

1st Sub forever

Heading for a dramatic and active second life



BURLINGTON NORTHERN'S ONE-WAY RAILROAD—2

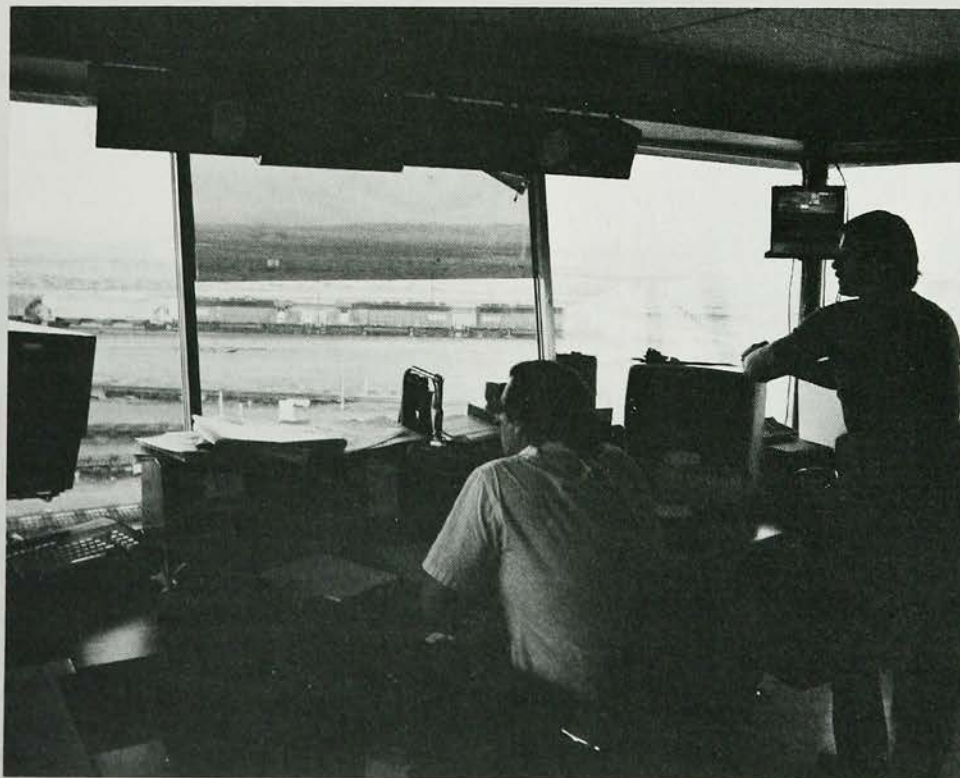
BRUCE KELLY

1 WITH the issuance of Burlington Northern Seattle Region Timetable No. 8 on Sunday, October 26, 1986, came sweeping changes in the railroad's apportionment of its northwest routes. The Montana Division's mountainous, river-running trackage was incorporated into the Seattle Region, and the numeric listing of subdivisions was changed to fit the new scheme. Of the many shufflings of line segments, the transition of the High Line (former SP&S) from 5th Subdivision to 3rd Subdivision of the Portland Division was perhaps the most appropriate, although by no means the most widely recognized. A more fitting sendoff could not have been given the Spokane-Pasco (Wash.) route of trestles and tunnels we covered last month [pages 24-33]—for it had been the 3rd Subdivision of the Spokane, Portland & Seattle Railway in that system's final years. Now in 1987, the High Line's future looks bleak. New tri-light signals and electric switch locks at the new Fish Lake crossover (for now, designated Cheney Junction) spell abandonment for the 3rd Sub.

Over on the 1st Sub, however, the wide-open spaces of eastern Washington cannot hide the massive preparations under way for that line's rise to Columbia Plateau supremacy. New talking hot-box/dragging-equipment detectors at

Beatrice and Ritzville, plus the established ones at Babb and Mesa, complete BN's ultimate protection plan here of scanner sites every 30 miles. The 10 new passing tracks laid at existing stations, plus the new, hard-to-reach (by road) Sands siding at MP 84.9, need only a final ballast-tamping and installation of switch motors to ready them for the Centralized Traffic Control operation, expected to begin by mid-summer. Instead of burying a communications cable along the 1st Sub's 136 miles from Pasco to Marshall, signal crews are mounting trackside microwave antennas, wired directly to nearby controlled sidings and signals, which will transmit the CTC commands of the Wishram East Dispatcher (successor to the Pasco East desk) across the clear, dry plateau sky.

The Columbia Plateau as a whole embraces what must be North America's most widely spaced double-track main. In their diverse travels between Spokane and Pasco, westbound freights on the 3rd Sub and eastward freights (plus Amtrak's *Empire Builder* Portland section both directions) on the 1st Sub are, at their greatest separations (Mesa to Snake River Junction; Lind to Washtucna) 20 miles apart. The brisk, effortless 0.4 per cent High Line descent from Mock to Snake River Junction mutes the prime movers in diesel road units so that only the thunder of tonnage upon wheels against rails indicates another westbound's progress toward Pasco. Over on the 1st Sub, BN's eastbounds behave in a very different way—engines fully throttled, flanges biting at 6-degree curves or singing down fast tangents, air horns blowing for a multitude of farm-town grade crossings. Considering all the sprucing up being done on its sage-covered 1 per cent profile, the 1st Sub appears to be headed for a dramatic and active second life. Now more than ever, it's the Portland Division's No. 1 road.



Both photos, Bruce Kelly.

1ST SUB SCENES: Semaphores between Connell and Hatton (left), Pasco yard tower (above).

Pasco puts 'em together

When the Columbia River Bridge between Pasco and Kennewick opened in 1888, the prosperous town of Ainsworth seemed to dissolve into the Snake River's confluence with the Columbia, casting seeds to the waters to travel upstream and spawn the bustling Tri-Cities region of today (Kennewick, pop. 34,397; Richland, 33,578; and Pasco, 17,944). Now, Ainsworth is only Ainsworth Junction, Milepost 233.2 on BN's 3rd Subdivision, Portland Division, where the High Line splits from a line leading to branches to Pendleton, Ore., Walla Walla, Wash., and a connection to the Camas Prairie, jointly owned by BN and Union Pacific.

Whether by train, truck, or river barge, most commodities moving to and from eastern Washington encounter Pasco in their journey. Northern Pacific had that situation in mind when it chose Pasco as the site for its



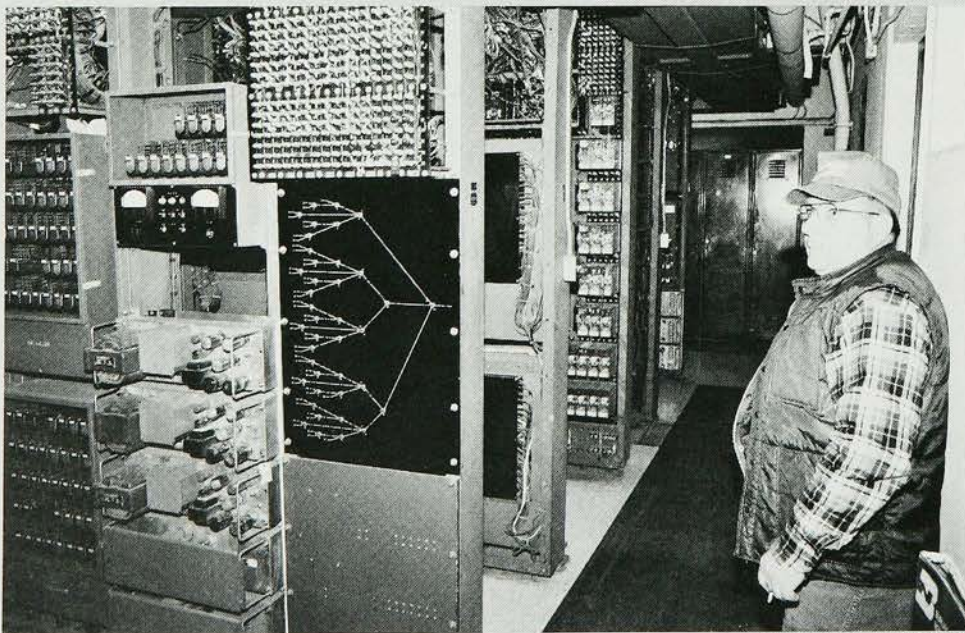
first automated classification yard. Showcasing the latest in vacuum tube/toggle switch/rheostat technology, Pasco's hump began sorting cars for NP and SP&S (jointly owned with Great Northern) in the summer of 1955.

BN's activity at Pasco on a cold November day in 1986 bears little resemblance to the high-volume, pre-merger box-car era. But overall, the structure and function of Pasco hump is unchanged since its birth 32 years ago. Men such as signal maintainer Fred Hamilton, accustomed to the solid-state, microprocessor world of today's

BN, poke fun at the antiquated hardware in the basement of Pasco's main yard tower. Banks of relays, tubes, and wire harnesses all click and buzz in their task of activating turnout motors in the yard's bowl, throwing out new orders on the dwarf signals and applying just the right squeeze to hump retarders. But as Fred says, the 1950's technology "still does the job."

The ongoing job of pulling inbound trains over the hump, breaking them into ordered blocks, and reassembling them in the departure yard is handled by one of the northwest's largest con-

centrations of SD9's. In NP times, Baldwin road-switchers (re-engined with EMD's) and hump trailers did the work; today, six-axle EMD's are favored for their adhesion on the hump, and the SD9's fit that bill without an overkill in horsepower and fuel consumption. Intermodal trains pause at Pasco only long enough to change crews, and are off again in minutes, but other freights and unit grain trains rarely slip through without reclassification. Even westbounds off the 3rd Sub—Klamath Falls-bound 671, for instance—occasionally enter the yard for

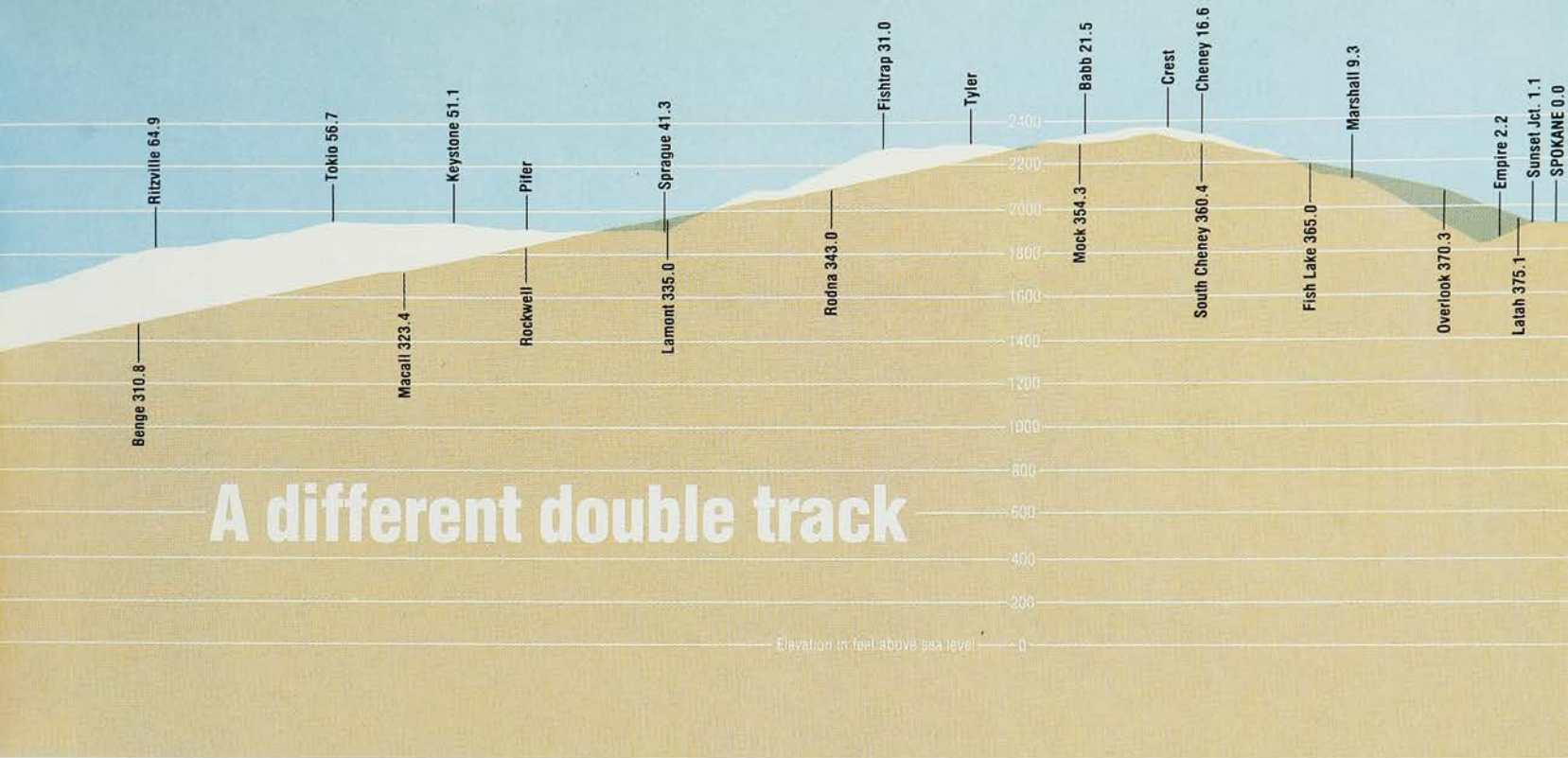


Four photos, Bruce Kelly.



PASCO hump and yard favorites: SD9's are six-

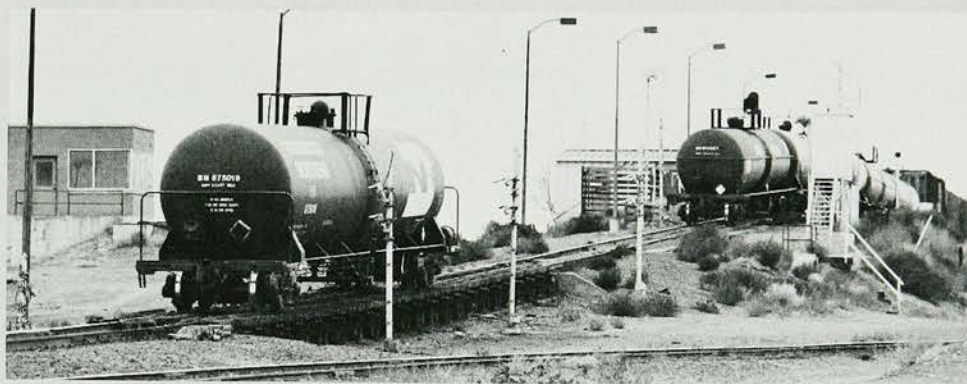
FRED HAMILTON, signal maintainer, says Pasco yard's 1950's electronics still do the job.



A different double track

Elevation in feet above sea level

a shuffle. For trains 100, 208, and 228, Pasco is the launch point. SD9's build 'em in the yard, and SD40-2's, cabless B30-7A's, and GP50's haul 'em east up the 1st Sub to Spokane, thence on to Chicago, Northtown (Minneapolis), and Laurel, Mont., respectively. Eight miles out of Pasco, roughly 5 miles from the main yard, 1st Sub east-bounds exit the APB (Automatic Permissive Block) territory and enter the realm of 1 per cent grades and 6-degree curves, upper-quadrant semaphores and solar-powered tri-light signals—the ABS-controlled 1st Sub.



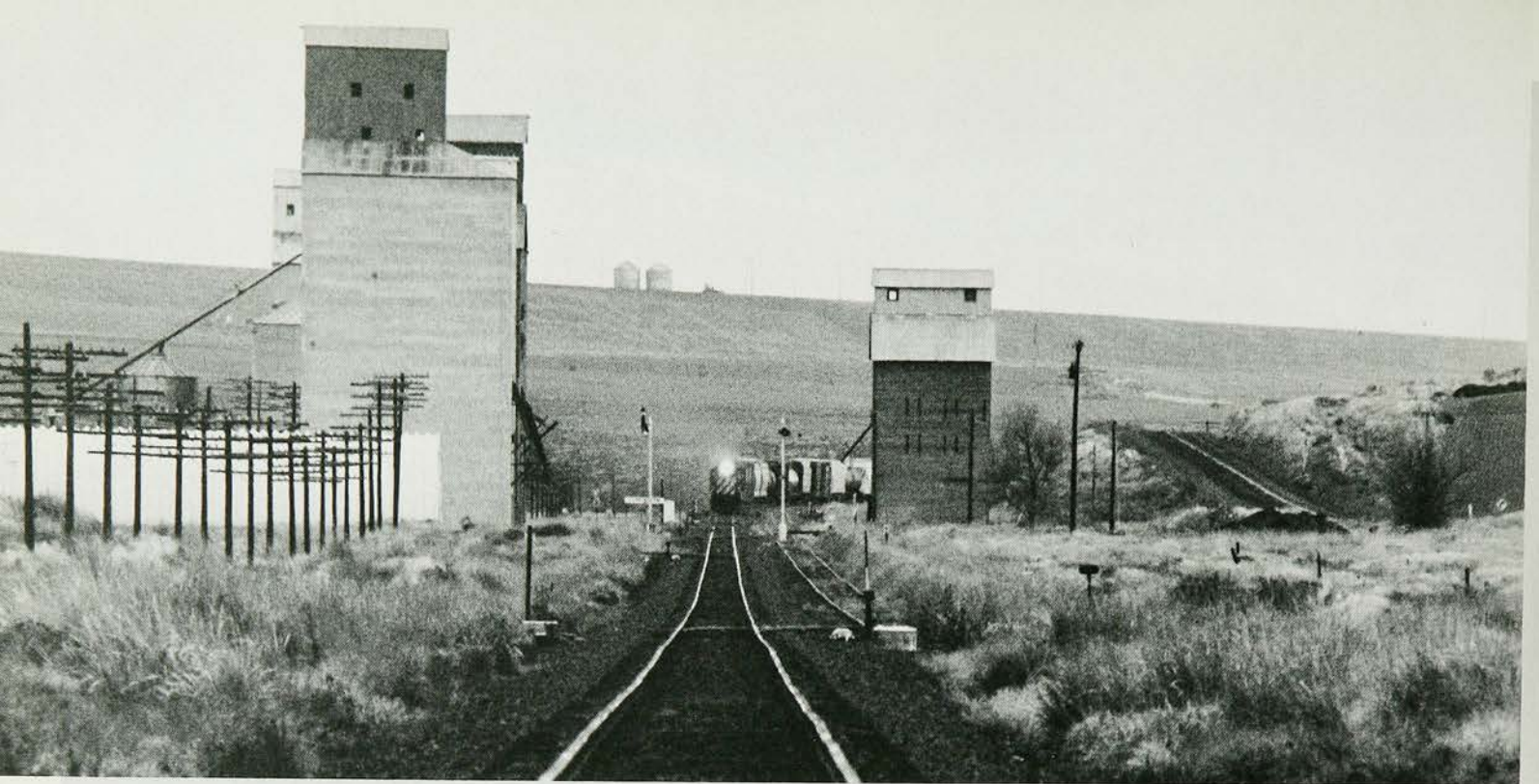
DATING from 1955, Pasco hump sorts cars for most everything except intermodal trains.



motor, but avoid horsepower and fuel-consumption overkill.



EMPTY grain train splits blades at Glade, whose west switch has been relocated.



Five photos, Bruce Kelly.

EXTRA 8057 EAST rounds curve into Cunningham, Wash., to pass unused grain elevators and begin 1-per-cent climb to Providence.



SD40-2's are down to crawl at 3 p.m. on curve at Milepost 90 approaching 1549-foot crest of Providence hill (above); No. 100 heads east in early morning at MP 105 near Connell (below).

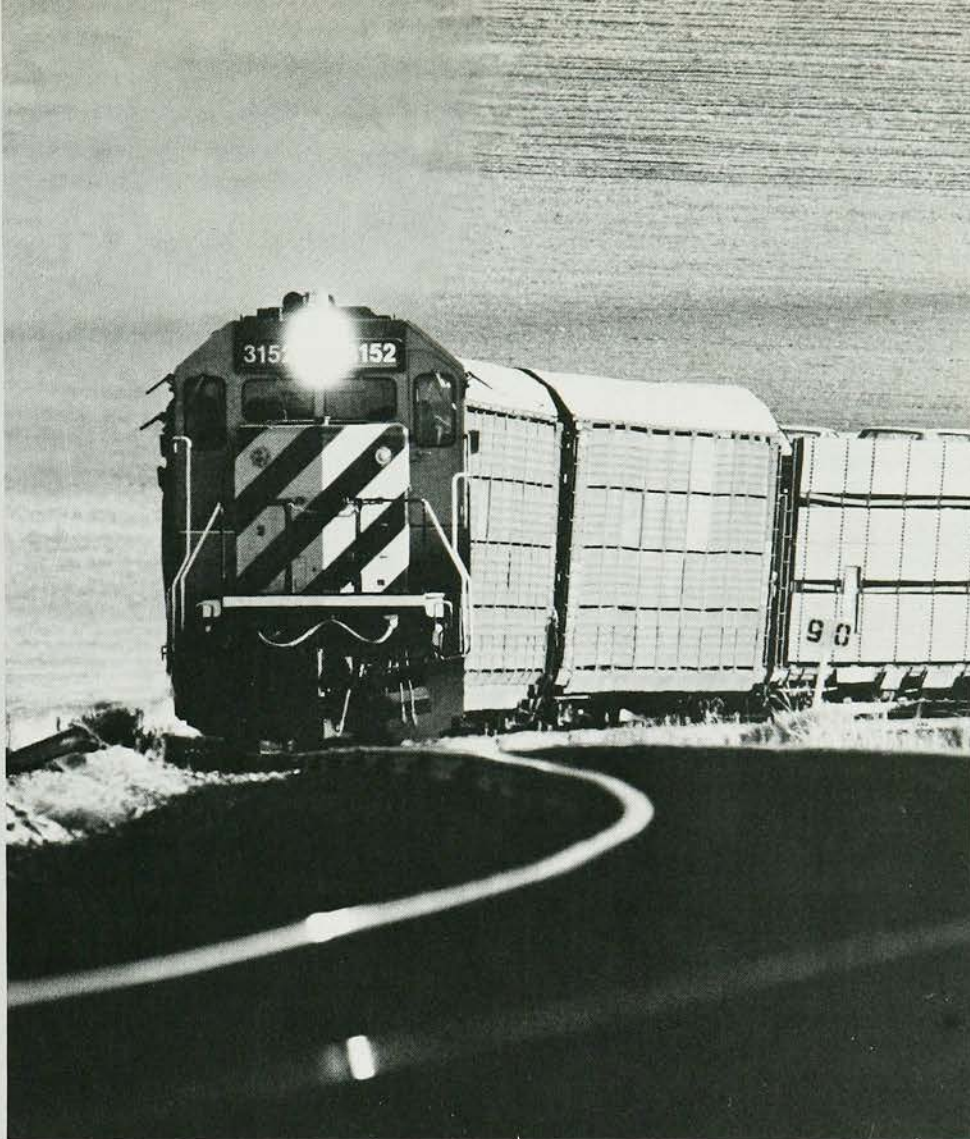
Coulees to climb

When the Pacific Northwest emerged from the Ice Age, an enormous body of glacial ice which had dammed the flow of rivers out of what is now western Montana began to melt, unleashing a flood that raced across northern Idaho, then fanned out over eastern Washington's vast lava fields, eroding a network of waterways—now called coulees—into the volcanic rock. In His mastery of the elements, God somehow prepared a way for the Northern Pacific's crossing of the Columbia Plateau. Between Mesa and Two Wells (now called Hatton), NP





AT 5:24 a.m., May 19, 1986, Amtrak 27 disturbs sunrise silence at Providence (above); at 2 p.m., November 1, GP50's draw 2nd 100 around the 6-degree curve at MP 90 (right).



rolled out its trail of steel congruent with the sandy channels of the Esquatzel and Providence coulees. Crisscrossing the coulees dozens of times, NP graders saw fit to construct stone and masonry abutments capable of withstanding a century of flash floods.

Only inches above the high-water mark, today's eastbounds tread every which way but lightly upon the 132-lb. and 115-lb. rails as they claw at the 0.9 per cent between Connell (originally called Palouse Junction when NP operated a branch east to Hooper to tap the wheat fields of the Palouse, a line eventually sold to and abandoned by UP) and Hatton. Hundred-car trains of empty grain hoppers tug at the drawbar like coal loads when the assigned road power is a mere pair of 3000 h.p. SD40-2's. Super-elevated curves and flange lubricators help alleviate the friction of 800 steel wheels trying to keep up with the locomotives through near-constant 6-degree curvature. In observing the spattered coat of excess flange grease that stains the right-of-way eastward near Milepost 101, one can only imagine the by-products of combustion that have been spewed upon this landscape since 1898: faint traces of diesel oil on the rails and ties, and pockets of lignite cinders in the sage-covered hills.

One aspect of the NP's glory years has survived the sweeping technological changes brought on by BN—between Pasco and Providence, upper-quadrant semaphores still set the pace

on the 1st Sub's ABS trackage. East of Providence, the more contemporary (1970's) solar-powered tri-light signals predominate, yet even they are outdated enough to require replacement by newer models as BN continues to upgrade the 1st Sub. When the last sections of CTC signalling are installed in late 1987, the remaining semaphores will finally come down. In these days of cabooseless trains and jobless trainmen, it should be noted that when NP initially fitted its Pasco-to-Cheney trackage with ABS in 1923, five sidings were pulled up and 16 operators' jobs were eliminated.

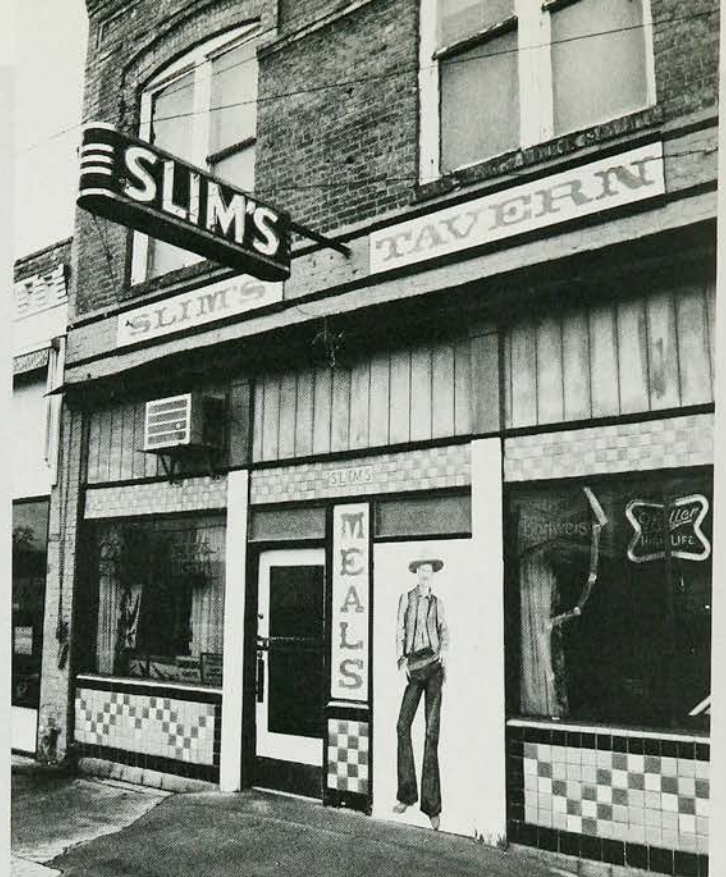
The 80-year-old, 85-lb. jointed rails of Providence siding are in no shape to handle normal tonnage freights, but 8 miles to the west, the siding at Cunningham has been lengthened and beefed up with 116-lb. continuous welded rail. When the bidirectional CTC traffic begins on BN's 1st Sub, heavy eastbounds will be throttling hard out of Cunningham after meets; the climb to Providence averages 1 per cent. For now, the eastbounds come booming out of the coulees in Run 8, hitting the Providence grade with all the speed

possible. By the time general freights 100 and 120 round the big curve below Milepost 90, they're usually making 15 mph at best, despite the decrease of gradient to 0.9 per cent. In the cut at Milepost 90, trains 100, 120, and others straddle the 1549-foot-elevation summit (1157 feet above Pasco) and engineers gradually shift their road units' traction motors into dynamic braking for the 7-mile, 0.6 per cent drop to Lind. Except for the 6-mile descent of Marshall Canyon near Spokane, the downhill grade between Providence and Lind is the only stretch on the 1st Sub where eastbounds accelerate at the expense of brakeshoes rather than fuel. For Amtrak 27, the westbound *Empire Builder* Spokane-Portland section, it's quite another story. Nary a day dawns on Providence Hill without the boom-box sound of a lone F40PH toting three or four Superliners up from Lind through the 6-degree reverse curves. And when the *Builder* starts down the coulees, it's assured a clear track to Pasco. Freight engineers and the Wishram East Dispatcher try not to delay 1027 (as it's known to BN) on its trek to Portland.



Bruce Kelly.

FEW TRAVELERS heed the invitation of Lind (pop. 567) to make the 2½-mile detour off Highway 375; if they do get to "downtown," they'll find BN's 1st Sub main, Slim's Tavern, a grocery, and not much else.



Bruce Kelly.

Lind's Milwaukee memories

Lind: 1372 feet above sea level, Milepost 82 on BN's 1st Subdivision, Portland Division. The *Empire Builder* sails through by night—eastbound at 10:03 p.m., westbound at 2:42 a.m. Situated in a low-lying hollow (rails climb out of town on 0.6 per cent westward, 1 per cent eastward), Lind will be a good place for meets when the two-way action starts. Forgetting the railroad, Lind is a minor crossroads where farmers can buy their groceries and swig a drink on the same block. Very few travelers on Highway 395 take the 2½-

mile detour into "town"—not much to see except abandoned gas stations, rustic shops, and an interesting contradiction: disused grain elevators standing tall above a farm machinery sales lot . . . shiny new tractors that will never plow an acre.

Lind: Another hundred feet above sea level, 35.4 miles east of Othello on what was Chicago, Milwaukee, St. Paul & Pacific's never-electrified 3rd Subdivision, Coast Division. Weed-covered roadbed reaches out east and west. It's hard to imagine that less

than a decade ago, SD40-2's and heavy freights trod here. West of Lind, the pillars and abutments of the Milwaukee's viaduct across the former NP line look more like the ruins of some Greek or Roman coliseum. When the Milwaukee Road evacuated Washington state, some of the luckier Lines West employees signed on with Burlington Northern. Surely they're the ones who today, in passing Milepost 83, gaze out solemnly from the cabs of safety-striped GP50's and bow their heads in remembrance of a fallen orange-and-black flag.



Harley Kuehl.

ABOVE Lind is the old Milwaukee right of way; to the west, run-through MILW SD's on BN 100 relive old times at 6:50 p.m., October 27, 1986.

Run 8 to Ritzville

Eastward from MP 83, the green road engines are notched back up to full throttle for the 17-mile climb from Lind (elevation 1372 feet) to Ritzville (1824 feet). Though the 7.7 miles from Lind to Paha appear straight and featureless when viewed from Highway 395, a closer inspection at trackside reveals the 1st Sub's roller-coaster profile—what the engineering department calls *vertical curvature*. Throw in an average incline of 0.7 per cent, plus a few stabs of 1 per cent, and even the best of BN's hoppers must confine their undivided attention to matters of trailing tonnage, horsepower-per-ton ratios, and miles per hour. Between Paha and Ritzville, the gradients remain the same while the curvature becomes a more lateral situation, with flanges heating up on the 3-degree kinks.

Much of eastern Washington was a barren, dry, good-for-nothing wasteland when NP first laid tracks here. Reported one East Coast journalist: "The colonists in that region would need a Moses at every mile-post to smite the black, ugly rocks with his rod and make the water gush over all the parched land." During a midsummer reconnaissance north of Crab Creek with the NP's Northern Transcontinental Survey, scientist E. W. Hilgard noticed that wild ryegrass grew more abundantly from soil that had been burrowed by moles. Through careful tilling of the land, combined with irrigation and tougher hybrids of wheat and lentils, early landowners who had bought literally dirt-cheap spreads alongside the railroad's right-of-way not only multiplied their property's value, but sparked the land boom of 1888. Phil Ritz—a stockman residing along upper Cow Creek—traveled clear to Walla Walla to recruit settlers for his up-and-coming region. When the dust cleared in 1902, Ritzville marketed 2 million bushels of wheat a year.

Grain elevators in Ritzville and outlying areas aren't filling too many rail cars anymore, but the NP-built brick depot looks able to serve another century. Ritzville's citizens need not be reminded of the permanence of BN's 1st Sub rails which bisect their town. Almost prophetic—and luckily without serious injury—was the derailment of train 100 on September 27, 1986. Prophetic because in blocking the 1st Sub with 21 jackknifed cars, 100's mishap forced BN to run all Pasco-to-Spokane trains on the High Line, an alternative that won't be available after the 1st Sub's CTC goes to work this year.



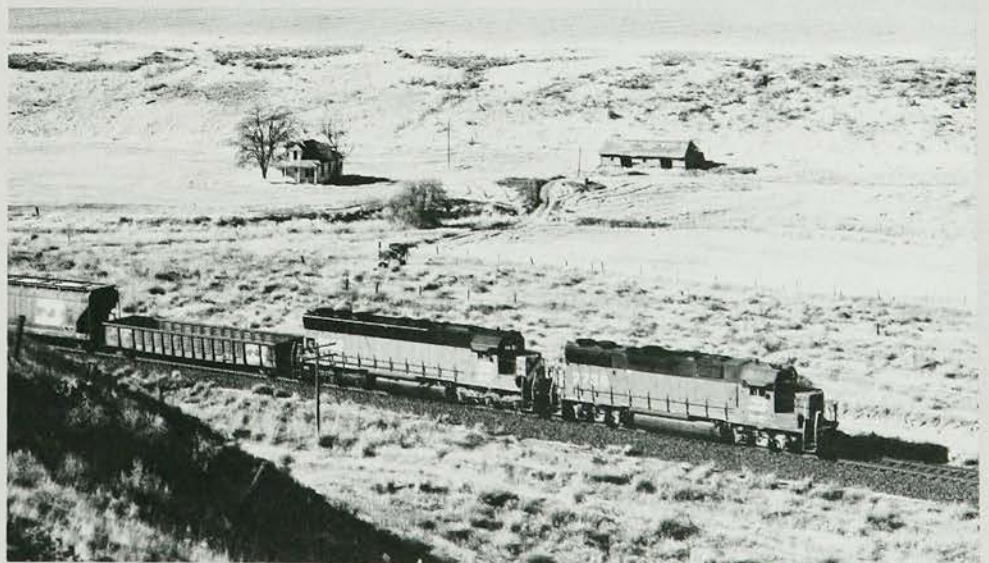
Fred M. Simon.

QUARTET of SD40-2's sail past the typical-NP Ritzville depot April 12, 1985, with train 120.



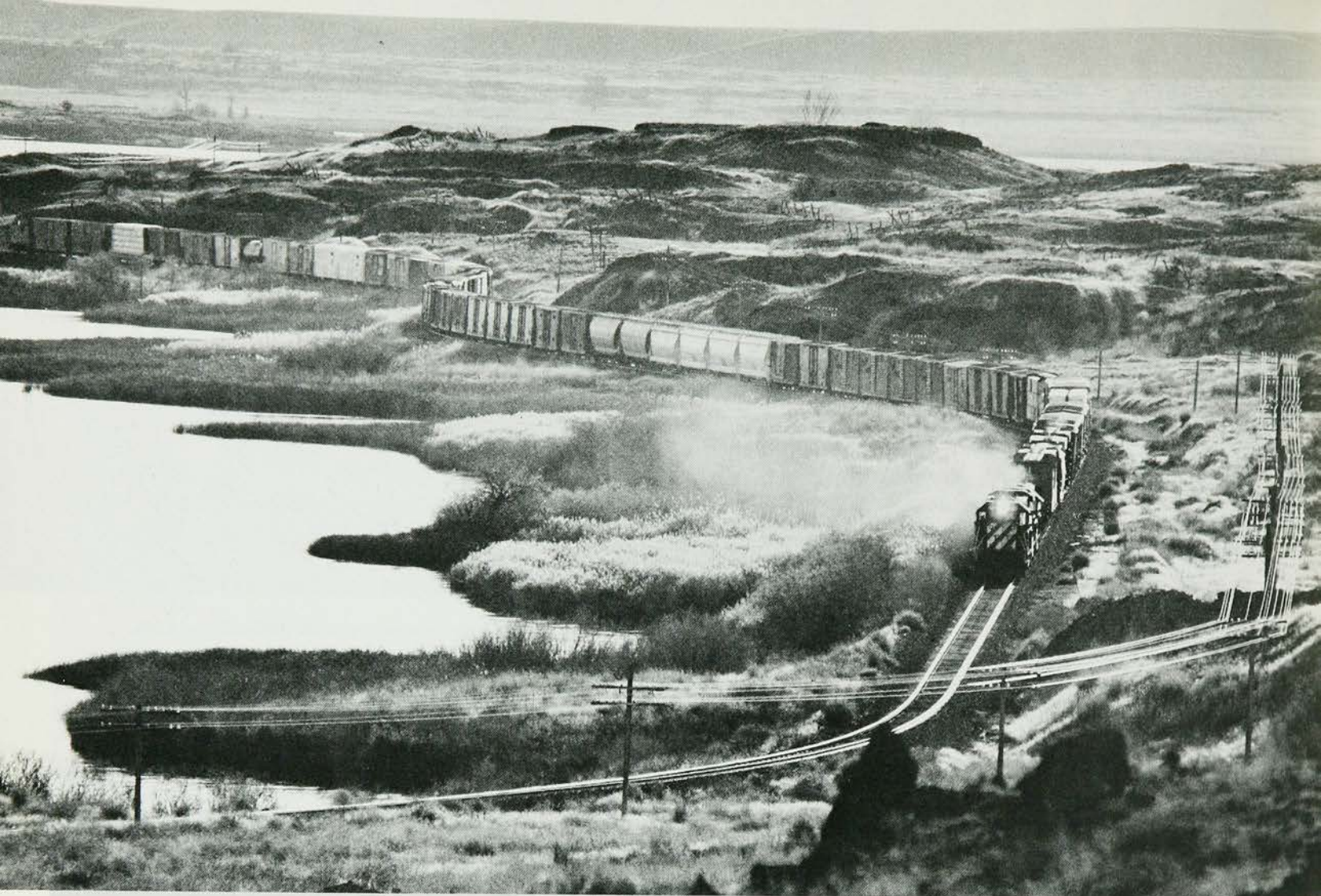
Bruce Kelly.

RUN 8: Solar-powered tri-light signals greet G3DPS on 1-mile, 1-per-cent climb at MP 78.



Bruce Kelly.

EAST of Paha, 208's GP39-2/SD45 pass abandoned farm, a legacy of Columbia Plateau boom.



Bruce Kelly.

SECOND 100 slithers along Sprague Lake between Tokio and Sprague, near the old Dayrock spur, in mid-afternoon of November 8, 1986.

Up from the desert

Along the 1st Sub's 17-mile crossing of Lincoln County, everything is Sprague. Between the old spurs at Pifer and Dayrock, there's the angler's roost of Sprague Lake. At Milepost 41.3 is the Sprague depot and the town proper. And for 10 arduous miles to the east is the 1.06 per cent Sprague-to-Fishtrap grade—otherwise known as Sprague Hill. J. W. Sprague—General Superintendent of NP's Western Division at the turn of the century—would be proud to see his name on so many landmarks. He might not be too enthused with today's town of Sprague, however, for little is left of the community that once hosted NP's division headquarters, a population of 1689 souls, and engine shops considered "the largest and best equipped west of Brainerd, Minn." In 1894, railroad laborers went on strike, and NP temporarily shifted its division HQ to Spokane Falls (now Spokane). One year later, a fire of unknown origin destroyed the Sprague roundhouse, shops,

and 24 locomotives, as well as part of Sprague's business district; more than half of Sprague's townspeople moved on to more promising surroundings.

In 1986, Sprague experienced a minor rebirth of its railroad heritage. Maintenance-of-way tool and dormitory cars became permanent fixtures on the old siding and team track, and cross-ties, track parts, and signal hardware were stockpiled for the ongoing improvements taking place to the west (new, longer Sprague siding) and east (new signals and tie renewal) of MP 41.3. At first glance, the new solar powered tri-light signals being planted on Sprague Hill seem identical to their predecessors installed in the 1970's, but the modern versions utilize the latest in photovoltaic technology—pulling more sunlight than before (when the sun is shining, that is) to maintain the charge in trackside battery bunkers. Also, as a cost-cutting measure, lenses are directed both east and west from a single mast. With the dawn of CTC less than a year away, the new signals function now as approach-lit Automatic Block Signals—as restrained from their

high-tech capabilities as the new microwave antennas rising up on hilltops from Marshall to Pasco. When it's all wired together, the Wishram East Dispatcher in Seattle will be spared the humility of asking 1st Sub mainline trains where they are and how fast they're going.

TRAIN 92 splits downtown Sprague, which enjoyed revival with 1st Sub MofW forces.

Bruce Kelly.





Fred M. Simon.

AT Marshall June 10, 1986, No. 100, with three SD40-2's and a B30-7A, juxtaposes with the two SD40-2's and SD45 on counterpart 101.

Marshall Canyon's other side

"Train number two calling the Spokane Relay."

"Spokane Relay answering number two."

"Yeah, this is number two; we'd like permission to enter the APB at Cheney."

(Pause)

"Spokane Relay to number two, the Extra Thirty-one Fifty-nine East . . . you have permission to enter APB territory at Cheney, and run to Marshall—train ahead . . . Over"

No. 2's engineer repeats the radio authorization, and the conversation ends with "Spokane Relay out." Now the priority consist of eastbound trailers and containers passes the almost imperceptible crest at Mileage 17.8, the 1st Sub's 2369-foot summit. Soon there's Cheney, 2343 feet above sea level, where F-unit and Geep helpers used to uncouple from heavy westbounds in the pre-OPEC years when NP and BN could afford to drag lumber and grain traffic up and down the 1 per cent grades. Now it's merely a place to park MofW equipment and empty hoppers. After Cheney begins the descent of Marshall Canyon: 1 per cent from Cheney to Marshall through signal territory classified Automatic Permissive Block, or APB, and 1.2 per cent from Marshall to Empire. Why the *permissive* element? In addition to the sporadic parade of trains 2, 92, 100, 120, 208, 228, and 672—plus any number of eastbound empty grain symbols—there are three Spokane-based locals which run west up Marshall Canyon, against the current of traffic, in their regular duties. Originating at the Yardley and Parkwater facilities in Spokane, these are the "Hi Ball," which leaves the 1st Sub main at Marshall to do business on the 86-mile Moscow Branch; the "Babb" or "Cheney

Switcher," which pulls Portland-bound grain loads (brought in off the branch by the Hi Ball) from Marshall and shuttles them through the old SP&S/NP crossover to Scribner, where High Line westbounds make the final pickup—customer spurs at Cheney are also a part of the daily repertoire; and then finally, the "C.W.," which makes a two-day round trip on the 109-mile branch out of Cheney to Creston, Wilbur, and Coulee City. In its previous form, the NP's Washington Central branch extended south from Coulee City to Adrian, Wheeler, and Warden and rejoined the main line at Connell.

Who would have predicted that in 1986, a new outfit called the Washington Central would propose to buy the remaining trackage west of Connell from BN?

Double track was installed between Marshall and Spokane in 1910 as part of a systemwide attempt to ease goods shipment. To the crews of today's fast intermodal trains, the only vestige of Marshall Canyon's old double main (the second track was removed by BN in the late 1970's) is an empty grade shouldering the north side of the 1st Sub rails, blurring by at 65 mph. CTC signals and the authority of BN's Boyer West Dispatcher take hold east of Marshall as the metropolis of Spokane draws near.

WEST of Marshall, local with GP38 and three GP9's rounds curve at 1:10 p.m., September 11.

Bruce Kelly.





Fred M. Simon.

IN 1980, helpers were in vogue, as this cab view at Empire attests. For 1st Sub eastbounds, Empire gives last brief taste of 1-per-cent style.

Railroad Avenue

Just west of Milepost 3 (from Spokane depot), the 1.2 per cent descent from Marshall Canyon bottoms out for the quick hop over Hangman Creek and angles upward again to a final, brief taste of the 1st Sub's 1 per cent style; the whine of dynamic brakes se-gues into the throbbing cadence of fully-throttled V-16 power plants. Upward they go along Empire siding, where excess grain empties are stored when Yardley's meager holding tracks are full (empties or not, abundant hand brakes are tied down for respect of the grade). Upward across Interstate 90,

still climbing 1 per cent as the rails across Latah Creek Bridge swing in from the left on a 0.8 per cent descending grade. Latah is used by 3rd Subdivision westbounds and Seattle-Spokane traffic, and the lines converge and level off at Sunset Junction, where the 1st Subdivision, Portland Division ends, and the 6th Subdivision, Spokane Division begins (specifically, the 6th Sub begins at Latah Junction, 0.8 miles west of Sunset Junction across Latah Creek Bridge; 1st Sub eastbounds make the divisional change at Sunset Junction).

Out of Sunset Junction, eastbounds would call UP Tower (BN Tower to the UP), the structure guarding

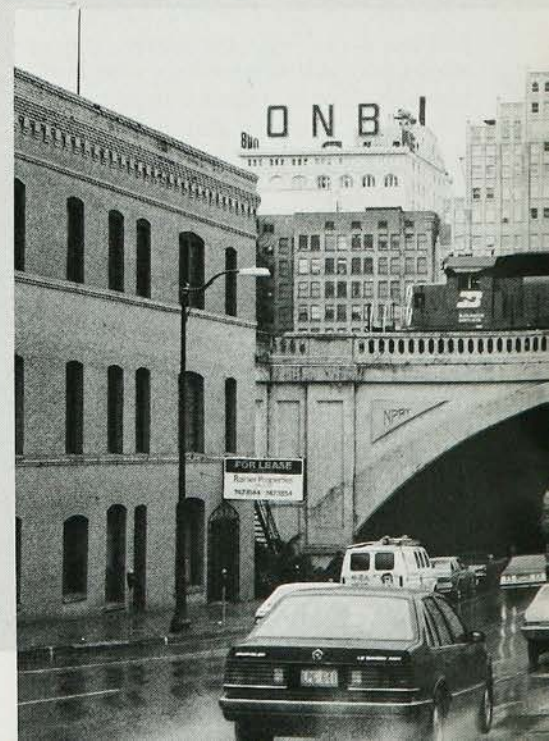
the crossing of UP and its subsidiary Spokane International with BN, advising the operator of their approach through the city. But the interlocking tower fell victim to remote-control, and was razed in early April 1987.

For the remaining mile to Spokane depot, and nearly another mile beyond, eastbounds off the 1st Sub pass above busy city streets and between skyscrapers and warehouses on an elevated corridor completed by NP in 1917. At the turn of the century, street-level switching of yards and factories in downtown Spokane was so prolific that crossing guards were assigned at every grade crossing, reaching out from their tiny watchtowers to lower gates and ring



Bruce Kelly.

EASTBOUND lumber drag on 1-per-cent climb enters Spokane Division at Sunset Junction (above); west of Amtrak station, train 13 crosses Washington Street on 1915 viaduct (right).





Bruce Kelly.

SPOKANE NP (Amtrak) station, Milepost 0, sees post-midnight *Builder* combination.

bells for the continual passage of trains and switch engines. "Railroad Avenue," they called it, with a great sense of dread. Spokane grew from a population of 400 in 1882 to 105,000 in 1911 (and shortened its name from Spokane Falls), and the growth prompted a city ordinance that required NP to raise its 4½ miles of city trackage. When NP announced its plan for the \$2½-million project, downtown industries filed suit on the grounds that the grade elevation would require expensive alterations to their loading facilities. Some trestles were already in place by 1913 when a court injunction halted construction, but by the summer of 1915, most of the suits were settled with the railroad's pledge to raise factory loading docks at no charge as the separation progressed. Chief Engineer W. L. Darling ordered minimum street clearances of 12 to 14 feet for the 17 overpasses, and upon completion in 1917,

Bruce Kelly.

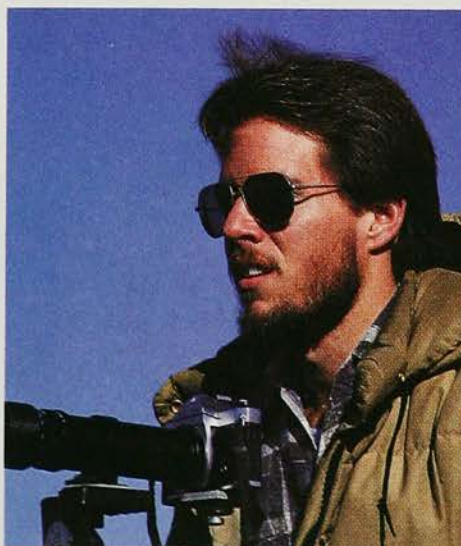
750,000 cubic yards of fill, 150,000 barrels of cement (for the retaining walls, which still divide the city on an east-west axis), and nearly \$4 million had been poured into the viaduct, wide enough for up to six tracks, and stretching from the shoulder of Hangman Hill at Sunset Junction to the Erie Street Yard.

The former NP Spokane station, Milepost 0, is the midnight haunt of Amtrak's *Empire Builder*. By the book, No. 28 from Portland (1028 in the BN timetable—BN changed Amtrak numbers to avoid confusion with its own single-digit TOFC/COFC trains) arrives at 11:40 p.m., followed 10 minutes later by No. 8 (1008) from Seattle. The two depart as No. 8 at 12:25 a.m. Westbound No. 7 (1007) sometimes has trouble keeping its advertised time of 12:35 a.m., especially in a hard winter, when the weather can take its toll on the long haul across North Dakota and

Montana. Even as the Superliners are switched into Nos. 7 and 27 (customarily, the train comes in with both sleepers on the rear and must be rearranged, as opposed to merely split up as happens at Salt Lake City with the *California Zephyr*), daily eastbound freights numbered from 2 to 672 will sail past the depot before filing into Yardley for a change of crews, plus the addition of occupied cabooses (still required by Montana law). On occasion, they pass their odd-numbered counterparts which are just leaving for the High Line trek to Pasco and Portland.

In its quest for higher profits and fewer expenses, Burlington Northern's corporate core is eager to be rid of difficult-to-maintain, nonproductive routes such as the High Line. Whether or not the 1st Sub will prove worthy of all its high-tech, big-dollar improvements remains to be seen. Western train-watchers probably won't rush to the 1 per cent grades in any greater numbers after the Wishram East Dispatcher's CTC panel comes on. BN engineers and conductors and track workers residing in eastern Washington ought to be smiling, though . . . the ones blessed enough to be spared the axe of a recession, anyway. For them, the 1st Sub is a lifeline. An ugly dependence perhaps, but in the end they'll see that this is progress for sure. 1

ACKNOWLEDGMENTS—Burlington Northern: Les Bahls, Bobby Brooks, Ralph Knutson, Cruz Nicacio, John Scharff, Katon Serafine, Robin Willis, Fred Hamilton, the Parkwater roundhouse staff (for copies of the latest lineups), the Pasco Yard tower staff, and engine and caboose crews for their encouraging waves and air-horn salutes; Union Pacific: Harley Kuehl; *CTC Board*: Fred Simon, BN news editor; and Brian Rutherford, who scoured the Stanford University library for the elusive SP&S and NP grade profiles.



Self-portrait on Sprague Hill.

BRUCE KELLY, 24, was born in Great Falls, Mont., lived in Spokane until 1969, moved to California with his family until they returned north, to Coeur d'Alene, Ida., in 1984, where "after years of suburban life, it's nice to sleep at night with only the sound of the wind or dogs barking." With college credit toward a degree in photography, he has worked for labs, as a commercial photographer, and as a reproduction cameraman. His work has appeared in most popular rail magazines. He misses California railroading (most of the photos with Randall Caprine's *SP Beaumont Hill* article "The Hill" in February 1985 *TRAINS* were his) but is content with BN and "the endless rail photographic possibilities of the northwest."