefers comes rolling off the Nevada desert behind an Espee diesel, finding haven in a crowded yard. Ogden is a busy terminal, a transfer point in the scheme of transcontinental traffic. Espee and UP pool their resources into Ogden Union Station & Depot Company, but the Rocky Mountain line maintains a small yard of its own just off the larger terminal. It is this latter that becomes the object of a busy orange-and-black switcher which quickly cuts out those cars marked D&RGW on a switch list. A teletype message has long before announced their arrival, and Rio Grande wastes no time adding them to others of similar origin.

The initials SPF stand for the hottest freight schedules on this division. The three letters mean Southern Pacific Fruit, a high-wheeling schedule handling perishable and freight forwarder traffic off the Overland Route, and destined to bridge 157 miles of roadbed in 5 hours. As a comparison, other freights of some stature are carded for a 300-minute run from Roper Yard, 40 miles southward. On paper, 5 hours may not seem a fren-



Donald Sims.

BOUND for Soldier Summit, an eastbound merchandise is assisted upgrade near Colton, Utah, by a tiger-striped diesel cut in ahead of a gay hack.

zied pace, but behind each run is a complete absence of wasted motion. Between Ogden and Helper is a major metropolitan area, two yards with attendant slow orders, a crew change, and 25 miles of 2 per cent grade, followed by 27 miles of regenerative braking.

Through manifests carrying perishable traffic leave Roper Yard as either A or B block schedules. Any such train leaving from midnight until 8 p.m. is an A; during the last four hours of a day departures fall under a B classification. Guaranteed delivery is responsible for the rating; B trains are on a tighter over-all run, making up a half hour on SL Division, more minutes on the Grand Junction, and even more on the next division. Waybilling a car between 8 p.m. and midnight makes no difference when your shippers have been promised third-morning arrival. Those last four hours count as one full day; hence the extra pressure Rio Grande puts on B blocks. Eastbound these trains will shave the 6-hour average to Helper; and a shorter climb for westbounds enables the hotshots to beat a 5-hour norm.

Those merchandise cars handled in fast freights by Rio Grande fan out at either end of the railroad. Denver-Pueblo as a departure area delivers such interchange to other roads for Chicago, New York or any of numerous industrial centers. The bulk of freight forwarder business which is actively pursued, travels in westbound symbols, with delivery to WP and UP at Salt Lake City and to SP at Ogden. Predominantly from the Chicago area, this latter traffic is heaviest in fall.

Leaving Roper Yard southward imposes no strain on motive power. A series of slight rises and falls carry roadbed to Provo, 44 miles away. Four units can handle 110 or 120 cars easily, although usually such trains are extra runs rather than manifests. For mobility and a fast trip across the Wasatch Mountains, Rio Grande likes to keep the hot ones under the century figure.

Two-direction signaling is featured on twin tracks to Endot, 10 miles out. They carry traffic through a region that gradually becomes less populated; factory buildings give way to green fields and agriculture. With single track come a couple of 150-car sidings at Riverton and Mesa, followed by a flirtatious affair with a shallow canyon created by the Jordan River. Then rails swing away from the river, hug the northeast shore of Utah Lake through the towns of Lehi and American Fork. Milepost 708 is passed, and a high-speed turnout brings double track at Geneva.

Power — the key to success on a mountain railroad — may seem out of place on a 60-car SPF leaving Salt Lake City. Rio Grande doesn't believe in wasting precious moments waiting for a helper to cut in and out of a hot symbol. Like as not you'll find seven or eight units of locomotive up there on the point as a fast run rolls along through flat territory. Topping a mountain summit doesn't mean that horsepower requirements on an SPF will be reduced. Chances are good that both helper and road engine will continue to burn up steel across the relatively unruffled surface of Grand Junction Division's No. 5 Subdivision. When most of a railroad's mileage runs in the mountains it learns to depend on tractive effort and use it liberally.

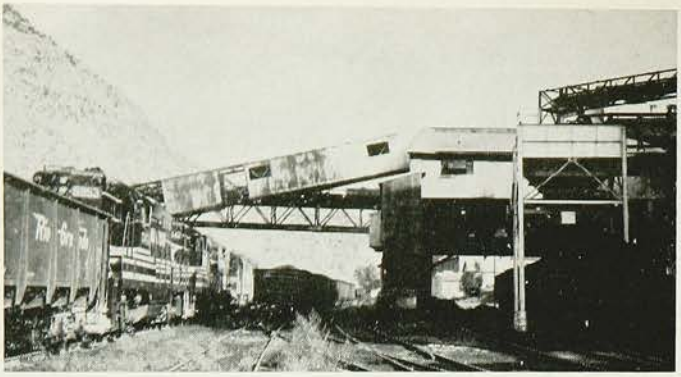
A typical day's business at Ogden sees four trainloads of interchange arriving via Espee rails and two or three being handed over to that road. Normally two of the eastbound runs get hotshot billing because they are perishable traffic that comes with a built-in guarantee. This extends to insuring a West Coast shipper that his product will get to market within a specified time period; otherwise a penalty is forthcoming from whatever railroads are involved. A carload moving on Rio Grande's promise spends precious little time cooling its heels.

The tie-in with Western Pacific rails at Salt Lake City makes another major source of traffic for the intermountain-region railroad. It also provides a means whereby the trio behind the *California Zephyr* can be successful. Rio Grande fills in as middleman along a route joining Mississippi River and Pacific Coast regions.

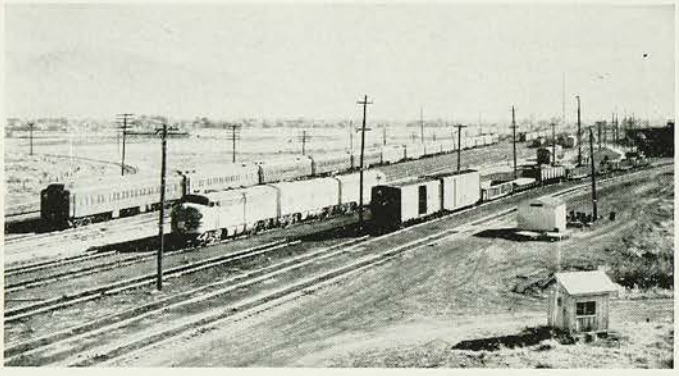
WP freights pull right through Salt Lake City and on into Roper Yard a few miles south of the joint passenger station. Perishable traffic off the Feather River Route moves east out of Roper on symbol freights called WPF's.

Twin towers dominate the 32 tracks that are Roper Yard. Tall brick structures topped off with glass, they command a force of bustling switchers and switchmen. Both towers, located at each end of Roper, house a yardmaster who talks his orders via a yardwide p.a. system. No hint of push-button railroading here; this is a flat switching facility.

In the scheme of Rio Grande's oper-



COAL DRAG headed by a mixture of cab units and Geeps grinds under mining paraphernalia in mainline territory below Castle Gate.



ROPER YARD in Salt Lake City finds Western Pacific diesel idling against a backdrop of sleeping cars from troop train.

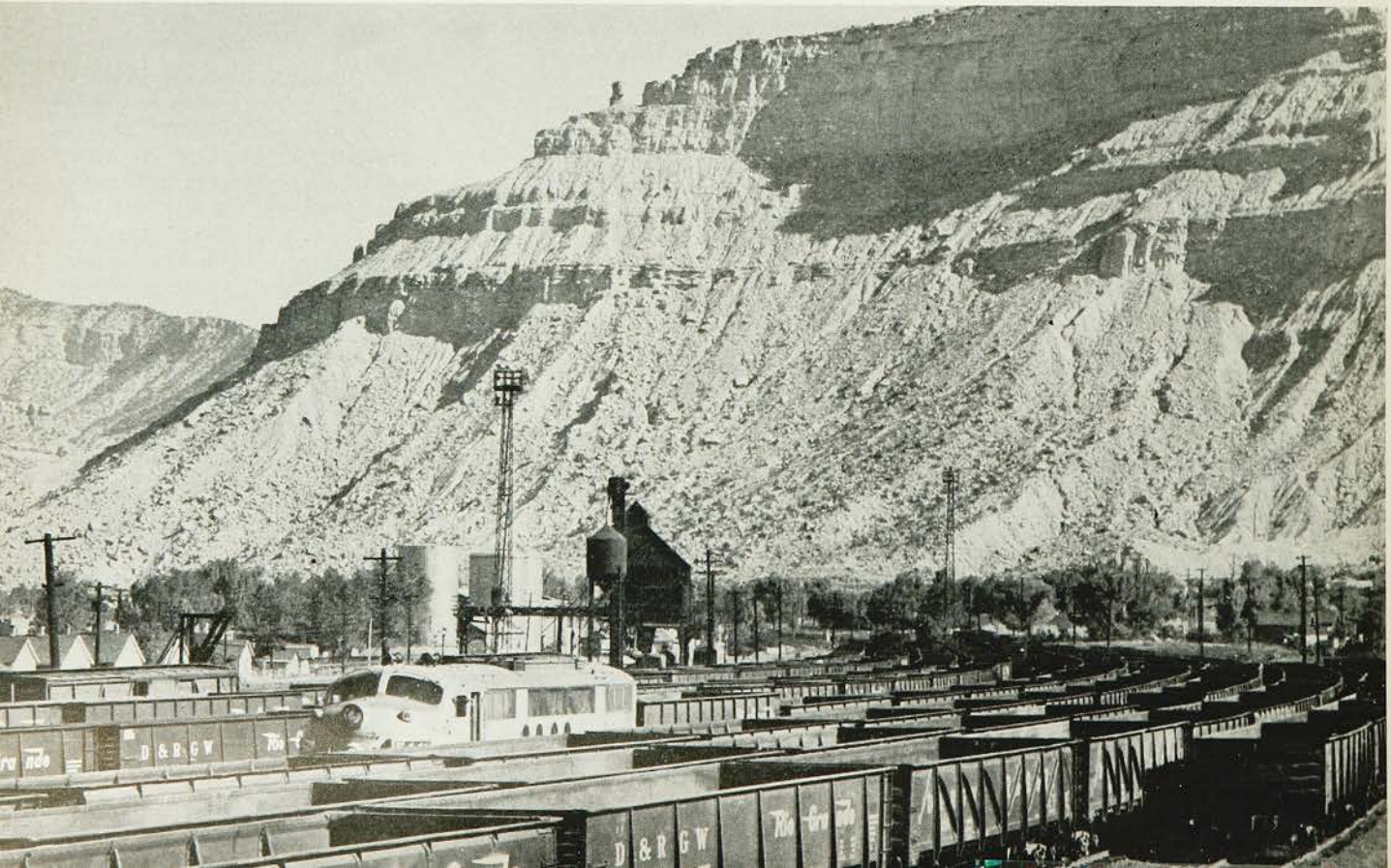
HELPER: a single FT unit is all but lost in a sea of empty hoppers waiting to be hauled back to Carbon County mines for coal.

ation there isn't much call for a hump yard out west. Most heavy cutting and blocking work is done at Grand Junction. Westbound trains arrive at Roper already carved into neat parcels for interchange or for industrial districts. There is no blocking at all on eastbound movements. Again Grand Junction shuffles cars into sections for alternate routes via the Moffat Tunnel to Denver or through the Royal Gorge to Pueblo. Because of heavy through traffic and diverse routes at either end of the system D&RGW finds it most efficient to package its merchandise in midstream.

If you don't mind climbing a winding, almost vertical set of steel stairs about 40 feet to the top of a tower you'll get a striking view of what a busy railroad terminal is. On all sides are tracks, some empty, some crowded to the switches with the reporting marks of a transportation industry. To the uninitiated, Roper Yard is confusion, a land of antlike switchers moving to and fro without rhyme or reason.

But there is a purpose behind every move, every set of points thrown for a string of cars. Starting at the main line, tracks 1 through 10 are reserved for trains arriving from eastern origins; 27 to 32 are set up for departures and westbound arrivals. Exceptions are 1 and 2 which are also used for WP westbounds. Space between is utilized for sorting cars into cuts for

All photos, Donald Sims.



any of a dozen reasons. Cuts for industry, manifests, branch runs or the rip track are switched out down Roper's middle by daylight and by floodlight. From their lofty thrones the two yardmasters mastermind a daily routine, supplementing the printed orders of switch lists with spoken orders over the p.a.

Roper Yard's west end is the locale of offices and the servicing facilities that make Rio Grande and Western Pacific diesels ready for a call. The black building that houses four stub-end tracks handles light repairs on an average of 55 units, give or take a few for seasonal adjustment.

Inside there's rarely an open parking place. On one track rests a Geep, its belly laid open for repairs; on another, four units of idling F7's are being groomed to haul a Red Ball Extra. Other motive power occupies space outside — perhaps several WP diesels or the Budd car, laying over between marathon journeys. Three times a day at shift change the nearby ready track is cluttered with small power, the backbone that runs Roper and takes care of Salt Lake City's industries.

Through trains out of Ogden don't appear on a Roper switch list. They halt momentarily out on the main line, change crews, and possibly pick up a helper, then highball down the 6th Subdivision. Coming west, traffic stops in the yard, moves on to a Southern Pacific destination as a new schedule.

A PAGE and a half in an employee timetable is devoted to mainline travel, three pages to branch lines; perhaps that best sums up Salt Lake Division country. For every mile of heavily ballasted roadbed there are nearly two that cater only to train orders and road-switchers. This situation extends from the 132 mileposts of the Marysvale Branch to 8450 feet of track with the poetic moniker of Little Cottonwood Branch.

Much of northern Utah is mining country for one mineral or another. Rio Grande conforms to this pattern. On the east end of Salt Lake Division coal is king. Two branches reach out from the Helper area, threading curved rails through canyons to reach dusty mine shafts. Farther up the hill at a place called Colton, another branch stretches 21 miles into Wasatch Mountain soil to 8200 feet elevation to claim more black diamonds. Helper Yard spawns the mine runs for these branches, sending road-switchers out with empties and sorting the loads they bring back. Carbon County's mines present a uniform face to the operating department. Empty gons and hoppers are spotted upgrade from a mine — at a place from which gravity and a rider can take over. Once filled, a car is allowed to drift down below the mine. The motive power comes along, ties on a black caboose, and with all retainers operational drifts back to the main line.

The real payoff on coal tonnage is produced by trains called Sunnyside Turns. They run eastbound out of Helper on Grand Junction Division roadbed to Mounds, then take off northward on a branch to pick up loads from so-called captive mines of Kaiser Steel and U. S. Steel. Carbon County Railway, a short line operated by U. S. Steel, connects the Geneva Mine with D&RGW iron. Geneva yielded 21,031 loads during 1956. Returning full, the Turns bring in a good share of the daily coal loads, most of them large-sized hoppers known as CBC's for their shortline reporting marks.

There was a time when Rio Grande itself was a customer for Carbon County mines. The changeover from solid to liquid as a power source is all too well known. The coal miner laments the dwindling volume; the railroad connoisseur's loss is one of esthetics.

For all their righteousness and acceptability, the statistics which present the undeniable case for the diesel can never offset the loss of those years that were Salt Lake Division hitched to a coal-and-water economy. How can a number describe Thistle on a subzero December morn — a wide spot in Spanish Fork Canyon pouring out steam from a half dozen resting iron horses? Or how duplicate the offbeat tempo of a Mallet and a 2-10-2 reverberating off rock-ribbed canyon walls at Castle Gate? Can an efficiency index present the case for individualism of design which existed when Baldwin, Lima and Alco drew the blueprints that matched steam pressure with a spoked wheel — outshopping a product that was tailored for Midwestern plains or the West's basin and range province?

A fictional realm with its attendant cheerful conclusions does not exist on a railroad, and so the nomenclature of Rio Grande's motive power department runs to F7's and, more recently, road-switcher designations such as GP9 and SD9. Gone are the class L-131 4-6-6-4's, the 1400-series 2-10-2's, and all numbers that once adorned the sooty cabs of coal burners.

SALT LAKE DIVISION's longest subsection, the Marysvale Branch, is officially Subdivision 6-D. It takes off through a cut at Thistle, running southward through a valley in which agriculture is predominant, and bluntly ending in a small town bearing the title of the branch. There aren't as many traffic sources on this branch as there are miles (132), but D&RGW Geeps pull some mighty diverse waybills out of southern Utah.

Take uranium ore and frozen turkeys. The only thing they have in common is origin: the Marysvale Branch. In season, up to six reefers a day of Thanksgiving favorites may be originated at Moroni, halfway down the line. Besides the uranium ore from Marysvale's southern extremity, there are gons brimming with ground alunite rock, a fertilizer source; and a steady 25-car-a-day diet of plasterboard from two mills at Spearmint. Subdivision 6-D also looks forward to a niche as railhead for the projected Glen Canyon Dam project some 190 miles farther south. To meet an expected increase in business, D&RGW is currently adding yard space at the southern end of the branch.

Rio Grande roadbed tends to have an affinity for high places and Salt Lake Division's northern feeder lines are in conformity. For their tonnage several branches depart at right angles from the main line into a rarified atmosphere — in this instance into a traffic source that historically has created boom or bust for many a western railroad.

The mountains that ring the west side of Utah Valley and Subdivision 6 have long known the hard hat and begrimed clothes of the miner. Gold and silver in fluctuating quantities have come from places like Tintic, Eureka and a dozen others that can be found in an SL Division timetable. But the precious metals do not provide much of value to a railroad. Copper, lead, and zinc ores are the real force behind many a Utah mining town. To D&RGW this means a two-way traffic — supplies going in, ore and ore concentrates coming out.

These mining town branch lines have the same look, a profile that leaves mainline trackage to climb steadily on grades up to 3 or 4 per cent, wandering through canyons, passing mine shafts and mounds of tailings, then like as not ending somewhere against a hill at a place called simply End of Track.

The Tintic Branch is like that; so is the Bingham Branch, which at one place sports a hefty 4.5 per cent grade, the division's steepest. Goshen Valley Branch, 8 miles of mountain railroad, is also a conformist, along with the Dalton-Lark spur, which contributes a daily train of lead ore to a smelter at Midvale. The rebel is the Garfield Beach extension, which starts out high and tapers down almost to the shores of the Great Salt Lake. It's importance

lies in a connection with a huge copper smelter — a composite picture of smoke, slag piles and steel ribbons.

Of all Rio Grande secondary mileage that dwells in Utah's mountains, none gives more of yesterday's appearance than that which climbs upstairs through Provo Canyon. It's a narrow, twisting line that grudgingly shares a path with a stream and a highway. During high water you might expect one of the twice-weekly trains to get its feet wet as rails dip almost to the water's edge, even when the Provo River is low. Fifteen miles northeast of Provo this route flattens out across the edge of a dam, runs along the shore of its man-made lake, then pushes across a green valley where livestock-raising can be counted on as a traffic source. The dull black rolling stock of the D&RGW brings in sheep for summer grazing, reverses direction in the fall before cold and snow come to the high valleys of the Wasatch.

A crowded wye at Heber marks an end to Provo Canyon Branch. Take away a couple of bulk gasoline storage tanks, and the area displays little sign of change over the century's early years. Livestock pens on one leg of the wye and a weathered storage shed piled to the eaves with feed sacks contribute to this feeling. In the early morning solitude of the mountains one almost can hear the plaintive wail of a Mike's whistle spreading across a lush meadow and envision a ghostly wraith of iron trailing a sooty wake. Abruptly the charging steed ceases its bark and coasts quietly to a halt beside the venerable wood structure that serves as the station. As late as 1953 this story was not one of fancy, but today the only sounds emitted along a Rio Grande roadbed are little distinguishable from the call of a heavy truck.

Subdivision 7 — Ogden to Salt Lake City — is single track and not quite level. Gradient varies mildly between fractional percentages while a 2-degree maximum curvature offers little challenge to speeding freights. No. 7 is freight only with mostly A.B.S. control; daily density runs to five or six through freights plus a couple of local schedules. Summer adds some traffic in the form of sugar beets from the connecting Hooper Branch.

Union Pacific's main line to Los Angeles roughly parallels D&RGW roadbed from Ogden south; both lines stay close to the Great Salt Lake. Near the Utah capital city the once-interurban Bamberger Railroad falls into step, all three roads running side by side for a short distance. Entering Salt Lake City the two western roads are still in close alliance, with 7's single iron skirting UP's freight terminal, then its busy passenger station.

Grant Tower, an interlocking plant which employs C.T.C., fuses Western Pacific tonnage with that coming in from an Espee connection. It also allows UP to wye passenger equipment moving from the nearby depot out to a yard for servicing. For Salt Lake Division it means the stream is becoming a river.

A half mile south of Union Pacific's 1890-style passenger edifice, Western Pacific and Rio Grande present a menu of four daily varnishes spiced sparingly with a Budd car's comings and goings. The *Cal Zephyr* needs little introduction; its composition and success have established a trend. Eastbound as No. 18 it highballs out of Salt Lake City by 6 a.m., bound for a scenic excursion in the Rockies. As No. 17, the opposite-direction counterpart, it glides into Utah's capital with late-evening city lights glinting on surfaces of stainless steel and massive glass bubbles.

Lesser-known but certainly as well furbished is the *Prospector*, Rio Grande's entrant in the local field of intermountain transportation. Making a nightly run between Denver and Salt Lake City via Moffat Tunnel as Nos. 7 and 8, the trains also carry a sleeper and a dome chair car west of Grand Junction for passengers traveling via the Royal Gorge. Featuring convenient early evening departures and early morning arrivals at both ends of the railroad, the Grande-gold and black streamliners have proved popular with businessmen, a type of customer D&RGW likes to encourage. Averaging a dozen or so cars, the *Prospectors* usually feature a high-occupancy rate on their mountain runs.

WP's pioneering Budd car provides the station's other service. It comes in from the coast three days a week and departs similarly, following an all-night layover at Roper Yard.

Insofar as speed goes, there is a scant 5-mile-an-hour difference between times of the *CZ* and the *Prospector* on SL Division. No. 18's Salt Lake City-Helper average is 44 miles an hour; No. 8's is 39 miles an hour. Comparable figures on westbounds are 41 and 36 miles an hour. Reason for this distinction is a timetable rule allowing *Cal Zephyrs* speed zones 5 miles an hour higher over most of the division territory.

An outside rail carries freight traffic through the Salt Lake passenger depot. Diesels shuffle idly by, their slow-moving chant is no disturbance to a fast-talking dispatcher.

"On that RBX, give him a helper and that's all. He doesn't fill at Provo." Then as an afterthought, "That Ogden man is going by now. Better get the crew out." The phone is dropped, and the chief DS turns to other matters.

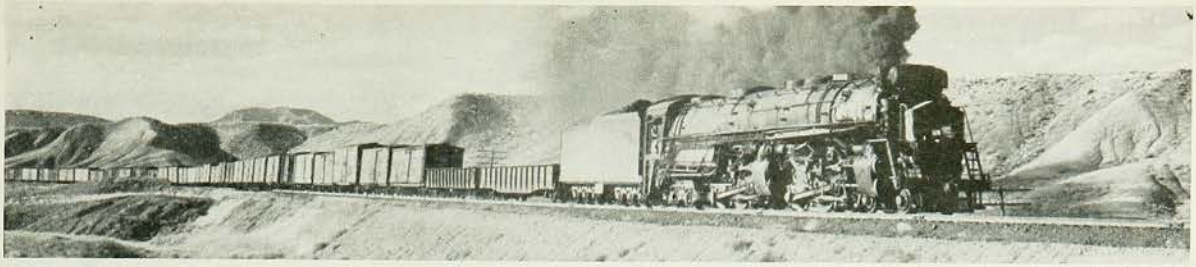
Across the room, a trick dispatcher alternates between C.T.C. levers and train order talk. Lights and a track diagram dictate movements from Roper Yard south to Provo, and on 9 miles of 7th Subdivision rail from Salt Lake City north to Woods Cross. Except on this trackage and on some short C.T.C. mileage on the hill, Salt Lake Division trains are subject to written commands.

The Provo-Midvale section — Rio Grande's second C.T.C. installation — was in effect by 1929, making it one of the industry's earlier approaches to push-button railroading. In fact, this section was in operation a full year before block signals were protecting trains between Soldier Summit and Provo. The board in Salt Lake City grew from Midvale to Roper in 1937, north to Woods Cross two years ago.

Language and a railroad are split into many camps. The traffic man who deals in terms of tariffs and Pullman rates has a tongue different from the trainman's, whose lexicon runs to retaining valves and the 16 Hour Law. Some expressions in use on Salt Lake Division can turn up on any road, in any department. Others are more provincial, may be peculiar to the D&RGW or perhaps even the West End. Thus we find that Red Ball Extras or named trains such as the *Flying Ute* are well known anywhere between Denver and Ogden, while Roper Yard's A and B manifests and the coal-gathering Sunnyside Turns belong to a local dictionary. Rio Grande's vocabulary may change between Dotsero and Thistle, but its function is similar.

The operator at Soldier Summit, laboring in a small brick station 7400 feet up a Utah mountainside, uses many words. On his teletype, which notifies Grand Junction of an eastbound symbol's consist, the terms run to reporting marks and freight car numbers. Over a wire to his Salt Lake City DS, they differentiate between diesels and give OS times in a somewhat formal code. This gives way to casual talk should a trainman drop in for an order. JF is part of that terminology too: it's the telegraphic call letters for Soldier Summit.

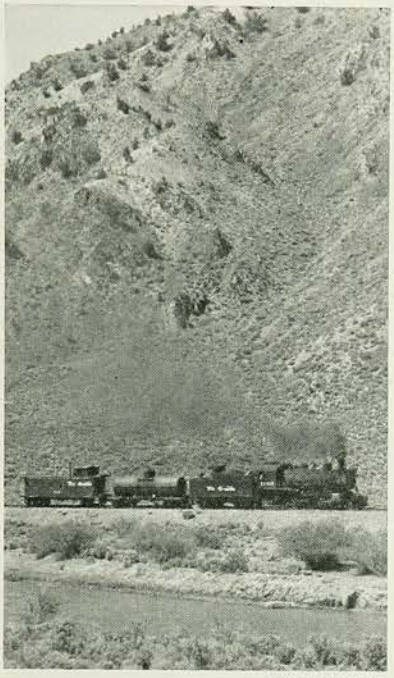
The highest point on a mountain main line always captures the imagination. Soldier Summit is and does. Eastbound or westbound on SL Division one always looks toward conquering the summit in the Wasatch. From there on it's easier, involving a



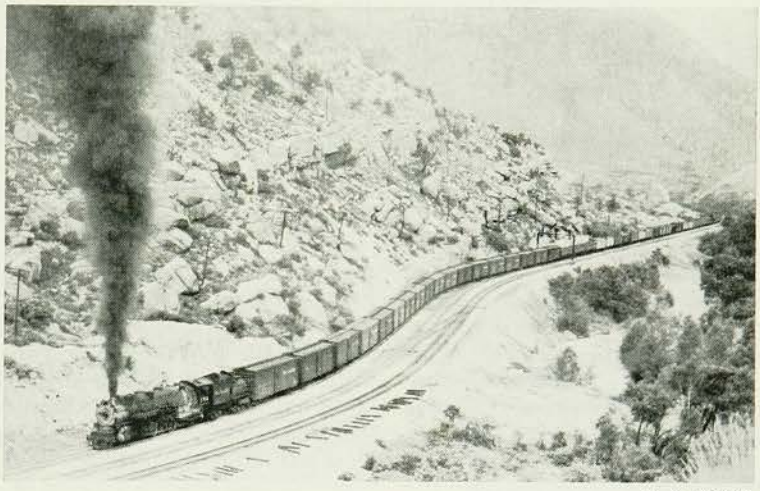
J. W. Maxwell.

EAST of Thompson, Utah, one of the heaviest 4-6-6-4's ever built, Rio Grande 3703, rolls 57 cars back in June 1941.

Only yesterday...



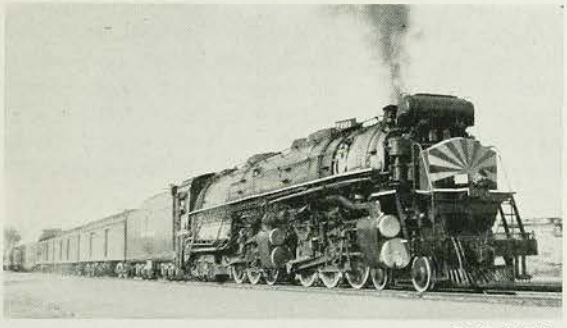
Robert Carlson.



R. H. Kindig.

↗This was the scene at Kyune, Utah, on June 30, 1941, as 2-10-2's fore and aft grappled with a westbound extra on Soldier Summit at 10 miles per hour.

←MARYSVALE BRANCH local shuffles along in July 1950 with minimum tonnage cut in between elderly Consolidation No. 1199 and the caboose.



R. H. Kindig.

RISING SUN motif on sandbox was intended to warn motorists of big 4-6-6-4's approach on Scenic Limited.

R. H. Kindig.

EASTBOUND tonnage off Soldier Summit rolls downgrade past Kyune, Utah, behind 4-6-6-4 No. 3700.

sort of relative sense of existence that presumes light throttles and surging tonnage are a lesser sort of hurdle in the scheme of things. At Soldier Summit it's usually a question of feast or famine, a somewhat normal state of affairs when two helper districts converge at altitude. On most mountain lines the trains bunch like bananas at the top. There are times when an op hardly gets a chance to "copy three" on a "19" order blank. Other periods may find him staring out on an almost soundless night, waiting expectantly for the glow of a headlight to shatter the loneliness.

Rio Grande helper operations are tailored to fit a tonnage table and a profile map. On manifests and empty westward trains of less than 70 cars or 3300 tons out of Helper, the extra power can be placed on the point. On movements exceeding those figures it is cut in ahead of the caboose. Four-unit or fewer helpers for coal drags can also be rear-enders, providing the same limit isn't crossed; but on any-

thing over that figure, power must be cut in ahead of 2900 tons. Climbing up the other helper district from Thistle, 4000 tons represents the dividing line between head end and rear end positioning. The difference lies in a maximum 2.4 per cent grade on the Helper-Soldier Summit district vs. a 2 per cent limit on the 29 miles above Thistle.

Yard tracks at Helper are laid out on a curve so the full impact of horsepower requirements on a Rio Grande coal train isn't realized at first glance. Like as not the diesels are hidden behind some freight cars — many empty and waiting for a mine run, others piled high with Carbon County's natural product and destined to follow on a second drag. The four-unit road job is working hard as soon as a train whistles off. Then 30 or 40 cars back, a sandwiched helper's first unit eases into view, followed by seven more linked together to obey a single gloved hand. With every diesel engine working to capacity, the 12 units gird for an uphill fight, slamming the coal hard into the mouth of a canyon, slowing to a walk as 2.4 per cent of mountain grade makes itself felt. Two miles out is Utah Railway Junction, where UR brings its exclusive coal business onto SL Division rails for the haul to Provo. (Utah Railway owns the eastbound track from Provo to Thistle; the Rocky Mountain railroad owns the westbound roadbed. The two railroads operate them together under double-track rules.) Four tracks take care of all available space for a time, long enough to pass a couple of coal mines and the entrance to the Kenilworth Branch. At Castle Gate, where a vertical shaft of rock gives an advertising department something to holler about, the route is back to customary two-track operation. Because of normal and reverse signaling aspects on both tracks between Colton and Helper, this technically isn't double-track but two-track railroading.

A 12-mile-an-hour speed keeps slack stretched on the coal drag — a gait which produces a deep-throated echo off the sedimentary layers that line Price River Canyon. Rarely is a train's entire length visible to crewmen as the 6th Subdivision follows an upstream course on footing that alternates between 115- and 131-pound weights. But with radio communication in vogue on most mainline freights this presents no problem.

At Nolan tracks part briefly to enter two concrete-lined tunnels which offered a solution to a rock barrier. For a similar reason there is another pair of 400-foot bores at Kyune, 12 miles and 1200 feet above Salt Lake Division's eastern terminus. Should a symbol or RBX freight leave Helper within 40 minutes after a coal drag, the heavier train heads in at the first available siding, which happens to be Kyune (with a 102-car capacity). And it can be a tight squeeze if the drag has a full 90 cars, 12 units and a caboose. Under the dispatcher's orders a small C.T.C. machine at Soldier Summit controls the 7 miles of westbound main of maximum grade up the hill to and including Kyune Siding.

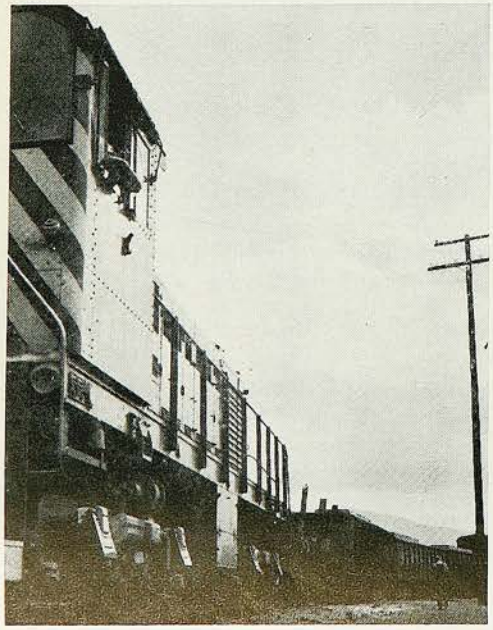
Once past Kyune, the mountain's conquest is all but met. What was once a towering wall has become a low fence. Ruling grade is now a fractional .92 per cent and the canyon's angular profile has rounded and grown farther away from the roadbed. Nine thousand tons no longer seem so formidable to 12 diesel units, as indicated by a 20-mile-an-hour reading in the cab. A slight pickup in slope — to 1.1 per cent — occurs at Colton, where the Pleasant Valley Branch comes in.

With only 7 miles left on the uphill grind, curvature has been cut down to a maximum of 4.5 degrees — vs. 9 degrees on roadbed below Colton. The respite is short lived, however, for on the opposite side of Soldier Summit there is more 9-degree rail waiting. On that side of the hill it's a question of keeping surging tonnage on the track with brake pipe pressure plus reversed traction motors.

Cutting out helper power at Soldier Summit involves two distinct methods of operation. Slopes from both directions reach a climax just west of the TO station. On westward trains with rear-end assistance, the road engine pulls over the summit, then backs onto its caboose, or if it's a heavy run the helper will perform switching duty. A flying switch cuts rear-enders out of eastbound movements. They pull down past the station; the diesel gives its tail a start, then ducks into a side track while gravity takes care of the rest. When extra power is on the point it means shutting air hose cocks and pulling the pin.

Eastbound freights bound for Colorado drop a train list off at the summit for transmission to Grand Junction. These trains out of Roper may fill tonnage from Provo's industrial area and from Marysvale Branch Junction at Thistle. So Rio Grande finds it more practical to wait for a full complement before getting switch lists ready down the line.

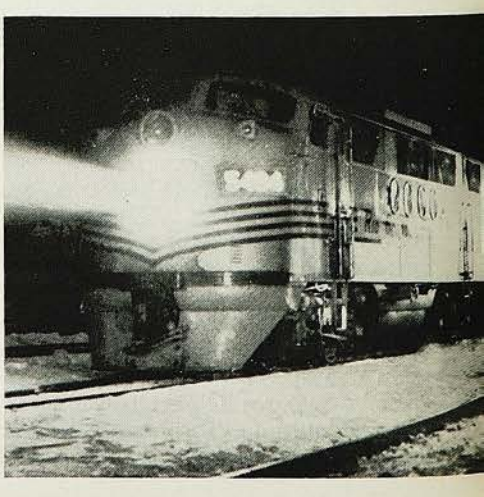
One way to understand the relative workings of a mountain district is to consider them in point of time. At a 15- or 20-mile-an-hour pace a train spends many more minutes bridging the Wasatch Mountains than it does moving along Utah Valley roadbed. And there's considerable difference in the capabilities of each movement. A 1000-ton distinction between two trains may make little difference where each can make top figures on speed boards between Ogden and



AN ALCO handles yard work at Roper. Zebra stripes on the end, a Rio Grande trait, are intended to warn motorists of unit's approach. **(See page 25 too!)**

NEAR RIGHT: Prospector pauses in Provo on a chilly eve. Package rail ticket includes meals in a move to combat airlines on the run to Denver.

FAR RIGHT: Money-making California Zephyr stops in Salt Lake City just long enough to exchange Rio Grande diesels for those of Western Pacific.



Provo. But on a 2 per cent ladder it's another matter. A Red Ball Extra — that is a regular freight sans symbol or manifest rating — may have to take siding for the likes of a hotshot and be overtaken because of a few extra cars.

Helpers make a mark on the daily recap. Say, for instance, you have two freights approaching Soldier Summit 20 minutes apart. Cut out that extra power and you have four trains, since by definition a light engine can be assessed that way. From the standpoint of train orders, a dispatcher's responsibility has doubled in but a few minutes. And on a train sheet each of them is listed as a separate movement. Should motive power be in short supply, those helpers will have to be expedited too — a situation that is facilitated by allowing them passenger time downhill.

This cumulative effect of low speeds, heavy tonnage, and extra motive power keeps a mountain railroad bustling.

Night becomes day at 7440 feet in the Wasatch. Once the goal was to shy away from stalling or snapping a drawbar, but it now is a case of keeping a hundred freight cars from going on a roller-coaster ride. The whine of regenerative brakes identifies this phase of mainline running, and little is left to speculation by the mountain-conscious Rio Grande. There's a rule to fit every train on the downhill journey.

Ten-pound retainer positions are used in both directions from Soldier Summit. On a train with three power units, two-thirds of the train's forward section is cut in, if it is over 3750 tons. For four and five units a similar number is figured at the 5000- and 6000-ton marks. On lighter trains this drops to one-half of the head end. These rules are for the short side of the hill. Doubleheaders consisting of two engines with four or more units each can drop down to Helper on dynamics, providing total weight doesn't exceed 6500 tons. Retainer use is more restrictive on the downgrade drift to Thistle. All head-end retainers are turned up if three units haul over 4800 tons. Similarly when four or five units are assigned over the 6500 sum, a full complement is in force. Passenger runs get by on reversed traction motors; the only requirements they have to meet is a running air brake test before passing over the summit of the grade.

U. S. Highway 50 is no arrow in dropping 5 miles westward below Soldier Summit. But Salt Lake Division trackage exhibits even more of a wandering spirit, taking double that mileage to reach the same place — a 115-car siding called Gilluly. The reason: grade must be held down to an acceptable maximum. Toward that end, there is a peach of a reverse curve just above Gilluly Siding — one of those affairs on which a conductor can wave to his engineer traveling in the opposite direction.

During daylight hours an aura of brake smoke envelopes descending freights; after sunset a million dancing sparks are generated by steel shoes exerting a viselike grip on steel wheels. On a railroad, downhill progress, unlike a climb, is never smooth. Dynamic braking and retainers do only so much; the rest submits to human judgment and an air-brake handle.

Slack runs in, kicks 100 or so freight cars forward to approach a governing 15-, 20- or 25-mile-an-hour zone. Pinch 'em down hard, then ease up momentarily. Never let those few thousand tons of Rio Grande train gain enough momentum to override its flanges. All the way down it goes like that — to Thistle, to Helper, to the depths of any railroad that reaches for altitude at one place or another.

Gilluly to Thistle is 19 miles of constant 2 per cent slide as double track splits a narrow canyon. This side of the Wasatch exhibits a landscaped, placid face. Absent are the characteristic rock outcroppings and steep walled cliffs of the eastern slopes. Passenger trains here run under varying 30-, 40- and 45-mile-an-hour speed boards in contrast to a steady 30 top on the short side.

Winter weather doesn't make much of a dent in SL Division operations. Those closed canyons of the Wasatch offer little opportunity for drifts, so that several flangers can keep the rails open. Utah Valley territory doesn't experience the cold of high altitude, and snow conditions there aren't heavy as a rule. For the most part winter operation is a case of thermometer-watching and of adjusting train lengths if the readings get low.

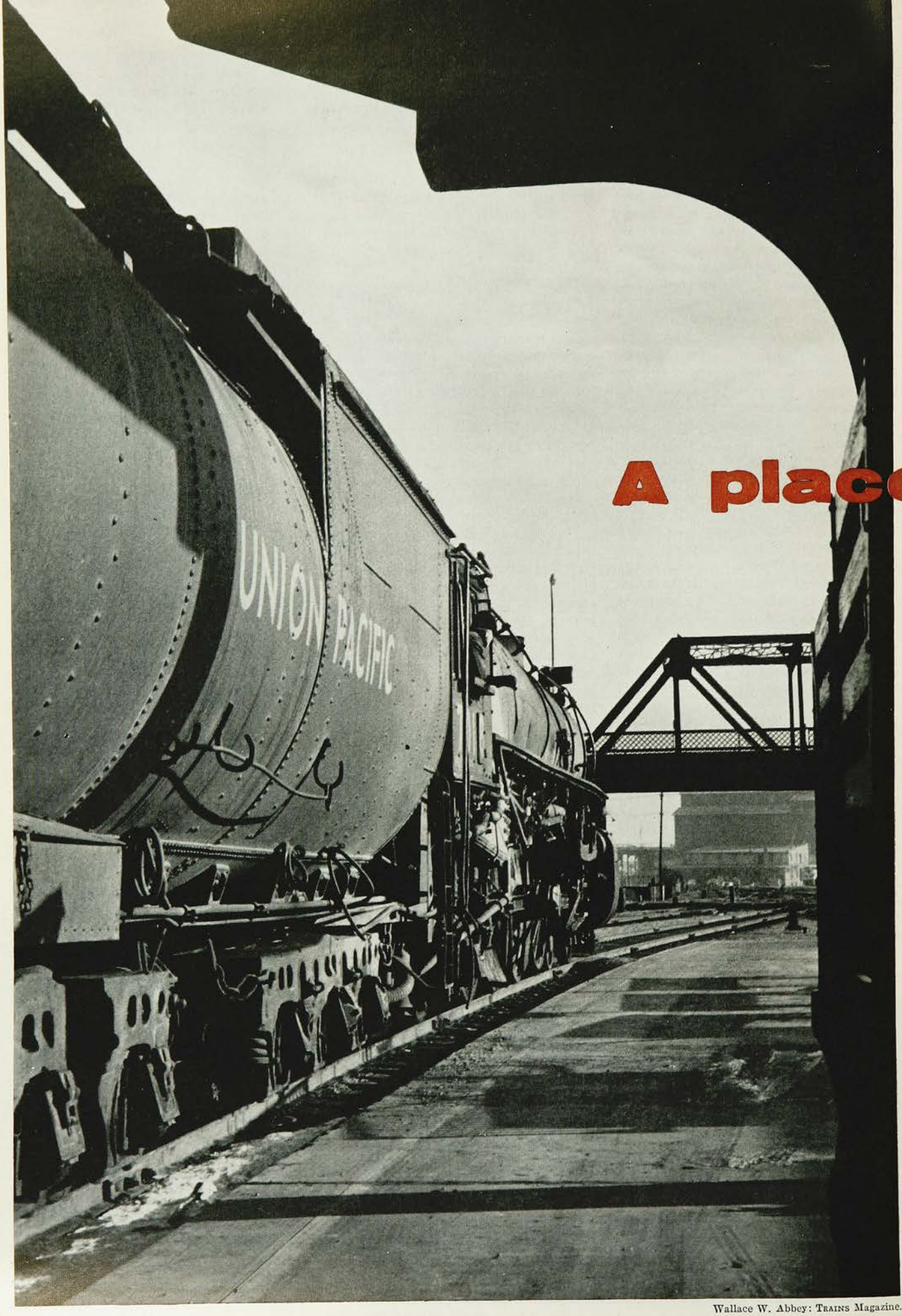
Describing Thistle as a wide spot in Spanish Fork Canyon involves a relative concept of roominess. The small terminal is squeezed in. Somehow there's room for four through tracks, a wye that leads into a cut and Marysvale Branch roadbed, and a two-story brick building that houses a TO office and layover facilities for helper crews. Two short yard tracks lead to an elongated enginehouse and a smoke-stained coaling tower, both holdovers from the era of coal burners.

Rio Grande's deference to local use of C.T.C. is again illustrated at Thistle by a small machine which handles movements between yard limit signs. This spot use is directed by the Salt Lake City dispatcher and helps in allowing the railroad to control a 54-mile helper district with only three open offices: the two bases, and the summit.

Thistle is a beginning or an ending for a through train's mountaineering.

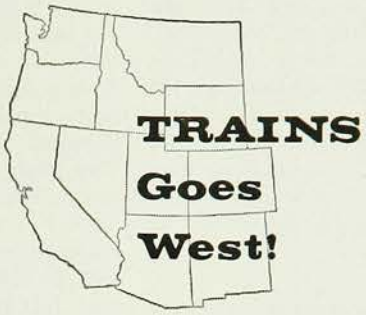
Denver & Rio Grande Western has a whale of a lot of railroad west of the Rockies.

All photos, Donald Sims.



A place

Wallace W. Abbey: TRAINS Magazine.



to watch trains

TRAINS' own train-watcher thumbs his diary back to 1945 and recalls the station that was God's gift to people who liked railroading

Unabashed nostalgia by DAVID P. MORGAN

THERE are splendid railroad stations and there are places to watch trains, but the two are infrequently synonymous, at least in America. New York's Grand Central is a beautiful terminal, but the intricacies of its levels and loops are remote from the eye and, anyway, too many of its trains are lookalike M.U.'s. Chicago's Dearborn is admittedly rich in atmosphere, for the trundling of baggage trucks and the throb of diesels are close and hi-fi, yet the necessarily great distance to the engine of an outgoing train (inherent in a stub-end depot) as well as the gloom and close quarters beneath the trainshed limit the viewing. On the other hand, L&N's old eyesore on Canal Street, New Orleans, is warm in the memory of many a train-watcher; and although it's no shakes as an edifice, North Philadelphia is one place to watch trains that run on the proverbial headway of streetcars.

Now and then, as in Jacksonville, architecture complements train visibility with happy results.

Ultimately, the fortunate train-watcher arrives at the right station . . . and at the right time. I increasingly suspect that for me this meant Denver Union Station in the fall of 1945.

TO BEGIN WITH, Denver itself is geographically correct to insure a variety of railroading. The granger roads, Burlington and Rock Island, come bounding over the prairies and through the Colorado uplands, take a look at the Rockies glowering in the distance, and turn their engines around. Union Pacific, too, rolls in from the wheatfields, stays in town just long enough to change power, then heads due north to seek the easier ascent that is Sherman Hill. The Q's Colorado & Southern plays footsie with the Rockies all the way from New Mexico to Wyoming, but it doesn't dare cross 'em — at least, it hasn't since it quit running narrow gauge to Leadville. For Santa Fe Denver is an end-of-track town; after all, Atchison has its own altitudes down at Raton.

So that leaves Denver & Rio Grande Western which climbs right up and over the mountains on a continuous 2 per cent grade that plunges through 29 tunnels before it enters America's second longest, the 6.2-mile Moffat.

Denver Union Station, where the passenger trains of all these roads terminate, begin, or pause en route is a through-type affair, built in 1880 and drastically revamped and enlarged during 1914-1916. Between each two tracks, which range from 1200 feet to approximately four blocks in length, there is a platform of generous width (17½ feet) protected by concrete umbrella sheds. The structure is owned jointly by all the roads in the name of the Denver Union Terminal Company, but each line handles its own switching and maintains independent coach yards. In regard to train-watching, the station — which stands at the foot of 17th Street — is flanked by viaducts at 16th and at 20th, and I encountered little trouble in getting into the passenger subway which offers access to all platforms.

So much for the mechanics. Why 1945? In a sense I was too late . . . too late to see the C&S narrow gauge trains that once departed on the third-rail outside tracks for Leadville and Georgetown, too late to witness pre-automobile summer traffic (there was an average of 200 trains a day handled in July and August of 1915, up to 45 in less than 2 hours!), too late to see the first *Zephyr* snarl off on its dawn-to-dusk flight to Chicago. Yes, and too late to see them pick up the pieces of the Rio Grande 4-8-4 that blew up in the station area.

And yet 1945 was precisely right.

Weary railroads and engines were winding up the herculean work of war in the last stand of big-time steam railroading. But in Denver Union Station the main trains and Mallets rubbed shoulders with two other elements of the railroad scene: the modernism of the 1930's symbolized by articulated streamliners; and the looming future, keynoted by freight diesels and an experimental dome car. In Denver, in 1945, all this lay side by side — great to behold, wondrous to recall.

LET'S go back, more than a dozen years back, to a clear and crisp November afternoon . . . back to a few minutes before two o'clock.

No. 5, the *Exposition Flyer*, went west on Rio Grande at 2 p.m. Ancestor of today's *California Zephyr*, she was quite a train. She raced out of Chicago on the Q shortly after noon, got to Denver next day at breakfast — then lay dead for almost 6 hours! (I wondered if perhaps it took D&RGW that long to gather the courage and motive power to tackle the grades ahead.) At length power did appear, infrequently a 5400-horsepower diesel freighter, often a compound 2-8-8-2 piloting a 1700-series Northern. They were unkempt, dirty, tired-looking locomotives that showed their upgrade miles through tunnels, and the white paint on their tires and running boards only called attention to their filth. Air pumps would talk up, then sigh occasionally when the trainline was filled; the communication whistle would beep twice; and No. 5 would move with an assortment of standard cars moistened in the steam of open cylinder cocks and tailed by a 10-section observation car.

Now, Mallets on varnish are unusual enough, but later in the same afternoon from the same station the streamliners whined off across the prairies to Chicago — Q's *Denver Zephyr* at 4 p.m., UP's *City of Denver* at 5. Then, in 1945, they were the true article: lightweight, articulated, custom, fast. Shovel-nose units, perhaps the marriage of *Silver King* and *Silver Queen*, powered the Q's entry, and a grille-nosed creature with a streamlined cupola of a cab (that anticipated both *Aerotrain* and the Italians' *ETR 300*) fronted UP's train. Modernists? Odd, but even in 1945 they both were as dated in a sense as Rio Grande No. 5.

THERE were other diesels, standardized EMD's; but except for Rio Grande's oddly disturbing freighters, I didn't for one moment think of them as forerunners of a revolution. They were just the icing, not the cake, and their presence on such trains as the *Colorado Eagle* and *Rocky Mountain Rocket* only underlined the majority rank of steam.

I, for one, associated engines with trains in Denver. Burlington No. 12, for instance, was a nameless job that left town at 9 p.m. (eventually wandering into Chicago almost 24 hours later) with the cleanest steam power Denver afforded the train-watcher. You could comb your hair looking in the polished, waxy flanks of its 4-6-4 or 4-8-4, high-drivered Baldwin or homemade engines that contrived to look as trim and confident as the day they left the erecting floor. (When I finally left Denver in 1945 it was on No. 12, and next morning the Northern up front was rolling the 80 miles per hour that my train-watching in Denver had led me to suspect.) There was also Santa Fe 101, the *Centennial State*. It usually rated a 4-8-2, a tall engine of complex valve motion that bespoke faraway places as did no other locomotives I saw. And she could run, too, as I discovered that fall when the 3745 dropped down those 2000 feet from Palmer Lake into Denver in 52 of the fastest miles I ever care to ride — at least around curves.

FINALLY, there was Union Pacific 38 — the *Pony Express* to Kansas City. Or to be exact, Second 38. The first section ordinarily rated diesels with odd numbers such as 7M1 and 7M2, but the second had steam and departed after dark.

I remember the night of November 10, 1945, when I found a train of 13 cars running as Second 38. I walked from the markers' end forward, fully expecting a 4-8-2, instead finding a light Pacific — the 2874 — trailing a ridiculously tiny Vanderbilt tender. (Perhaps it was meant to carry the crew's drinking water, I thought half seriously.)

"Will you make it, with this engine?" I asked the oldster on the right-hand side of the cab. He slid his window open a bit more and contemplated the issue. Then: "Yep, she'll make it." No exclamation, no cursing over the fact that First 38 had had 4000 horsepower worth of diesels with fewer cars, no jesting.

I tended to discount his confidence, especially when the skipper echoed my doubts as he compared Hamiltons with the engineer. Thirteen standard cars were a load and Limon, Colo., the engine change point, seemed worlds removed.

The highball came, my friend released the air, made a cutoff adjustment and hiked back the throttle, and the 2874 left without taking so much as an inch of slack!

That was Denver, 1945.

Wonders of the West

ACCORDING to a recent national magazine coverage of the problems of home-moving, more people in the East want to move West than vice versa. Which, with no insult to rock-ribbed Yankees, is understandable. For where else in America is the land so large, so frequently frontier in appearance and customs, so beyond the description of words? The railroad has an affinity for the West, too. Without rails the mountains and the plains were wagon ruts and bison bones. With rails — including those illustrated here — the West became united with the States to form the U. S.