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# AM OUT OF SCRANTON

Locomotives of the road that burned what it blurred

ROBERT A. LE MASSENA

*WHAT does the late Delaware, Lackawanna & Western's name evoke for you in 1965? Anthracite, of course, for hard coal was what its original ancestor of 1851 was built to transport. Miss Phoebe Snow, of course, for she was the fictional miss in white coined in 1904 by the publicists to spread the word that Lackawanna's anthracite-burning engines "took the 'sin' out of cinders." Mountains, of course, for everyone knows that DL&W's 4-8-4's were named Poconos after the gradients they were built to conquer. Yet perchance the Lackawanna's chief claim to fame among train-watchers was the size of the locomotives it rostered in view of its fewer than 1000 route-miles. What follows is the why and wherefore of that motive power after 1900, the year in which a new management slate elected to upgrade DL&W from a bucolic wanderer into a heavy-duty coal hauler . . . of the big power and big profits that transformation produced . . . and of, alas, the season when locomotives, no matter how immense, could no longer lift the system out of a dilemma that was beyond the therapy of tractive force:*

I THIS growing-up process did not occur overnight, but took time and money, in copious amounts. The stupendous Lackawanna Cutoff in northwestern New Jersey substituted 28 miles of dream railroad for 40 miles of meandering trackage. Two and one-half years of construction and 11 mil-

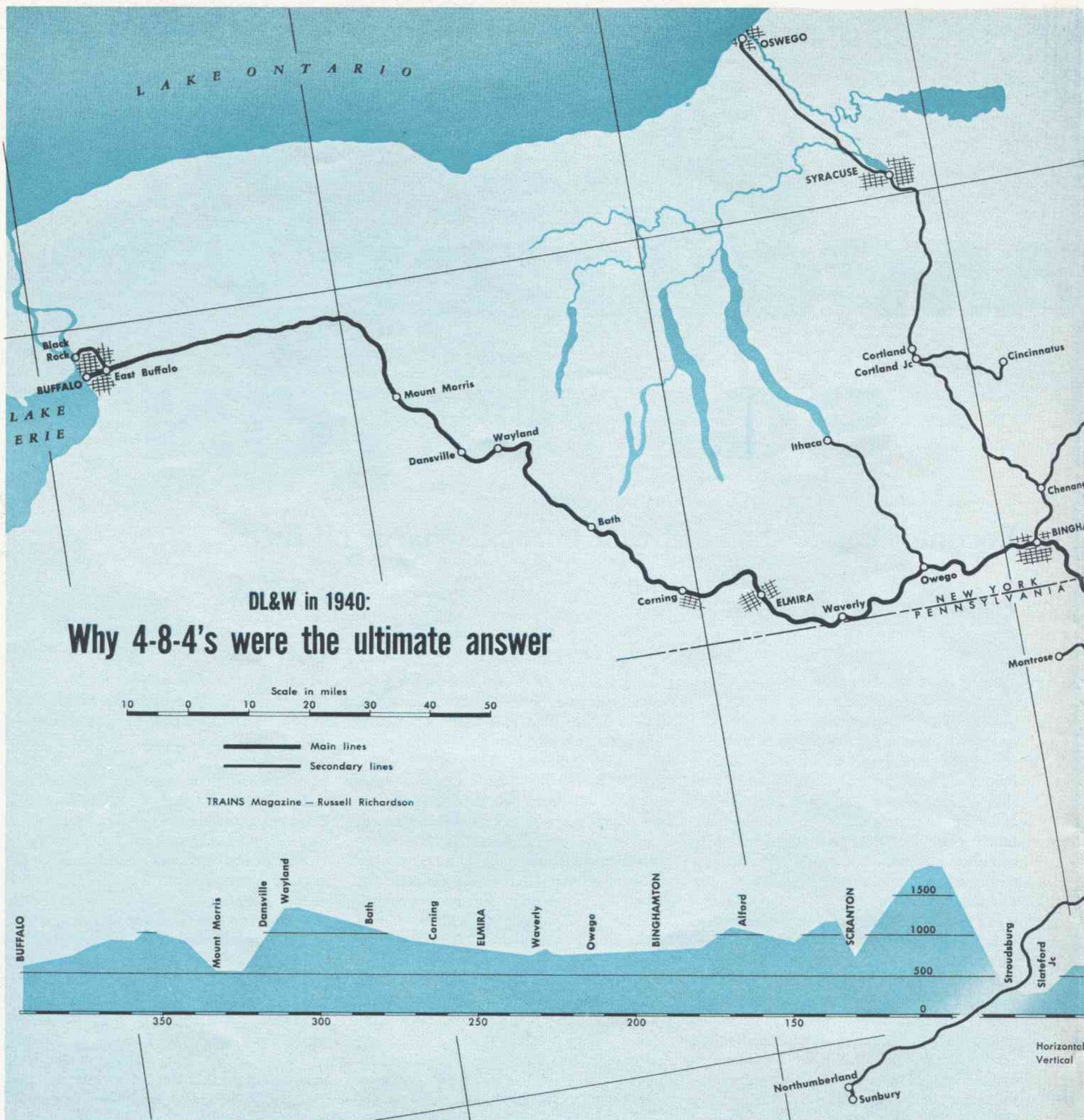
lion dollars were required before the first train ran over it on Christmas Eve of 1911. The railroad's operating department could not have wished for any other present. The road's engineering forces had wasted no time and had been at work for a month on the Nicholson Cutoff north of Scranton. Cost of the cutoff when it was completed some three years hence would come to about 12 million dollars, for which the DL&W would gain another 35 miles of exquisite railroad and abandon 39 miles of tortuous profile and alignment. Traffic growth dictated these expenditures to improve operating efficiency, and motive power as well as track experienced the salutary effects of money.

Early in the summer of 1911 Schenectady delivered the Lackawanna's last 4-4-0, 0-6-0, 2-6-0, and 2-8-0 types, after having built the last 4-6-0's only a year earlier. At this time only two other wheel arrangements graced the simple roster: squat 0-8-0's for freight switching; and some lumbering 4-8-0's used as helpers on the grades near Scranton. A great many of these 436 engines had their cabs perched atop the boiler, ahead of the wide firebox—a design characteristic of locomotives built for the anthracite railroads. Little imagination is needed to visualize the swarms of Americans scurrying along with their commuter trains in suburban New Jersey, or perhaps in fewer numbers on the branches, ambling

leisurely with the daily accommodation trains. The multitude of Moguls, big for their day, pulled the merchandise which accounted for better than half of the railroad's freight traffic. Consolidations in droves worked the mine runs and boosted coal out of the Susquehanna valley. Ten-Wheelers hauled the limiteds.

The dozen express trains had been getting heavier, not so much from any great increase in customers as from the growing use of all-steel equipment in their consists. The Ten-Wheelers were having difficulty maintaining schedules, and doubleheading was more the rule than the exception. Scranton, down in its hole between the ridges, was the hub of ceaseless activity. Not only did it have the sprawling railroad shops and an engine terminal servicing the motive power of three divisions, but it was the major coal distribution point. The volume of smoke generated must have been sufficient to cause local residents to believe that the sun was in eternal eclipse.

These were days of prosperity and affluence. The DL&W was as rich as Croesus and spent money for capital improvements as though it were going out of style. Two Vanderbilts and two Rockefellers sat on the Board of Managers to guide the destinies of one of their private gold mines. With 930.7 miles of route stretching from the hard-coal fields of eastern Pennsylvania to New York City, Utica, Os-



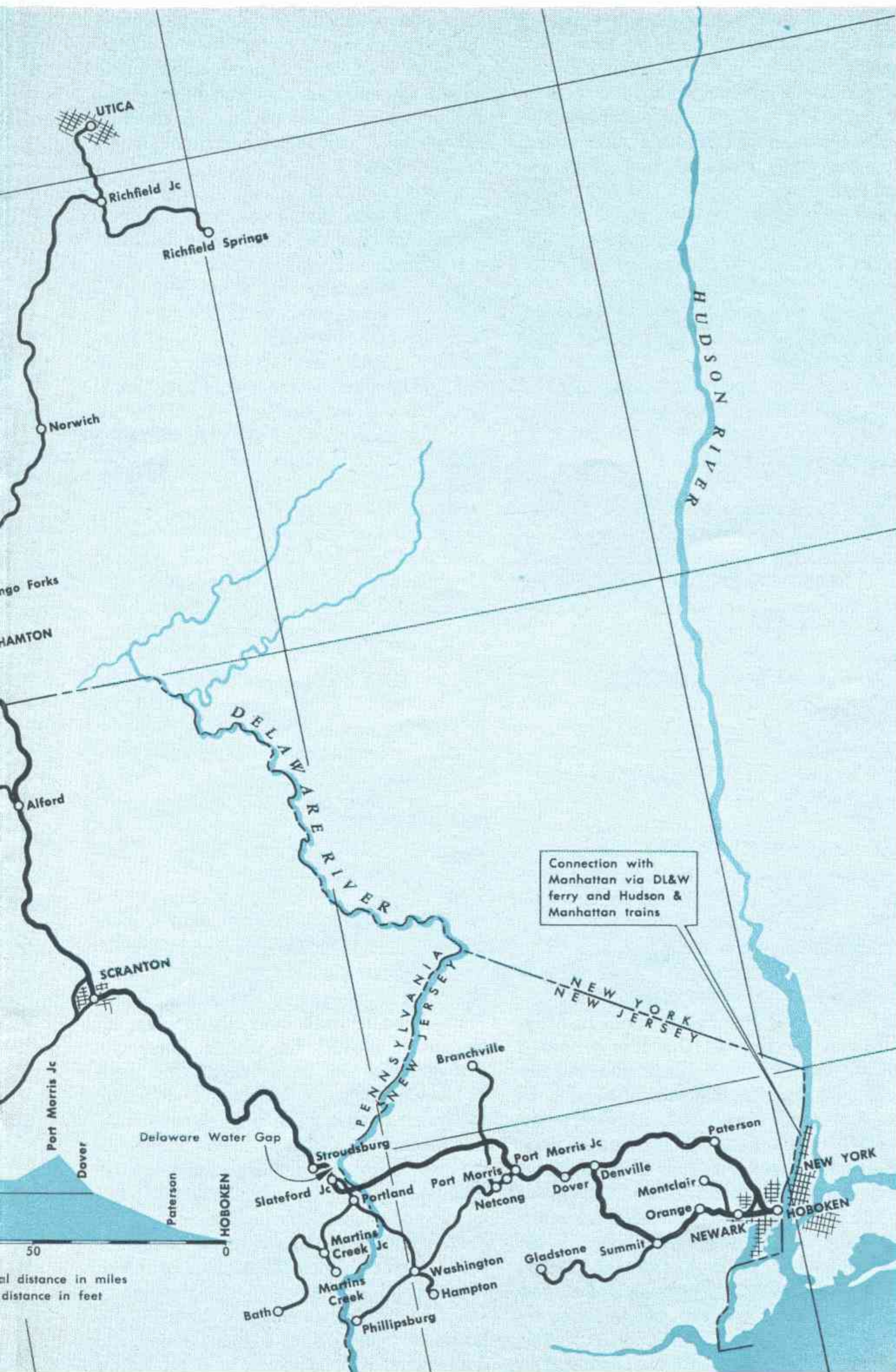
wego, and Buffalo in New York, the Lackawanna was earning 33 per cent on its investment. Passenger trains were making \$1.63 per mile despite the 20-mile average trip and a 1.5-cent average rate because of the heavy New York City commuter traffic. Freight netted \$4.19 per train-mile with a 175-mile average movement at  $\frac{3}{4}$  cent per ton-mile. Ten per cent regular and 10 per cent extra dividends had been paid on the stock since 1905, and the stock's price had touched \$600 a share. The market for DL&W

securities was so good that the Nicholson Cutoff would be paid for with new stock. The stock of the just completed Lackawanna Cutoff had been given to Lackawanna stockholders for their 1911 Christmas in lieu of the customary extra dividend. In June of 1912, into a world of apparently limitless prosperity, 7 polished Pacifics and 15 mighty Mikados built at Schenectady came to work on the railroad which called Scranton home.

If one overlooks the *Luzerne*, the nation's first 2-6-2, which had been

rebuilt from an ancient 0-8-0, and the *Comet*, a 4-2-2 inspection locomotive built by the Scranton shops, the new 4-6-2's and 2-8-2's were the first Lackawanna engines to have trailing trucks. Except for switchers, all of the railroad's new steam power would be so constructed in the future.

This new power was big. The dimensions of the Pacifics—25 x 28-inch cylinders, 73-inch drivers, 200-pounds-per-square-inch pressure, and 40,700-pound tractive effort—were identical to those of the light USRA loco-



motive of 1919. The design of the Mikados was close to that of the heavy USRA 2-8-2 — 28 x 32-inch cylinders, 63-inch drivers, 180 pounds per square inch in the boiler, and 56,200 pounds of pull. If anything, Lackawanna power was in the foremost ranks of the field. Accompanying these 22 locomotives were 6 eight-wheel switchers, the first locomotives to be built by Lima for the DL&W.

As rapidly as the Pacifics were readied for service, they replaced Ten-Wheelers on the expresses be-

tween Scranton and Hoboken, N. J. Although the schedules were not improved, at least the trains operated closer to schedule, and a substantial amount of doubleheading was eliminated. The engines thus relieved were put to work west of Scranton where they would not have to fight the steep grades east of town. The Mikados tackled the 1½ per cent grades which ascended the flanks of the Pocono Mountains separating the Susquehanna and Delaware rivers. These 51 rugged miles between Scran-

ton and East Stroudsburg, Pa., were the direct and immutable cause of doubleheading and triple-pushing of coal drags over the hump, and the operating people were anxious to see what the new power could do. The displaced Consolidations now worked mine runs, but very few locomotives found themselves permanently out of work. Freight traffic in 1912 was running more than 1 million tons ahead of that of 1911.

Estimates for 1913 tonnage were up another 3 million tons, and Lackawanna management placed five orders for more power — one with Rogers, three with Schenectady, and one with its own Scranton shops. In May the 29 locomotives began to arrive: twelve 2-8-2's, six 0-8-0's, three more 4-6-2's, seven 4-6-2's with only 69-inch drivers for merchandise trains, and a tiny 0-4-0T for shop movements. Like the locomotives built in 1912, these machines adhered to standards which were to persist to the last days of steam — 25 x 28-inch passenger cylinders, 28 x 32-inch freight cylinders, and 200 pounds boiler pressure. These dimensions stood the test year after year, and exceptions were negligible.

So well did the Lackawanna like the economies and performance of the new locomotives, particularly of the low-drivered 4-6-2's which replaced Moguls on the fast freights, that it ordered more of them in 1914, in the face of a 2-million-ton traffic decline. Again scrapping failed to equal the number of acquisitions; perhaps someone was contemplating the possible effects of the European war. During this year Lima built 14 low-wheeled Pacifics, one with a special watertube arrangement in the firebox designed by S. S. Riegel, Lackawanna's mechanical engineer. Schenectady added 4 high-wheel Pacifics, and Scranton produced 6 eight-wheel switchers. (After this order, Lima never again built locomotives for the DL&W.)

A trivial increase in freight traffic during 1915 did not warrant the purchase of additional 2-8-2's or 0-8-0's, but the operating people felt the urge to try a bigger Pacific with 27 x 28-inch cylinders. Schenectady built five of these, one with the Riegel design of firebox. These experimental fireboxes were not successful enough for duplication, and as soon as they needed major repairs conventional ones replaced them, although the engines retained their odd cylinders.

THE "family squabble" in Europe's back yards had spread over much of the civilized world, and even the United States had felt the effects of production for the war abroad in 1916. By fall of that year the Lackawanna was on its way to a record 28.3 million

tons for which it would need 10 more Mikados and 7 more freight Pacifics. Then came a significant change in design policy. For a decade at least, all locomotives would be equipped with Baker motion instead of Walschaerts valve gear. The new 4-6-2's had bigger (70-inch) drivers, and the 2-8-2's added 7000 pounds of tractive effort by a 20-pound increase in pressure. Scranton built a solitary 0-8-0 to help them in the yards. Although war-generated tonnage zoomed to 30.4 million tons in 1917, the Lackawanna was well prepared. Only 5 passenger Pacifics and 9 0-8-0's were needed, from the usual sources. By this time there were enough high-wheeled 4-6-2's to handle all of the expresses east of Scranton; hence this latest group was provided with even larger (79-inch) drivers for high-speed running on the flat territory between Binghamton and Buffalo.

On New Year's Day of 1918, DL&W employees found themselves working for a new boss, the United States Railroad Administration, a somewhat less efficient regime than their own. While freight tonnage remained constant, USRA procedures slowed down train movements. Hurriedly the road added 15 Schenectady Mikados at midyear. Probably the entire problem can be attributed to the almost hopeless congestion at the docks and freight terminals near the port of New York. The USRA's priority and routing orders prevented the prompt unloading of cars when they arrived at the yards feeding the transatlantic steamer piers. Traffic stagnated and cars of vital freight plugged yards a hundred miles from the nearest ocean. Yardmasters became frantic as they tried desperately to sort out the desired cars from the chaos which strangled every movement. It came as no surprise to the operating people that more locomotives were needed to move the same tonnage.

The first of the USRA types, a 2-8-2 for the B&O, steamed out of Alco's Brooks works on July 1, 1918, while the Schenectady plant was still at work on the Lackawanna 2-8-2's. Although other lines in the DL&W's territory received USRA standard locomotives, the Road of Anthracite avoided them, probably more by circumstance than by deliberate intent.

The Armistice in late 1918 signaled a return to more normal traffic patterns; in 1919 traffic was headed for a 7 per cent reduction from the peak of the two previous years. Freight trains were loaded more heavily (860 tons) and the average haul had increased to 186 miles. Both factors averted a shortage of motive power, and these two figures stood as records until the beginning of World War II.

The year 1920 saw no more than a repetition of the pattern for new power. Five 79-inch-drivered Pacifics and fifteen 2-8-2's came from Schenectady. But 1921 yielded three high-water marks unassisted by fire and steam. Freight rates were at 1.43 cents per ton-mile, and the average freight train earned \$10.54 for every mile it rolled. In spite of a decrease in traffic to 24.7 million tons, a rate increase from 1.17 cents boosted train-mile earnings by over \$1. These two records were to stand numerically until 1948, and if one takes inflation into account, they still stand unsurpassed. Passenger rates, averaging 2.2 cents, were at their peak too. In those days only reasonably well-off persons patronized the varnish cars. Everyone else stayed home or hitched Dobbin to the wagon. Surrounded by all of this evidence of prosperity, the Board of Managers, who had sold DL&W's coal properties for 60 million dollars, voted a 100 per cent stock dividend. In many instances such a distribution would have been 100 per cent "water," and even for the wealthy Lackawanna it proved to be close to that. The dilution dropped the stock from around \$200 to about \$125 — something which many people did not anticipate — and this latter price was not to be topped until the dizziest days of 1929.

With foresight that approached clairvoyance, and regardless of a 4-million-ton decline in freight traffic during 1922, those who ran the railroad gave Schenectady three orders for locomotives. Five of the usual 79-inch-drivered Pacifics arrived in May, followed by five of the low-wheeled freight variety in October. During the year, Baldwin's last contribution to the Lackawanna roster arrived — an 0-4-0T to be used in the water-isolated car-float terminals of New York City. November brought an innovation — the booster, neatly nestled beneath the cabs of 25 bigger Mikados. With the booster's contribution of 11,500 pounds to the 67,700 pounds developed by the main cylinders, these locomotives could outpull and outrun the ungainly 2-10-2's which neighboring Lehigh Valley and Erie were using in heavy freight service. Looking at it another way, the booster saved about 25 tons of locomotive weight which could be added to the train as revenue tonnage. The days of the six-locomotive coal drags over the Poconos were gone forever, and many 4-8-0's and 2-8-0's were dispatched to the blast furnaces. This last group of 2-8-2's, incidentally, did not continue where the previous group had stopped at No. 1262. Instead, they were assigned the 2100-series numbers, perhaps to avoid the superstitious 1300's which the railroad never used. (The number

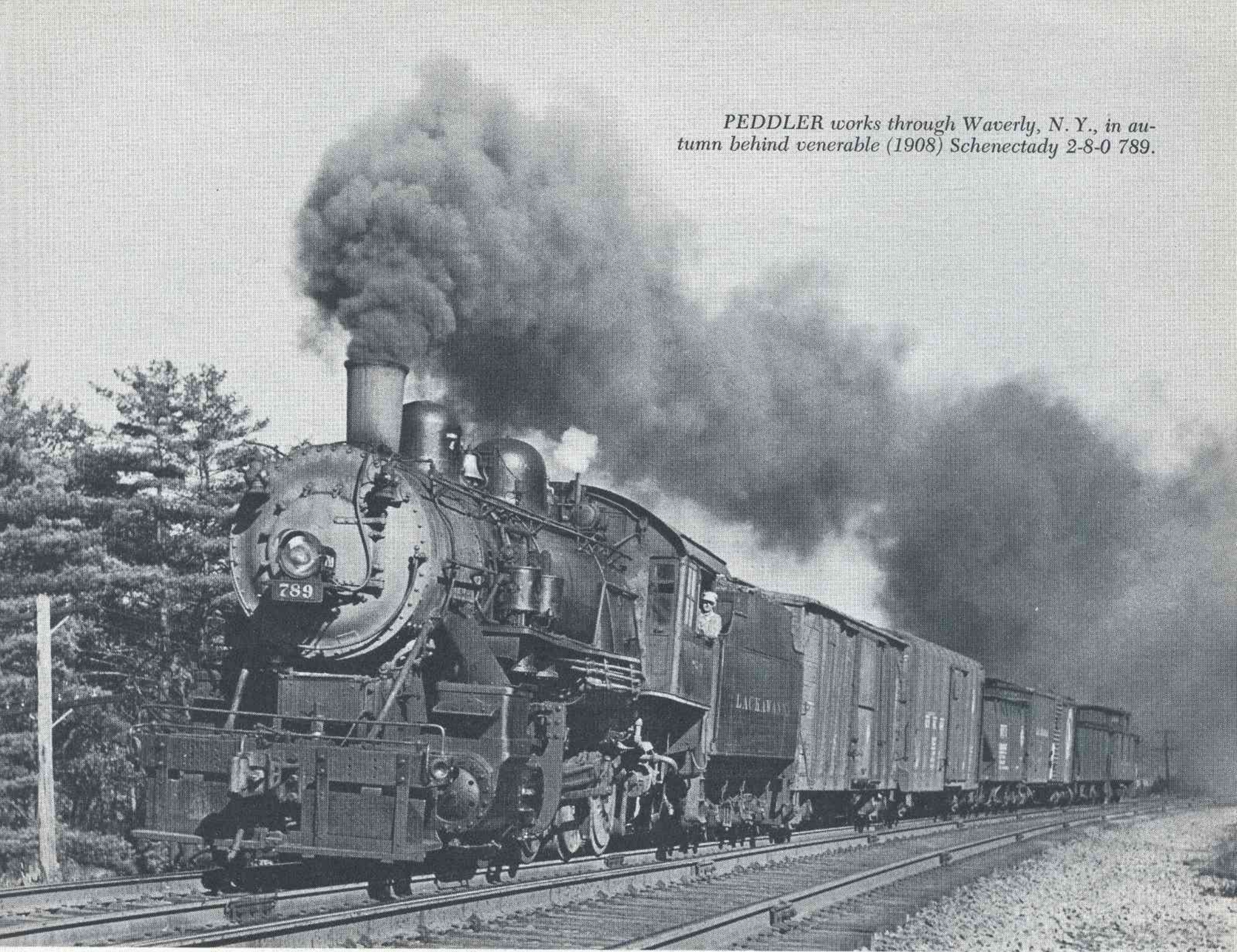
13 was avoided for train numbers too.) The receipt of so many new locomotives at one time caused their count (792) to reach an all-time high — one for every 1.2 miles of line. If nothing else, the Lackawanna must have looked busy.

AND it *was* busy, year after serene year following the labor strife and depression of the early 1920's. However, one figure stands out above this uniform pattern of revenues, earnings, carloadings, and traffic densities. Passenger trains earned \$3.34 per mile in 1923. The decline from this high point was caused by the advent of better public roads and the private automobile — the two went hand in hand — assisted by transient catastrophies such as the great depression of the early 1930's. The battle was a losing one, and the day would come when a close relative of this rubber-tired villain would displace the Lackawanna's entire roster of steam locomotives.

Hard on the heels of the initial group of big 2-8-2's came 15 additional locomotives to bring joy to the hearts of engine crews, dispatchers, master mechanics, and auditors. Following them were the last 5 passenger Pacifics. The Scranton shops began the modernization of several 4-4-0's by equipping them with bigger cylinders, piston valves, and Baker valve gear. Some Ten-Wheelers received similar improvements. After 10 Americans and 7 4-6-0's had been rebuilt, the program came to an abrupt halt; electrification was in the wind. Some rumors said that everything east of Scranton would be under catenary, but actually the dense commuter area of New Jersey was the target. Electric propulsion was definitely on the way, and steam power would be scrapped in ever increasing numbers, junking obsolete freight power along with the aging passenger locomotives.

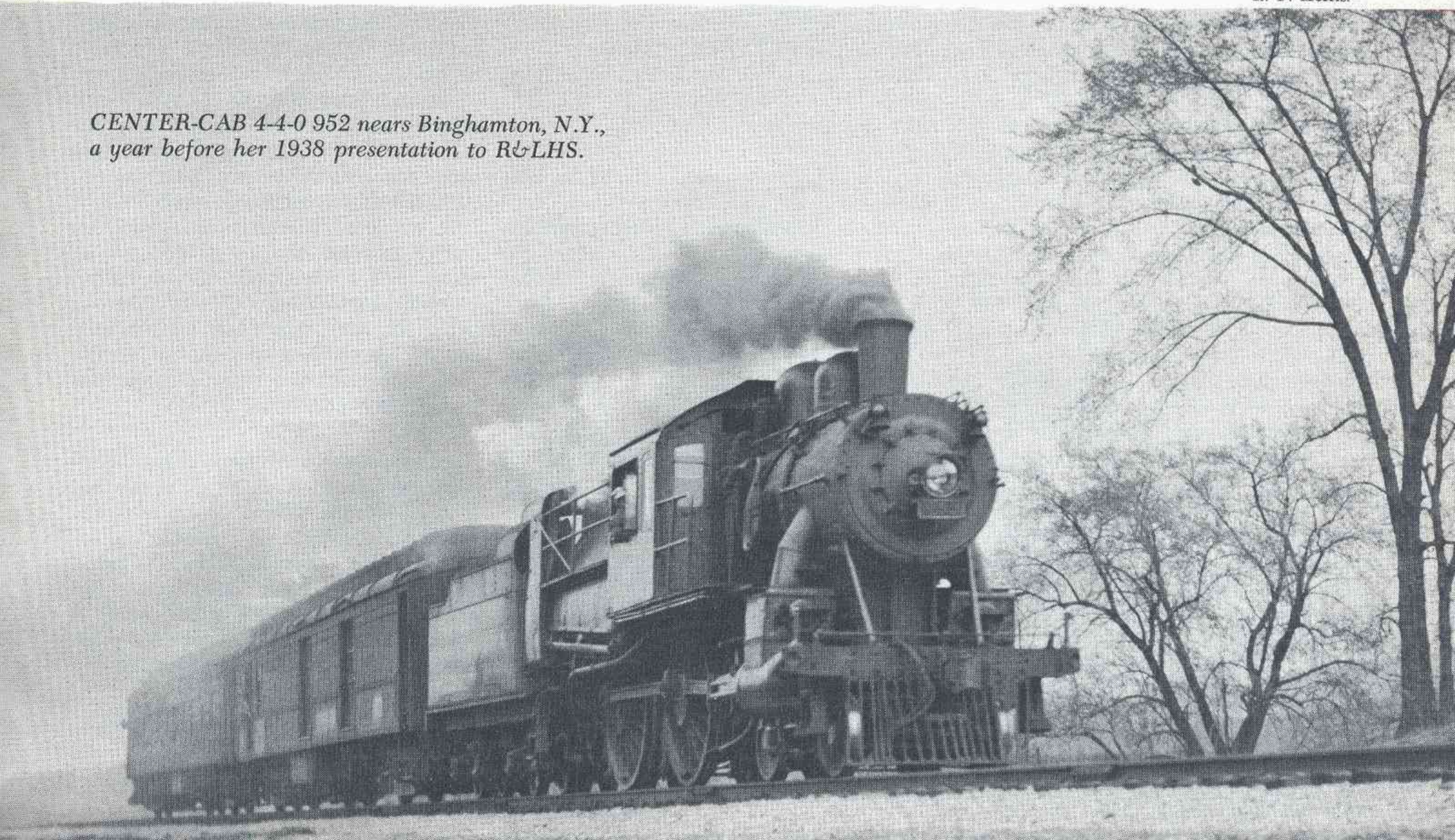
In addition to the eventual necessity for suburban electrification, a problem existed on the Pocono grades again. Pacifics could no longer handle the heavier traffic, and 4-6-0's from the commuter pool were doubleheading with them. Bigger locomotives were needed, and Brooks supplied them — five Mountain types with a tractive effort 40 per cent greater than that of the 73-inch-drivered Pacifics. DL&W may not have admitted it, but these engines were essentially duplicates of the USRA heavy 4-8-2 design. Skipping the 1300-series again, DL&W numbered the new locomotives in the 1400 series, although perhaps the 1300's would have been more appropriate. The 4-8-2's had only 69-inch drivers. While 1924 had brought a new wheel arrangement to Lackawanna rails, it also brought the last 10 Mi-

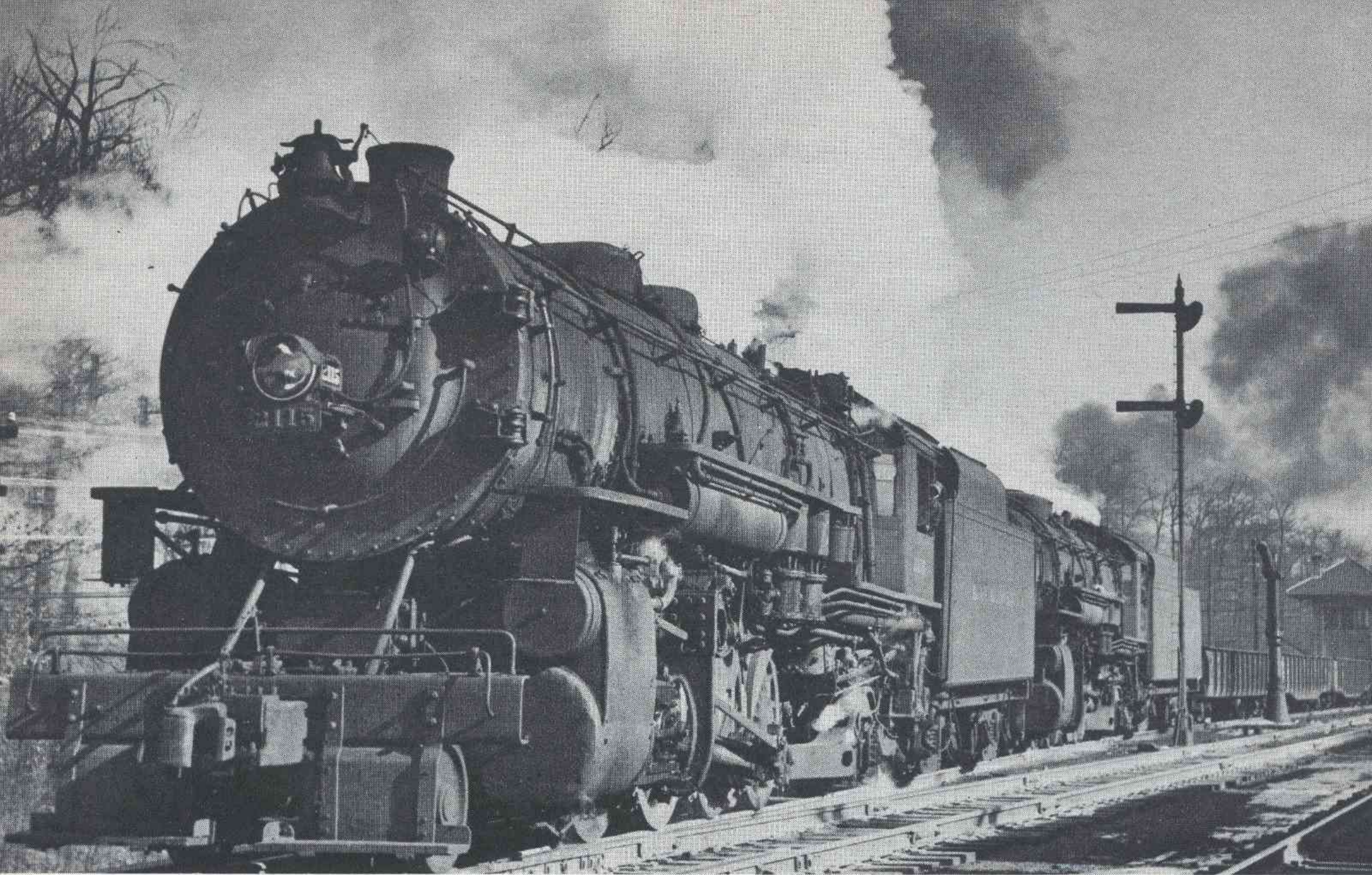
*PEDDLER works through Waverly, N. Y., in autumn behind venerable (1908) Schenectady 2-8-0 789.*



H. D. Runey.  
R. P. Morris.

*CENTER-CAB 4-4-0 952 nears Binghamton, N.Y., a year before her 1938 presentation to R&LHS.*





Frank Quin.

*HAVING quenched their thirst at Port Morris (N. J.) water plug, two Mikes head back for the mines with empty gondolas.*

kados and the last 10 freight Pacifics, all from Brooks.

At this point, there were 43 4-6-2's on the road — 21 with 69-inch drivers and 22 with 70-inch drivers, all hauling merchandise trains at high speeds. These Pacifics had replaced the 2-6-0's which had been used for this service between New York and Buffalo. The traffic was highly competitive with that of the New York Central and the Lehigh Valley, both of which had longer routes although less demanding profiles. (The LV also used low-wheeled Pacifics.) Understandably, the DL&W felt that faster over-the-road speeds could be obtained with the 4-6-2's than with the 63-inch drivered 2-8-2's, since the two types had boilers which were alike in size. The concept worked well for about 15 years, but two unexpected developments rendered it obsolete: three-cylinder 4-8-2's, and 4-8-4's; and the depression.

DURING the later 1920's an epidemic of three-cylindritis afflicted locomotive builders and railroads alike. Lackawanna contracted the infection from Brooks in the spring of 1925, resulting in the delivery of two 4-8-2's. Except for employing 3 cylinders and four axles, their machinery specifications agreed with those of the earliest

Pacifics. Baker gear (later changed to Walschaerts) was applied to the outside valves, while the inner one received its motion from the two-lever Gresley gear mounted on the pilot deck. The engines were big, and with their 61,100-pound drawbar pull they handled the heaviest passenger consists with ease. The operating people liked them well enough to ask for three more later in the year.

From outward appearances, the railroad had been transported into a new era, and the rumors of electrics on the hills began to fade. The rumors died completely in 1926, when 25 Schenectady-built three-cylinder freight hogs shouldered aside the big Mikados on the coal drags. These 4-8-2's were monsters, with one 25 x 28-inch and two 25 x 32-inch cylinders, 63-inch drivers, booster, front-end throttle, and 86,800 pounds of tractive effort. Only the Denver & Rio Grande Western and the Norfolk & Western, two roads noted for heavy power, possessed their equals. Just three of these giants would be needed to take a 5500-ton coal drag up the 1½ per cent to Lehigh Summit, and two could then come back to Scranton, since one was able to bring back the empties for a refill. When you watched such a trio charge up the narrow valley near Nay Aug, you felt enveloped

by the continuous crescendo of deafening exhausts which reverberated off the rocks, seeming to come from all directions at once. The earth shook beneath your feet as if it were being torn asunder. Great clouds of the blackest bituminous smoke belched from the stacks, turning day into night, and stinging cinders rained down in a fiery hail. Every fourth ton of coal went straight from the stoker table to the stack without doing any more work than wearing out the return bends on the superheater tubes. If ever some member of Scranton's clergy had wished to give those of weak faith a preview of the hereafter, he could have done no better than to bring the wavering ones to this very spot. This method of running a railroad may not have been efficient, but it certainly moved the tonnage.

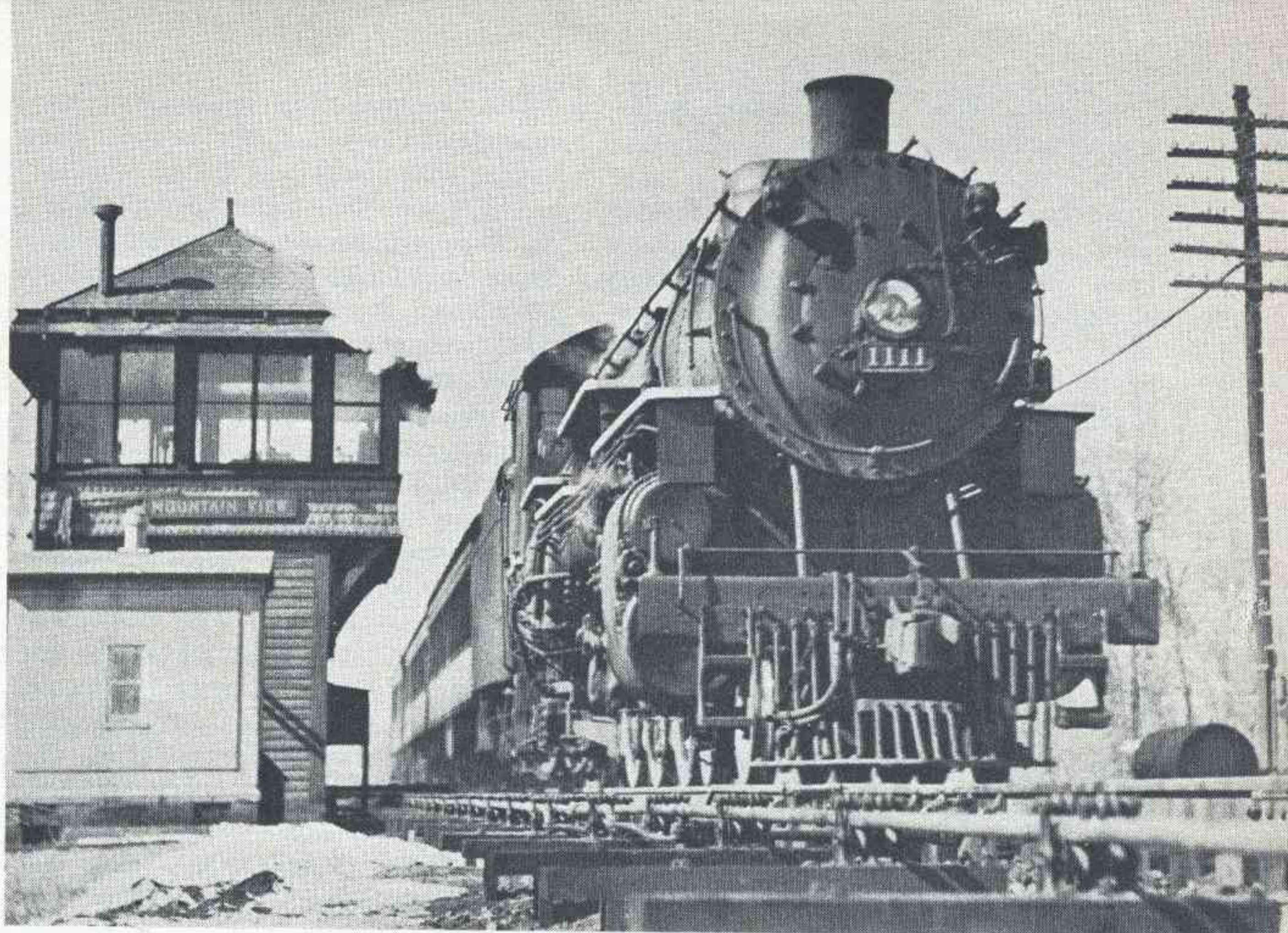
In this same year two entirely foreign breeds of cats arrived at the DL&W's house, almost unnoticed beside the great three-cylinder behemoths. One was a 50-ton General Electric all-electric locomotive, the other\* an Alco-GE affair of B-B wheel-arrangement powered by an Ingersoll-Rand diesel engine. The en-

\*Actually there were two locomotives. The second one went to the wholly owned Harlem Transfer Company, relieving No. 1, a 28-year old Baldwin 0-4-0T.

gine on the latter drove a generator which delivered electric power to motors on the four axles. Of simple appearance (a box cab supported by two trucks), the unit was similar to the one which the same companies had sold to the Central of New Jersey in 1925. Both DL&W locomotives were used for switching in tiny New York City yards whose only connection with other DL&W rails was a tug-powered carfloat. For those few who recognized the fact, the camel's nose was within the Lackawanna's tent.

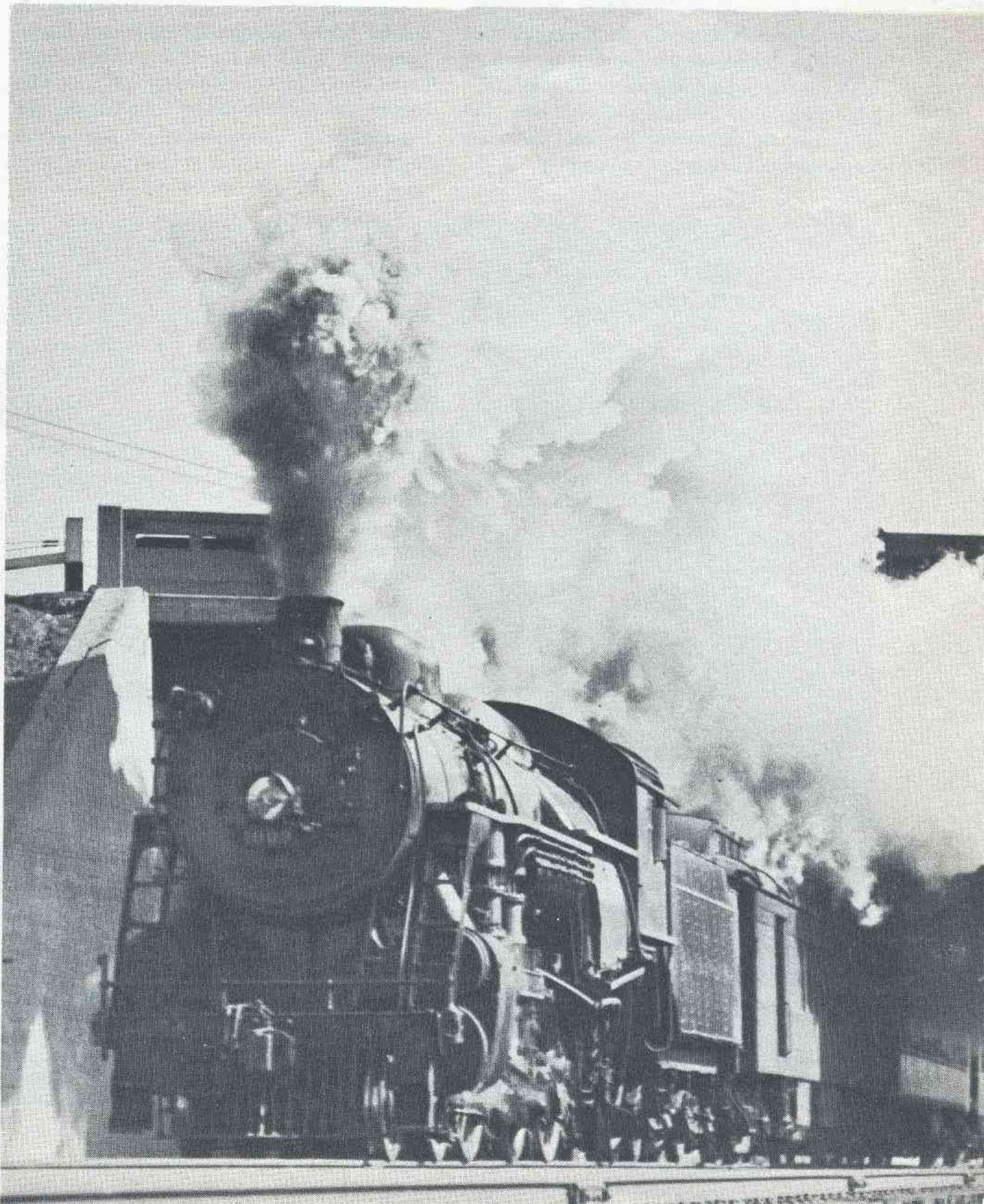
Regarding everlasting prosperity as a fixture of the times, Lackawanna management indulged in some financial legerdemain which gave its stockholders title to around 58 million dollars' worth of Glen Alden Coal Company bonds owned by the railroad. This maneuver knocked 2.3 million dollars out of the railroad's "Other Income" account, although in effect the money flowed directly to the stockholders without going through the DL&W treasury. Next the managers bought 10 more of the mighty coal-drag Mountains. Finally, they asked Brooks to build five passenger locomotives of a new type, 4-8-4. These were the only locomotives of that type which Brooks ever constructed. (Two years and 28 engines later, Brooks was to close its doors forever.)

The DL&W was now pioneering in the recently discovered land of the four-wheel trailing truck; the first 4-8-4 had been assembled but a few months previous. If those big passenger 4-8-2's were so wonderful, why was a 4-8-4 any better? On the 4-8-2 that middle cylinder and all of its associated machinery was nearly buried between the frames under the boiler, so maintenance was difficult and expensive. Then, too, Alco did not subscribe to the idea of running the 4-8-2's fast. What the mechanical department wanted was a two-cylinder locomotive which could pull as hard as the three-cylinder 4-8-2's and be capable of speeds above 60 mph without putting dents in the rails. The right combination, they thought, was to be found in 77-inch drivers, 27 x 32-inch cylinders, and 200-pounds-per-square-inch boiler pressure, giving a drawbar pull of 64,500 pounds. They were right; the Poconos (as they were termed) outperformed the three-cylinder Mountains so decisively that the latter were rebuilt with a pair of standard 28 x 32-inch cylinders and 220-pounds-per-square-inch pop valves to give them as much starting pull as the 4-8-4's. Pacific vansishes from the Pocono grades. Those with 79-inch drivers operated almost exclusively west of Scranton; others with 73-inch drivers joined aged 4-4-0's and 4-6-0's in the Hoboken commuter pool, a mo-



Both photos, Wayne Brumbaugh.

*ACTION at Mountain View, N. J.: Pacific 1111 booms past the tower eastbound before her retirement in 1942; then (below) ex-Camelback Ten-Wheeler 1009 hustles under a highway overpass with a westbound local smothered in smoke.*





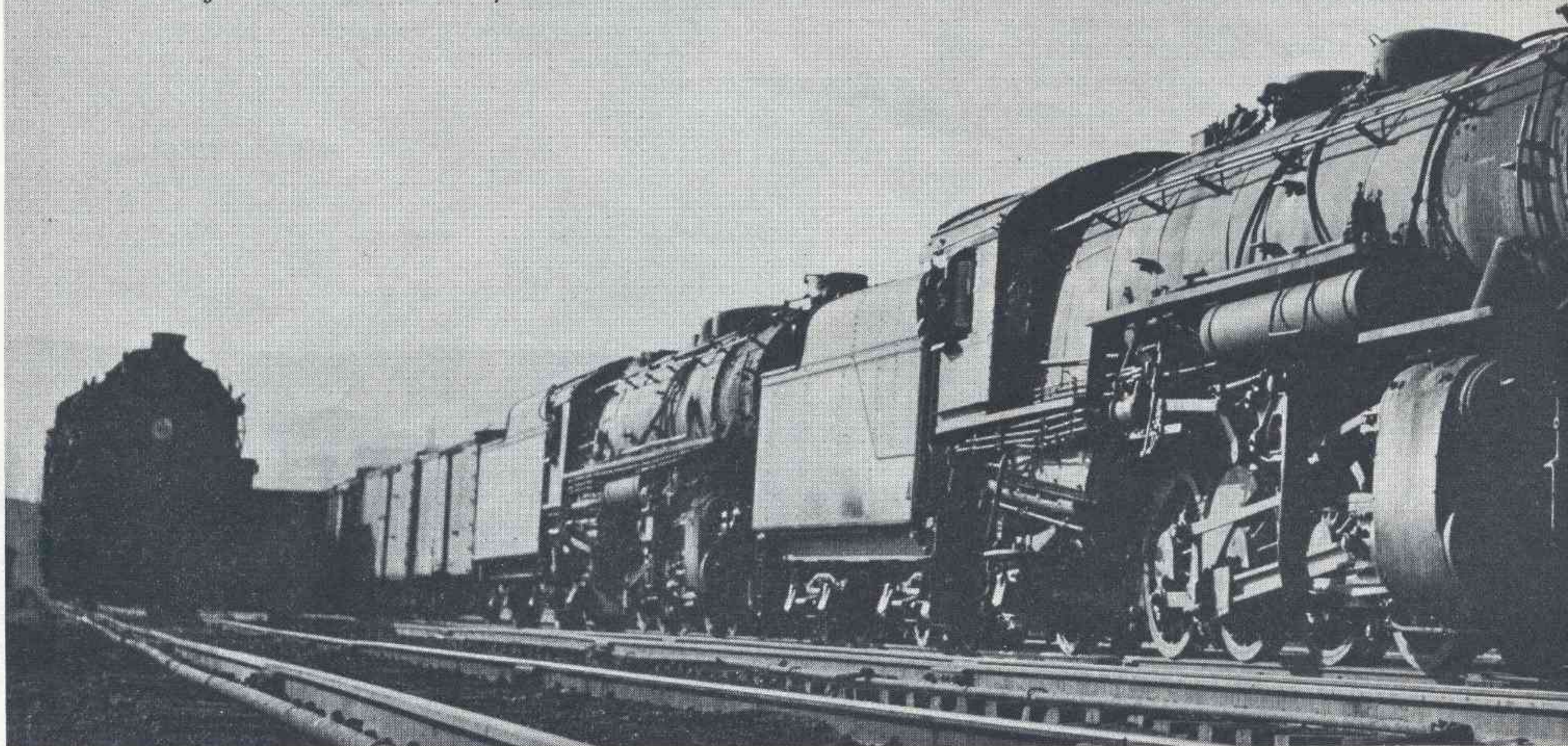
tive-power Siberia from which nothing returned.

AFTER the splurge of 1927, 1928 was quiet, ominously so. Nothing new came off Schenectady's erecting floors. Freight traffic eased a bit, but the passenger business was off over a million customers. Passenger earnings were declining for still another reason: the Holland Vehicular Tunnel under the Hudson River, which had siphoned off much of the ferryboat trade to New York City. Consequently, the idea of reducing expenses by electrification was appealing and offered certain desirable byproducts. The Lackawanna suburban route through Newark to Dover, N. J., bisected many of the exclusive residential communities, and the branch from Summit to Gladstone, N. J., was so thoroughly endowed with wealth that many commuters subscribed to the luxuries of a wheeled "private club" which was handled in trains arriving at Hoboken after 9 a.m. Needless to say, none of this upper-class suburbia was particularly enthusiastic over the smoke-belching machinery which smudged the wash on the line and made so much racket that the radio could hardly be heard even with earphones. Electrically powered cars would pacify the accounting department, the city fathers, and smoke-eating customers.

The General Electric Company was enthusiastic about the whole idea, having just developed a way of eliminating generating plants by purchasing three-phase power locally, then converting it to direct current in a 12-phase mercury-vapor rectifier-tube arrangement. Preliminary estimates placed the cost at 14 to 18 million dollars; 18 million turned out to be more correct. For this magnificent expenditure the Lackawanna would purchase new equipment, cheaper operation, increased fares, and a big pile of scrap consisting entirely of worn-out steam engines. The commuter would get a cleaner, quicker trip and no more choking fumes in the uphill mile-long tunnel just outside the Hoboken Terminal. Communities visualized a cleaner and quieter atmosphere and an end to the minor earthquakes which occurred every time a train roared past the back fences. In 1928, with no one predicting that the world was headed for a doomsday, who would be less than enthusiastic? The DL&W, perhaps. It looked upon electrification as both a cold business proposition and a civic obligation which had been thrust upon it. Management signed on the dotted line, however, and shortly thereafter wires began to appear above the multiple trackage of New Jersey's suburban territory.

Although hardly anyone suspected how the year would end, 1929 started off like most of the other years in the recent 1920's, bringing the DL&W some new power to replace the low-wheeled Pacifics in merchandise service. These were needed desperately. The Mikados could pull the tonnage, but they couldn't run fast enough; with the Pacifics, the situation was just the reverse. Perhaps a combination of the two, coupled with a bigger boiler, would do the job. To create this new locomotive the mechanical department took the boiler and wheel arrangement from the passenger 4-8-4's, the 70-inch drivers from the freight 4-6-2's, and the cylinders from the 2-8-2's. By developing 235 pounds per square inch in the boiler, the engines could yank almost as hard as the three-cylinder 4-8-2's — 71,600 pounds. As with the earlier Poconos, the trailing truck had no booster, probably because operating speeds were to be maintained well above the booster's cutout point. Should the tonnage be so great as to require a helper, use of one of the 112 2-8-2's which were always available was more economical. In this way, 30 mph instead of 15 mph could be maintained on the steepest grades. The merchandise 4-6-2's were no match for these giants, and as soon as one of the 4-6-2's developed some mechanical malfunction of its plumbing or ma-

*STEAM out of Scranton: Mike 1229 lends an assist to three-cylinder 4-8-2 2220 on April 23, 1939.*

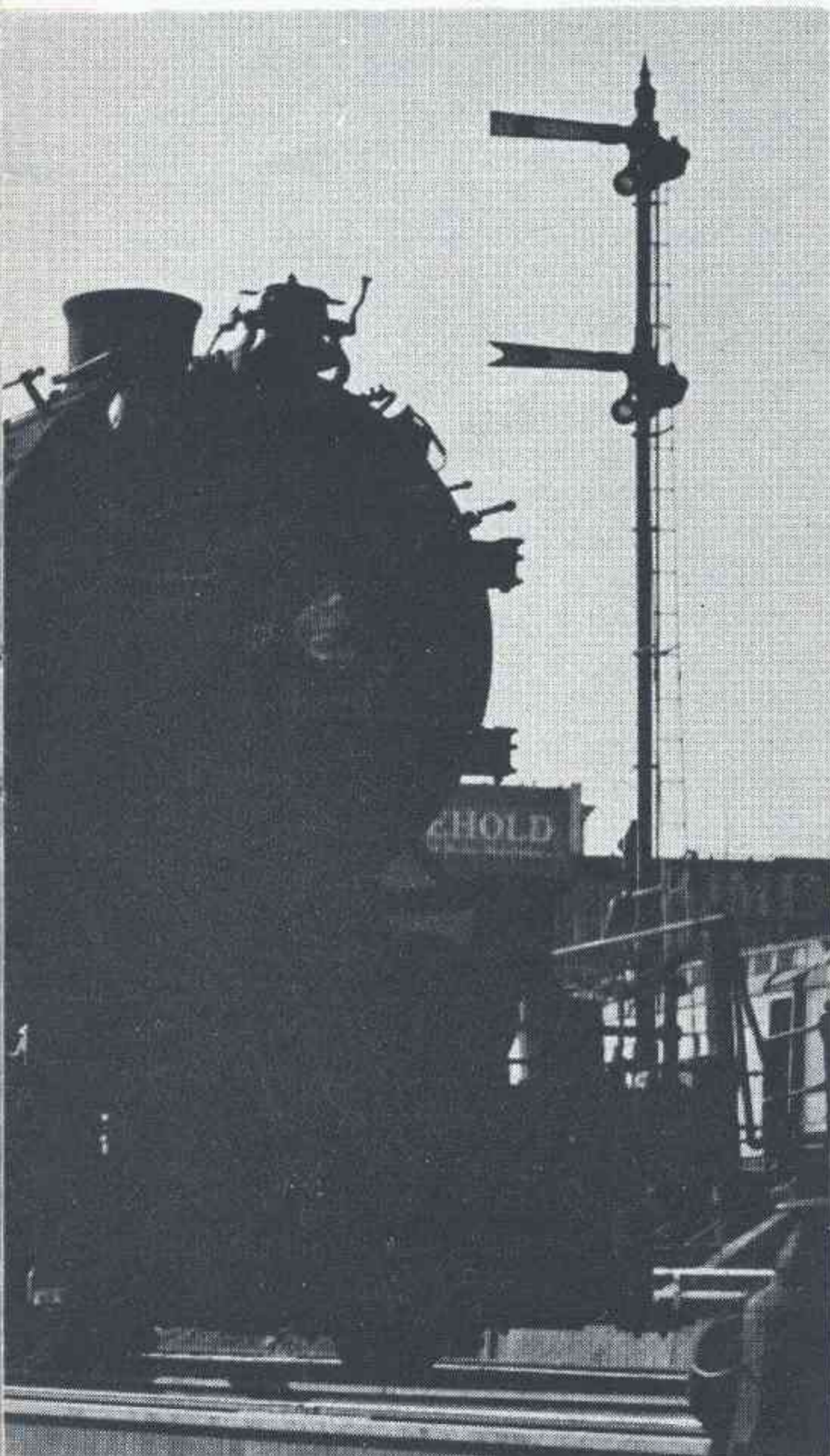


chinery, it was set aside for another use.

Except for building 10 homemade 0-8-0's, the DL&W had gone without new switching power for 15 years, and here too the need was urgent. The arrival of the new 4-8-4's was well timed; the outmoded Pacifics could be converted into the coveted switchers. Beginning in early 1929, they entered the Scranton shops for major surgery. When they emerged a month later, they had been metamorphosed into tremendous 0-8-0's weighing almost 260,000 pounds; few engines of that type were any heavier. They had the voluminous 27 x 30-inch cylinders characteristic of the Pennsy's 0-8-0's. Even with their large 58-inch drivers, they could almost outpull three 0-6-0's or two older 0-8-0's. Once again the Lackawanna was demonstrating its insatiable hunger for bigger power. With the 1157 leading the way, the obsolete 4-6-2's underwent mechanical reincarnation at the rate of about one per month.

Out on the line, business was nothing less than fabulous — all 28.9 million tons of it — in spite of the financial jitters arising from Wall Street's Black Friday collapse. Everything that could be coaxed into dragging cars from one yard to the next was working on "the Delaware Lackawan," as the popular song versed it. All

Robert A. LeMassena.



of the express trains ran in multiple sections on the Fourth of July and Labor Day, and often the last section of one train would carry green, permitting advance sections of another a few hours later. Much of this traffic was long haul too — New York to Niagara Falls and back, essentially 800 miles. No one except stockbrokers appeared to be worried over financial matters. Lackawanna's Board declared the usual 12 per cent dividends and added a 2 per cent extra for Christmas.

An atmosphere of good times still prevailed the next spring when the electrified suburban service was put into operation between South Orange and Hoboken, N.J. Everyone was amazed at the speed and quietness of the new multiple-unit trains. Each powered car was equipped with four 235 h.p. motors capable of accelerating one trailer at 1.5 mph every second and running at 67 mph on the level. From standstill, in a half minute the train could be almost 1000 feet down the line going 45 mph — as if a 4-4-0 were coupled to each individual car. Along with the M.U. trains came a pair of odd locomotives for Hoboken-Secaucus Yard transfer service. When they were in electrified territory, their pantographs could scrape power off the catenary. Beyond the overhead wires, they could run on batteries, and at any time their internal-combustion engines could recharge the batteries. This arrangement was intriguing, but decidedly more complicated than with the ordinary diesel-electric locomotive. No further units like these were ever bought by DL&W.

Elsewhere on the railroad, business was not so wonderful. Freight was down to a tonnage not encountered since the depression days of the early 1920's. Switchers excluded, a large surplus of steam power existed. Scranton converted nine more Pacifics into eight-wheel switchers as the road's common stock tumbled to the absurd price of \$70 regardless of the 12 per cent dividend. Part of the dividend had come out of past earnings, since the year's operations had netted only \$3.60 per share. As the country indulged in its annual year-end frenzy, the gloomy outlook took on a tinge of hope that this business recession would prove to be only temporary.

The expectations were in vain; freight tonnage dropped to 22.4 million tons. Earlier in the year the suburban electrification had been completed with 160 miles of track, 141 motor cars, and a like number of trailers. This would yield substantial savings, yet be insufficient to boost earnings beyond 64 cents per share of stock (a certificate had been worth many times its weight in pure gold not too

long before). Despite \$3.50 dividends paid out of the mysterious Profit and Loss account, DL&W stock plummeted from \$102 to \$18. Scranton received the full impact of the blow. Train operations were greatly reduced and its shops were allowed to produce only half the usual number of 0-8-0 conversions.

Where was the bottom, if indeed there was one?

LATE in 1931, when Schenectady was wondering how it would pay next year's rent, it constructed a well-proportioned and handsome 4-8-4 — a locomotive unusual in several respects. It had been designed to operate on just about any railroad's main line, and all of its axles — the tender's included — turned in roller bearings instead of bronze bearings lined with Babbitt metal. Most extraordinary of all was the fact that its bill had been paid for by the Timken Roller Bearing Company. The thought behind this venture, during what appeared to be the worst possible times, was to demonstrate to the railroads that roller bearings were practical for such a seemingly difficult application. Timken lent the locomotive to the unbelievers to operate as they saw fit — including the DL&W, which tried the big blue-green racer in passenger service competing with its Poconos. The locomotive started easily, rode smoothly, and outran the cars while drifting. The bearings ran so cool that long radial icicles formed around the hubs of the drivers. This was a remarkable locomotive, and the Lackawanna's mechanical people tucked away some ideas for future use: roller bearings, 250-pound pressure, 73-inch drivers, 21 tons of coal, and 14,600 gallons of water.

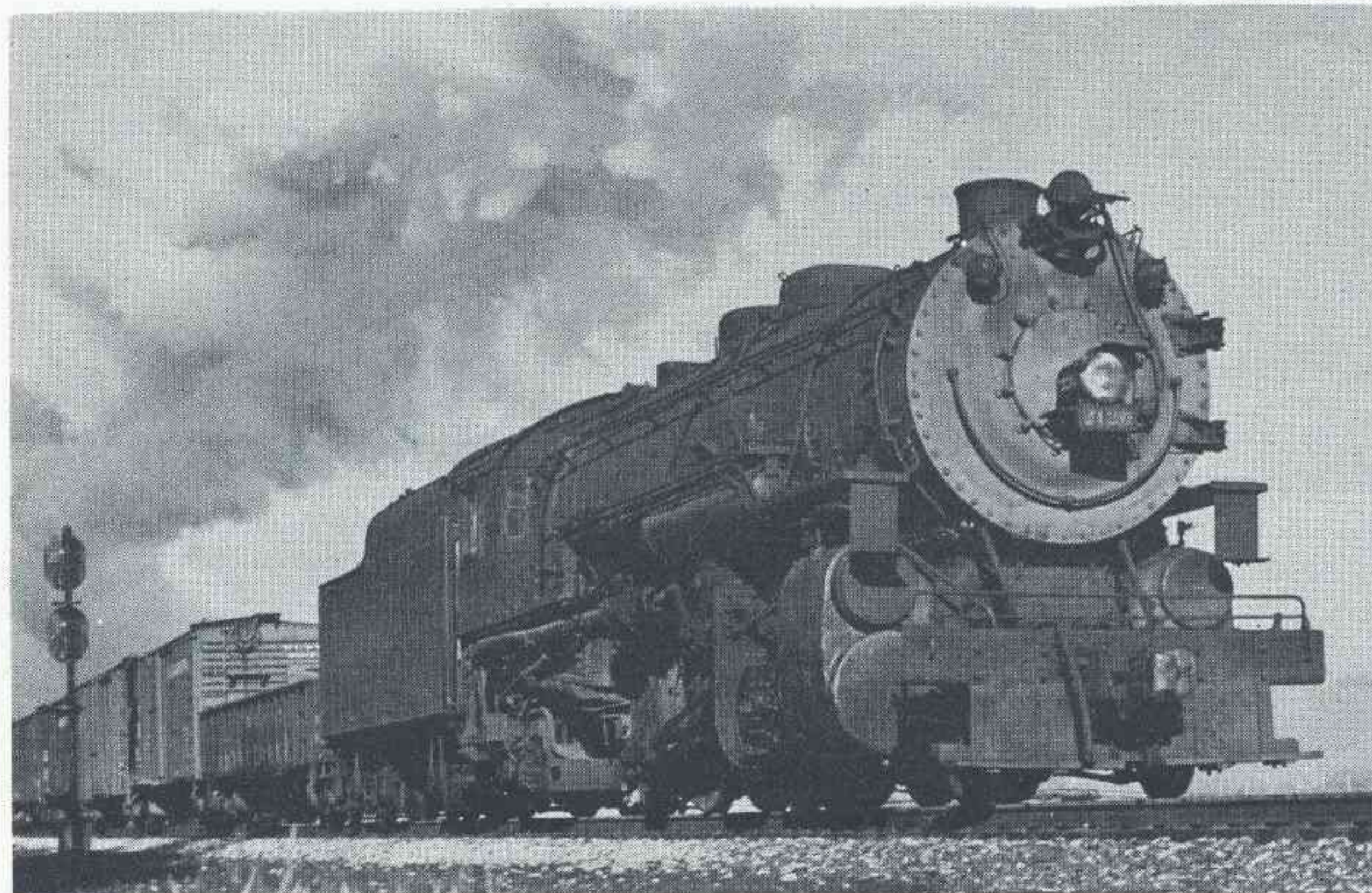
As many people had feared, the economic situation became worse rather than better, and the DL&W was particularly hard hit, since it served a highly industrialized area operating at only a fraction of its normal capacity. Freight traffic was running little more than half of what had been handled just a few years previously. Pacifics, Mikados, Moguls, Mountains, and Consolidations were set out on storage tracks. With only 10 more 4-8-4's, all mainline through freight trains could be hauled by Poconos alone. This sounded like a fine idea, and Schenectady delivered them in March. They were virtual duplicates of the 20 earlier ones except for an extended smokebox which housed a Worthington feedwater heater. The last two in the group boasted Timken bearings on the axles of both leading and trailing trucks. The DL&W may have wanted roller bearings on the drivers too, but they would have made the engines



W. R. Osborne.

A PAIR of Poconos get together on a heavy passenger consist over the mountains (above), and Mike 2126 paddles through Paterson, N. J., on October 5, 1940. These two vintage Lackawanna scenes betray nought of corporate ills that lay ahead.

Robert A. LeMassena.



more expensive and money was scarce. Economy also was practiced in Scranton, where the shops—still on half time—had turned out only six 0-8-0's, perhaps more from charity than necessity. Nor were there any dividends that year; the railroad which had almost no bonded indebtedness did not clear enough to pay its fixed charges—rent for its leased lines. At one time some investors thought so little of DL&W stock that they sold it for \$8.50 per share. A crystal ball was not needed to show that evil times had come upon the land.

In spite of the economies of the Poconos, freight trains earned only \$4.70 per mile, a record low for the century. Only 65 per cent of the leased-line rent was covered. Even so, prospects did look a little brighter; Lackawanna freight tonnage had held steady at around 17 million tons. Believing that business was on the upgrade, management let Scranton convert eight more 4-6-2's to extinguish that group. Only four would remain untouched, not counting the 1172 which had gone to overbullient glory in 1930 while helping the *Lackawanna Limited* at Lehigh Summit. Only six decrepit 2-8-0's and one ailing 2-6-0 were broken up, probably as melting scrap for parts going into the 0-8-0's. Scranton's atmosphere was clear for a change, but the general gloominess which pervaded the entire valley allowed no one to enjoy the unaccustomed sunlight.

In this miserable year of 1933, DL&W asked the diesel-electric to step a little closer so that the road could have a better look. First there came a stock 1000 h.p. end-cab shifter from Schenectady. DL&W approved. More like it arrived as the year ended, and the group totaled eight before 1934 was very old. Six others, 600 h.p. center-cab switchers, came from General Electric during that year. In 1935 two 1000 h.p. end-cab switchers were acquired from Electro-Motive. The camels were now on their way toward eventual dispossession of the tent's steam residents, although five years were to elapse before they would make another move.

Some improvement in business was noticed in 1934, and Scranton began to make 0-8-0's out of the oldest Mikados. Breaking up anything for scrap was hardly worth while; hordes of Moguls and Consolidations rusted on weedy storage rails. Then like a bolt from a cloudless sky, Schenectady received an order for 20 tremendous Poconos. Between this order and the previous one for DL&W steam power, Alco had received but four orders—for 2 0-4-0T's; 8 diesel switchers, including 7 for the Lackawanna; 2 NdeM simple 2-6-6-2's; and the first

15 of the NKP's famous 2-8-4's. This had been barely enough to keep a skeleton force in the plant, and Alco was glad to get the work.

Once more the mechanical department extended itself, and produced an enviable design. Retaining only the track gauge, wheel arrangement, and the inevitable 28 x 32-inch cylinders, the mechanical people came up with a wonderful dual-service locomotive which could handle anything on Lackawanna rails. The engine was thoroughly modern in every respect: one-piece bed and cylinders, 74-inch Boxpok drivers, two cross-compound compressors, roller bearings, feedwater heater, front-end throttle, multiple-bearing crosshead, force-feed lubrication, and a huge tender. Ready to roll, the locomotives weighed 447,000 pounds with 274,000 pounds on the drivers. Two-hundred and fifty pounds of steam pressure gave them a tractive effort of 72,000 pounds. When the tender had been filled with 16,000 gallons of water and 26 tons of coal, it weighed 313,000 pounds. Anyway one looked at them, these were big engines, resembling the Burlington O-5 class. Universal happiness, unfortunately, was not experienced by the DL&W. For the first time in its wealthy history, it had been reduced to borrowing money (from the Public Works Administration) to purchase equipment; an inconspicuous little sign riveted to each tender informed the world of this financial embarrassment.

Nor was this all of the railroad's monetary troubles. It had signed some notes to pay for the electrification, expecting to redeem them promptly afterward. This it could not do; in fact, by April of 1934 a deficit of working capital had reached about 8.7 million dollars. So Father Lackawanna dug into his sock and sold 13.6 million dollars' worth of New York, Lackawanna & Western bonds which he had been hoarding against disaster. This was like borrowing money anyway, because the interest now came out of Papa L's pocket. Still, this staved off the bankruptcy under which so many carriers had sought relief. But even this did not tell the entire story. The DL&W hit the PWA a second time for funds in order to make switchers out of Mikados. All of this was a new experience to the railroad which always had jingled enough ready cash in its purse to buy anything it wanted. However, the railroad did spend money to keep its superb track in good condition and did not curtail maintenance as much as did many other financially embarrassed carriers.

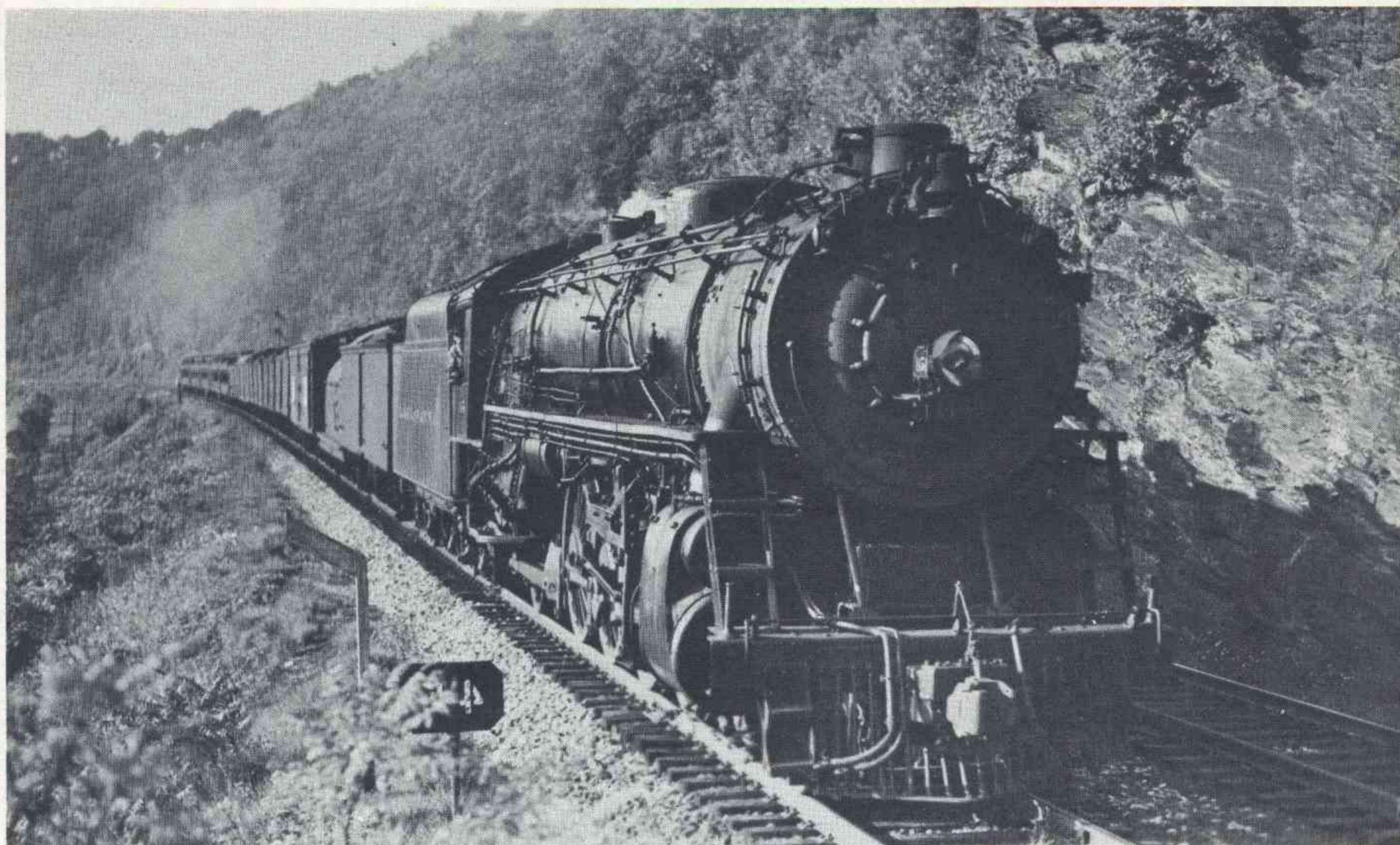
Now in its fourth year of barrel-bottom business, the Anthracite Road was operating the main line almost exclusively with Poconos, 50 in freight

service and 5 in passenger. Scores of Mikados languished in semiretirement, while a handful of three-cylinder Mountains hauled coal up from Northumberland, Pa., and over the hill to Secaucus. Making 0-8-0's out of 2-8-2's finally came to an end after Scranton had brought the total of 0-8-0's to 60 (these were the last locomotives to be rebuilt in company shops). Their 58-inch drivers made them useful as a steam-powered road-switcher, and they had no difficulty taking over from 2-6-0's and 2-8-0's on local freights. It was an experience to watch one of them lug 50 or so cars out of the long cut west of Newark and up the 1.7 per cent grade onto the elevated trackage through the "Oranges," as that group of communities was called. They slipped and they stumbled, they blackened the heavens with smoke, but they kept pulling on their half-mile-long string of cars.

During these years DL&W entertained — if that is the word — its commuters with a close-up view of its passenger Poconos in action. No. 14, the *Whitelight Limited* from Chicago via the Nickel Plate, was scheduled to arrive in Hoboken at about 8:30 in the midst of the morning commuter rush. A fine example of precision timing involved threading the teeming electrified trackage and making five suburban stops without disturbing commuter traffic or the westbound commuter extras. The fun began when No. 8 pulled out of Newark and an M.U. express caught up with it, then pulled ahead. During this interval every commuter next to a south window had a hurried review of de luxe travel — men trying to shave, kids peeking out of the berth windows, breakfast in the diner, bleary-eyed coach passengers, busy baggagemen. Out across the Jersey Meadows the big 4-8-4 began to overtake the commuters. First came the hot smokebox with its syncopated roar, next the crosshead and valve linkage flying back and forth. There was a delightful demonstration of Walschaerts valve gear in dynamic motion. One could peer into the glowing ashpan right beneath one's eyes and wave knowingly to the fireman. At the west end of the Bergen Tunnels, the 4-8-4 moved over a track, revealing for a moment a splendid panorama of flashing siderods and spinning drivers before plunging into the south bore. Usually the electrics beat it out of the tunnels, and if one was sitting in the proper car, he would see the engine burst out of the east portal in a spectacular display of black smoke and white steam in the brilliant morning sunlight. No other sight was so magnificent; but it is doubtful if very many commuters appreciated it.

The middle and late 1930's were marked by little more than a discouragingly slow seesaw return to previous levels of activity. DL&W stood pat with its handful of Poconos while it scrapped older power at a rapid rate. In 1937 and 1938 Scranton modified all remaining Americans and Ten-Wheelers — nine of each — and converted them into single-cab engines at the same time. Along with some of the earlier Pacifics, they handled all suburban, branch, local, milk, and accommodation trains except, of course, the M.U. service. Fast running was part of a Pacific's routine, but not without some unfortunate incidents. The 1120 overturned with a milk train at Millburn, N. J., on the curve at the foot of the Summit hill, displaying its bottomside right in front of the depot. Sometime later, the 1136 careened off a curve in Delaware Water Gap and was so badly damaged that her scrap order was written at the site. This, too, was the era of the infamous sleet storm which during a February afternoon froze solid every pantograph in Hoboken. The electrical displays were marvelous to behold, but they failed to temper the irate homewardbound commuters who later found themselves stranded in the relatively unknown and uninhabited surroundings of the Meadows. Chunky 0-8-0's were pulled off local freights and transfer runs to rescue the powerless trains, and 4-6-2 No. 1113 attained local fame by pulling the only steam-powered passenger train up the Montclair Branch in almost a decade. For a few hours, steam demonstrated one point of superiority over electricity, although it could not heat the cars since the M.U.'s contained no steam lines.

FOR over a decade, since the arrival of the first Poconos, Lackawanna's taste for bigger passenger power had lain dormant. If there were too many trains to be shuttled across the mountains, one of the 50 freight Poconos could be commandeered; and they performed just as well as the assigned 4-8-4's or 4-8-2's. But in the more level country to the west of Scranton, the story was different. No longer was a Pacific always available to help another which was overloaded. The 2-8-2's were far too slow, and to appropriate a 4-8-4 and endanger the schedule of a redball freight was worth one's life. The need for something bigger on the west end was real. Then, too, the New York World's Fair was but a few years away and was expected to swell DL&W passenger consists. Thus toward the end of 1937 Schenectady received an order for what was to be the last steam locomotives built for the railroad, five hefty 4-6-4's.



W. R. Osborne.

*IN late afternoon local 42, labeled a mixed in the timetable, clears Delaware, N. J., behind a Mountain type, the 1454.*

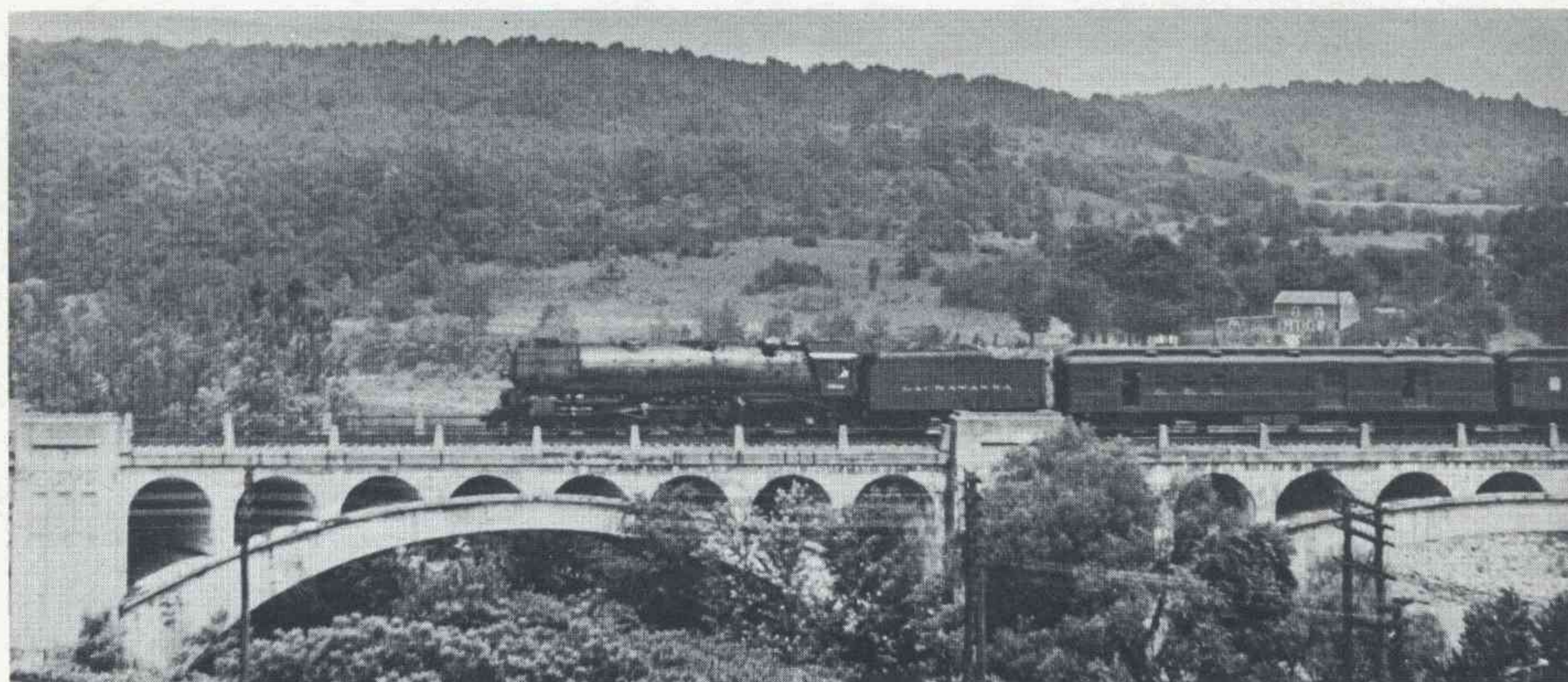
When the new power began to arrive early in 1938 no one was disappointed, especially when it was known that the Lackawanna's treasury had paid for them without asking for a loan. Besides being huge, they were exceptionally handsome and pleasingly proportioned. In detail dimensions they were a little bigger than the New York Central's superlative Hudsons. Theirs was the look of power, resembling one of the latest Poconos but squeezed down to three axles with 80-

inch drivers. As usual, the cylinders of the DL&W 4-6-4's were immense—even those of the C&O's mighty 4-6-4's were smaller—and this made them slippery, but they could accelerate with deceptive ease over the undulating profile west of Scranton. The engine alone weighed 377,000 pounds—somewhat more than NYC's J3 class\*—with 198,000 pounds on the drivers.

\*The booster gave the J3's a 1000-pound advantage at starting, but their smaller boilers had 10 per cent more evaporative area and 50 per cent more superheat area, giving them more high-speed horsepower.

The boiler pressure was set at 245 pounds per square inch, which gave them a tractive effort like that of the C&O Hudsons—52,800 pounds. Their tenders were identical to those on the last Poconos. To number them in the long-vacant 1300 series would have been reasonable, but superstition won again and they became 1151-1155.

After delivery they were broken in between Scranton and Hoboken on No. 42, whose consist was an assortment of milk, express, and mail cars,



Herbert Weisberger.

*SO very typical: The westbound Lackawanna Limited at the Delaware Water Gap with a 4-8-4 on July 28, 1941.*

## Sights and sounds on the DL&W

I THE Hoboken carfloat yard lay to the south of the passenger terminal, an arrangement that required Secaucus-bound transfer runs to cross three of the four mainline tracks before entering the Bergen Tunnels, roughly a mile long and only a mile from the end of track. Prior to electrification, these runs were handled by 0-8-0's in the 100 series. After electrifying the suburban lines for commuter service, DL&W strung a single catenary from the carfloat yard to the main lines, then continued it from West End into the Secaucus freight yard. Only the two dual-powered locomotives, 3501 and 3502, used this overhead wire. Later, as the big 200-series 0-8-0's became available, steam power hauled much of this transfer traffic, which was timed to miss the morning and evening commuter rush. However, at other times, day and night, local trains waited for several minutes while one of these drags snaked leisurely through the crossovers. To avoid asphyxiation of passengers, electric M.U. trains were routed through the south bore while the transfer train was in the north one. (Steam-powered Paterson line passenger trains operated through the north bore right along with the smoke-belching switchers, apparently on the principle that a little more smoke wouldn't affect the customers.)

As soon as Hoboken-bound commuter trains entered the Bergen Tunnels, a great many commuters would leave their seats and stand in the aisles with the end doors open or go out onto the end platforms. This was fine, until some morning when a Buffalo-New York merchandise train was late. Instead of stopping at Secaucus yard, the merchandise would run through the south bore and on into the float yards, leaving the tunnel full of smoke that nearly choked all of the electric-line clientele who were unaccustomed to such unpleasantness.

● At one time, a morning commuter run originated at Orange, N. J. The train, hauled by a 4-6-2 headed in the proper direction, was usually parked in the freight yard there. One night the crew of the eastbound milk train forgot this and shoved a cut of cars down the same track, with the result that engine 1111 went through the bumper and out onto Lincoln Avenue, completely blocking the cobblestone street from curb to curb.

● Except on a two-track bridge at Newark, N. J., DL&W had three tracks from West End to South Orange. In the morning two tracks were used inbound to Hoboken, and in the evening the center track was reversed. During the day the center track was used by local freights; at night it was used by milk trains. Since some of the stations had platforms for all three tracks, an undiscerning passenger would discover his expected train on an unexpected track, necessitating a mad dash down the stairs to street level, a rush through a passageway, then a sprint up the steps to the other platform.

● Denville, N. J. — the junction of the four-track freight line via Paterson, the two-track passenger line via Morristown, and the single-track Rockaway line to East Dover — was a complicated place. The passenger line swept past the depot around a sharp curve from the south. The Rockaway line wye'd into the north track of the freight line, and its trains backed into the depot, burrowing under the center two tracks. Passengers were confused when an eastbound local would come in on the Rockaway line and head eastward as though it had no intention of stopping. It would reappear backing through the short tunnel and depart on the south track. Through trains westbound would drift around the curve, and as soon as the locomotive had cleared the last crossover the hogger would yank out the throttle, shattering the customary tranquility of this semirural retreat with rapid, sharp exhausts.

● The Roseville Avenue (Newark, N. J.) station was located in a cut just a little deeper than the height of a locomotive. This cut extended for about a mile on a heavy

grade which required working westbound locomotives hard after the stop at Newark. As the moving volcano proceeded through the cut, the concentrated din was ear-shattering along the paralleling streets. A great many houses faced the cut on either side, but the residents apparently became accustomed to the frightful racket that came each day at about the same times, completely drowning out radio sets.

● A pair of 2200's on a drag of empty hoppers, one pulling and the other pushing, could cause much consternation at a grade crossing on a curve between Cresco and Mount Pocono, Pa. The train, draped around the curve and partly hidden by the trees, sounded as though it were going like 60 instead of its actual 20 mph. Many a motorist skidded to an abrupt stop, only to wait perhaps 5 minutes in those less impetuous times for the first of the lumbering three-cylinder behemoths to make her appearance. Then he would be forced to wait for what seemed twice as long while the 100-odd hoppers clanked past.

● In the early '30's, a 2-8-2 helper pushed passenger trains up the hill from Scranton to Clarks Summit, Pa. Those hardy souls who occupied the folding seats on the open observation platform were soon driven inside by the crescendo of the pusher's exhausts. If one's ears could stand the strain, remaining on the platform was a refined version of riding on a locomotive's pilot — an unforgettable experience for anyone.

● Although the DL&W did not own a 4-4-2, a locomotive with this wheel arrangement did run on Lackawanna rails. It was a PRR E-6, which hauled a brace of Bel-Del locals from Trenton, N. J., into East Stroudsburg, Pa., running over the DL&W from the tongue-twisting town of Manunka Chunk Junction, N. J., through the famous Delaware Water Gap, and into East Stroudsburg, where the famous Atlantic made connections with the Lackawanna's limiteds.

● Before the days when the 1600's were used in passenger service, the ambition of many a railfan was to ride behind one of these giants on a freight train, a practical impossibility at the time. However, an entirely acceptable substitute was a journey on No. 47, carded as a morning mixed train between East Stroudsburg and Binghamton, N. Y. Usually its train consisted of empty milk cars, which the big engine peddled at every dairy along the line. At the start, the non-air-conditioned coach would be 20 to 40 cars behind the motive power, but the nearer the train came to Binghamton, the closer the coach came to the thundering giant up ahead. Frequently, its solitary passenger was made to feel important when the big 4-8-4 squeaked to a halt in the Binghamton depot with the coach coupled to its tender.

● DL&W passenger schedules were not especially fast, even on the race track east of Buffalo, where 75 to 90 minutes was allowed for the 62-mile stretch between there and Mount Morris, N. Y. Whenever westbound trains were late, though, which they frequently were, the 79-inch-driven 4-6-2's and the 4-6-4's would do better than 80 per, racing into Buffalo terminal on time right to the minute.

● One of the 1450's blew out a front cylinder head while passing through the South Orange (N. J.) depot with the *Lackawanna Limited* one morning. The flying disc ripped out some 25 feet of wrought-iron picket fence, clattered across a concrete platform, and clanged to a halt against a concrete parapet on the far side of the elevated track structure. Fortunately, the incident occurred beyond the area where several people were awaiting the arrival of an M.U. train, but it scared the devil out of one poor soul who had strolled far down the platform. Although he was unharmed, he received the full benefit of the explosion and the subsequent noisy destruction of the ironwork. I

and on No. 1, its westbound counterpart. During this orientation period the Lackawanna proudly exhibited one of them at important on-line communities, as it had done with the newest Poconos; and one could not help but be impressed with the 4-6-4's size, massive but not overwhelming. Two handled the *Lackawanna Limited* between Buffalo and Scranton, and two more took care of the *Western Special-New Yorker*. None of these schedules were especially fast (and interestingly, only trivial changes had taken place in the *Limited's* schedule since 1905, when Ten-Wheelers were in charge of its cars). The fifth member of the quintet substituted whenever one of the other four needed repairs or inspection; otherwise it worked the *Pocono Express* over the hump to Hoboken in the morning and returned on the *Buffalonian* at night. Ordinarily these two east-end trains were not heavy, but upon occasion more than the customary six cars were coupled behind the tender and then help was needed on the 1½ per cent gradients over the Poconos.

One of the 4-6-4's was granted a respite from service to participate in

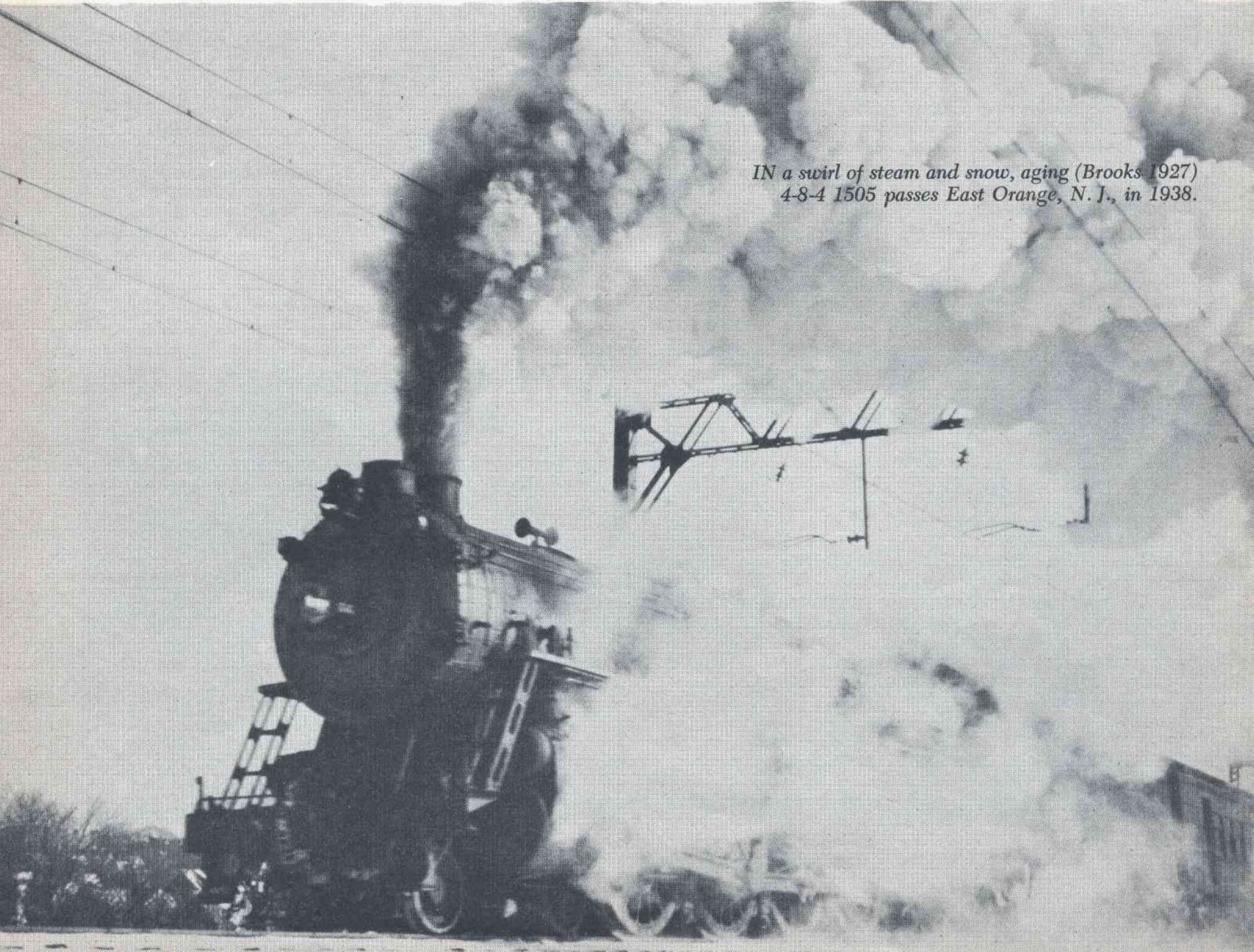
the railroad exhibit at the New York World's Fair. In 1939 the 1151 was renumbered 1939 and was modified with an aluminum-painted smokebox and a wide strip below the running boards bearing the inscription POCONO MOUNTAIN ROUTE instead of the expected ROAD OF ANTHRACITE. Renumbered 1940, the 1151 went back to the 1940 fair, this time with a pilot-to-bell streamstyled front end which many thought less than flattering to the locomotive's appearance. After the fair the proper road number was restored and some of the streamlined cowling was removed to facilitate maintenance.

In the late '30's the Lackawanna operated some memorable trips in conjunction with the several railfan organizations in and near New York. One of the excursions — on July 25, 1939 — was the largest scheduled up to that time. Almost 500 enthusiasts, half of whom had cameras, paid \$4 for a 400-mile round trip from Hoboken to Binghamton. Two Poconos pulled the 16-car train of 11 air-conditioned coaches, 2 diners, 2 baggage cars, and a parlor-observation between Hoboken and Scranton. There a long stop

was made to inspect the locomotive shops and to photograph every available type of steam power from an 0-4-0T to a 4-8-4, all newly painted and polished, perfectly spaced, and facing the sun. Between Scranton and East Binghamton the special rated two of the streamstyled Pacifics, including the multi-hued 1123. At East Binghamton more engines were spotted on the turntable's open storage tracks. To satisfy railfans and non-railfans alike, the diners served a de luxe No. 5 cut steak dinner for \$1.50. In later years DL&W operated other trips over its little-known branch lines and over freight-only roads such as Lehigh & New England and Lehigh & Hudson River with power ranging from 4-4-0's to its latest 4-6-2's. On one occasion the operating department didn't believe that the little American could make the 1½ per cent grade up to Summit so a diesel switcher was secreted at Millburn just in case. (It wasn't needed.)

Although World's Fair traffic did not make any significant change in the Lackawanna's passenger statistics, the road benefited from special movements such as one sponsored by IBM

Robert A. LeMassena.



*IN a swirl of steam and snow, aging (Brooks 1927)  
4-8-4 1505 passes East Orange, N. J., in 1938.*

from its plant near Binghamton, N. Y., in 1939. Ten 10-car specials were run, split evenly between DL&W and Erie. Operating 10 minutes apart and pulled by consecutive-numbered Poconos (1644-1648) — all spotlessly clean — the trains provided a fast and inexpensive way to reach the fair.

By 1940 Lackawanna had come to the end of a string of nine successive years during which it had not earned its fixed charges. Freight revenues were inching upward and coal loadings, though still at depression levels, were increasing. Heartened, the railroad's management bought 11 more 600 h.p. switchers from EMD and added 3 to its group of 600 h.p. Alcos. Thirty-three of these diesel switchers were then in service, mainly around the terminals at Hoboken, Scranton, Binghamton, and Buffalo.

Though World War II saved some railroads from immediate insolvency, it did not make the DL&W wealthy. Freight revenues soared from 51 million dollars in 1941 to 65 million in 1943, but the tonnage rise was disappointing — from 28 million to 35 million. Gross ton-miles per train-hour stayed within the 40,000-to-45,000 range. No new power was acquired; in fact, the four remaining freight Pacifics were sold to the Boston & Maine, the first five 4-8-2's went to the Atlantic Coast Line, and seven of the big Mikados were sold to the Montour, the Chicago & Illinois Midland, and the Alton & Southern.

If Lackawanna made any money from hauling war traffic, the road did not enjoy the pleasure of pocketing much of it. Financial lightning struck six years in a row, and the railroad never quite recovered from the strikes. The first bolt was a U. S. Supreme Court decision which upheld New Jersey's claim to withheld taxes (unfair though they may have been) going back to 1932. The total in 1941 came to over 7 million dollars. In 1942 the Department of Internal Revenue stepped in to recover income taxes on rentals paid to the railroad's several leased lines. A 5-million-dollar fund was established to settle this dispute. New Jersey, which holds the national record for onerous railroad taxation, raised franchise taxes on railroads by 68 per cent in 1943. The New Jersey tax matter was settled in 1944 by the payment of 9 million dollars to the state, yet there were several communities in Hudson County which felt that taxes should have been doubled because the railroads there were underassessed. In 1945 DL&W coughed up another 3 million to New Jersey — the interest on the unpaid taxes. To stave off impending insolvency, the road completed the merger of 13 of its



Robert A. LeMassena.

*SISTER 4-8-4 No. 1504 pauses on Paulin's Kill Viaduct with railfan special in 1939.*

18 lessor companies. This cut the fixed charges by 5 million dollars annually, but the tax burden was frightful. In 1946 New Jersey got 5 million dollars in franchise and other taxes, while Washington collected 4 million in payroll and income taxes. Combined, these took one-sixth of the Lackawanna's freight revenue.

Having lost the tax battles, the railroad looked elsewhere for ways to cut expenses. The replacement of steam with diesel-electric power offered the most possibilities. In 1945 DL&W acquired four two-unit 2700 h.p. locomotives from EMD which were assigned as helpers on the Pocono grades. Four three-unit 4050 h.p. locomotives from the same builder began to haul manifest freights. Some bigger switchers — five 1000 h.p. B-B's — came from EMD also, and Alco delivered five of its version to permit retirement of the smaller steam

switchers. With freight revenues still increasing healthily, the downward trend of gross ton-miles per freight train-hour was reversed during 1946 with the arrival of two three-unit 4500 h.p. passenger locomotives for the *Lackawanna Limited*, three three-unit 4500 h.p. freight locomotives for fast freight service, and three two-unit 3000 h.p. locomotives for ordinary mainline freight service—all of which came from EMD. In the following year EMD delivered three more passenger locomotives, thus completing the dieselization of through passenger trains. The first round ended in 1948, when another 4500 h.p. and six more 3000 h.p. freight locomotives came from La Grange.

This massive dose of non-coal-burning motive power had its effects in places other than the roundhouses. The Lackawanna paid its first dividend since 1931. During this 4-year



acquisition period, 128 steam locomotives had been scrapped. First to go were the low-wheeled three-cylinder Mountains, then the newer Mikados and the five remaining passenger 4-8-2's. The first 4-8-4's, used in passenger service, obviously were out of a job, too, as were the exquisite Hudsons.

Last but not least, DL&W bought 46,700 shares of its traffic ally, Nickel Plate, with which it connected and interchanged freight and passengers at Buffalo. The railroad announced with no reluctance that the reason behind the purchase was the contemplation of eventual merger. What the NKP thought of this overture was something different, as time revealed.

Gloom and joy came in the same package during 1949. The coal strike chopped 3 million dollars from coal revenues, and total freight revenues dropped 9 million. Nonoperating employees won a 40-hour week. But with the delivery of one 4500 h.p. and six 3000 h.p. freight locomotives from EMD, 65 per cent of the freight ton-miles were run off by diesel power. Prosperity of a sort returned to the Lackawanna. By 1950 it had paid 25-cent annual dividends for three years in a row; it had increased its NKP holdings to 60,000 shares; gross ton-miles per freight train-hour were heading sharply upward; total dieselization was within arm's reach. The New Jersey commuter service was handled entirely by Pacifics and Hudsons; the 4-4-0's and 4-6-0's had vanished. Local freights, once hauled by 2-8-2's and 2-8-0's, were being assigned the big 0-8-0's. All 50 of the

1600-series 4-8-4's were alive, but hardly any use for them remained on the main line. Scranton basked in sunlight of a brilliance unknown for over 100 years.

The year 1950 marked a halfway point in the replacement of steam power with diesel. The roster of steam locomotives had been halved since prewar days, while the number of diesels was at about half of its ultimate count. Mainline passenger and freight service was entirely behind the drawbars of Electro-Motive units. Switching operations were about 50 per cent steam, and steam still pulled local freights and the commuter runs out of Hoboken on the freight line through Paterson. Although only four Alco 1600 h.p. road-switchers were added during 1950, their arrival marked the beginning of the dieselization of these secondary services. In a broader sense, they heralded the beginning of the end for steam on the Lackawanna.

THE Road of Anthracite celebrated its centenary with a three-day program at Scranton and the purchase of 29 diesel-electrics. Eleven 2250 h.p. E8's bumped the older F3's off the limiteds. Six Alco road-switchers displaced more steam engines in the commuter pool, and 12 1500 h.p. GP7's took over local freight runs. Sixty-nine coal-burners made a one-way trip to the steel mills in 1951. The spending spree carried over into the following year. Five orders brought 3 GP7's, 8 more Alco RS3's, 6 FM 1600 h.p. H16-44's, 9 EMD 600 h.p. SW8's, and 7 EMD 1200 h.p. SW9's. Steam was fleeing rapidly from its remaining

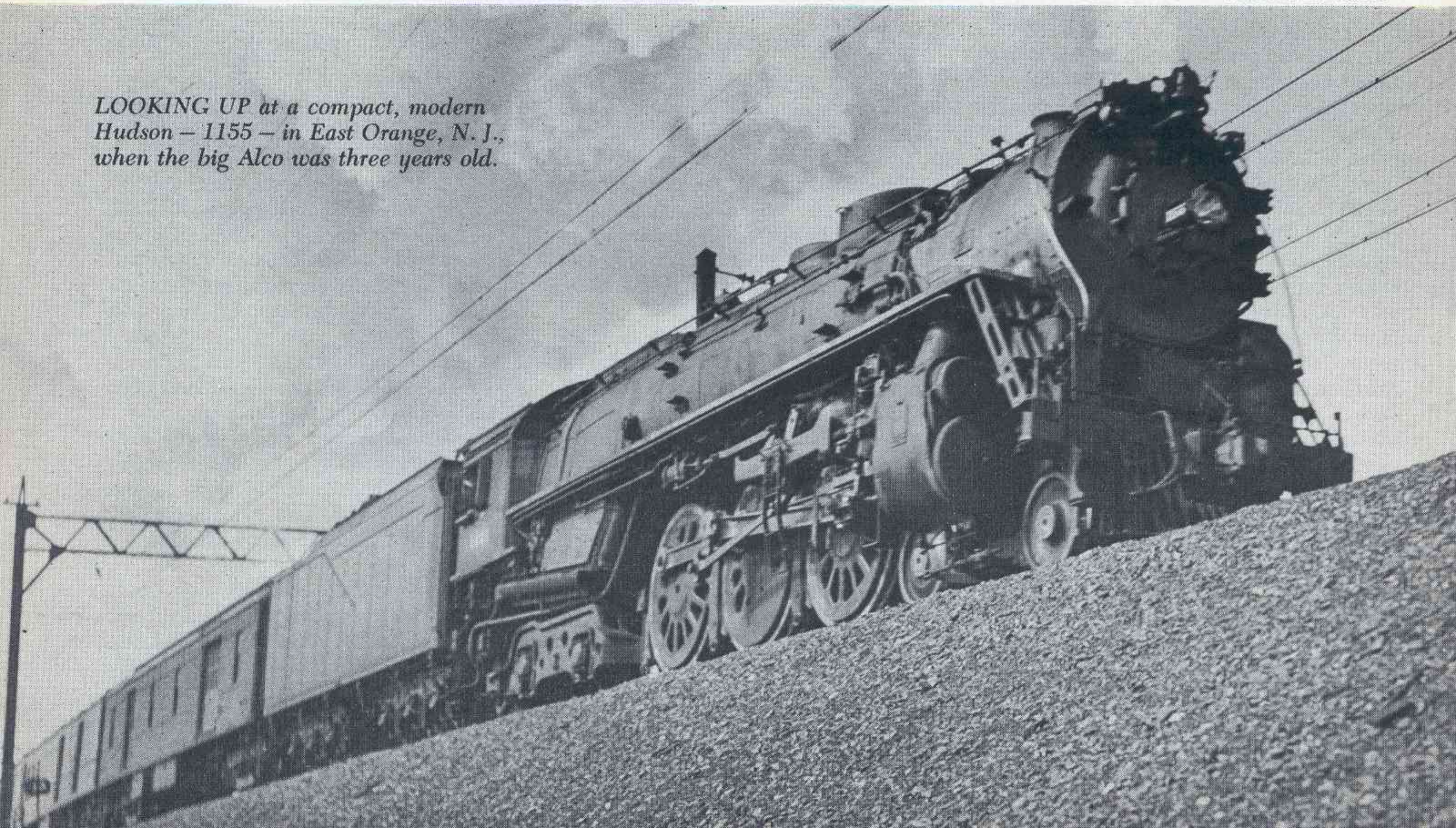
haunts — transfer runs, local passenger service, switching and local freight service. At the close of the year, the score was diesel, 194; steam, 58.

Freight revenues for 1952 hit a new high of 76 million dollars. Coal revenues all but equaled those of the peak of 1948 and were only 20 per cent under revenues for the boom year of 1929. Gross ton-miles per freight train-hour zoomed to a new high of 49,000. The railroad even began to buy back some of its bonds at a substantial discount, thus reducing its fixed charges. Within a year steam would be extinct. What, then, was wrong with this picture of prosperity? The answer was in the freight-tonnage figures which had been declining since 1943, when 35 million tons had been handled. Only 25 million tons were registered in 1952.

Coal tonnage had been dropping because of the decreasing use of hard coal for heating. Private homes were switching to oil or gas, both of which came in by pipeline. Industrial plants were dispensing with soft coal in favor of the other fuels. To make matters worse, the Eastern carriers were scrapping among themselves for what coal traffic remained; and all of the lines were battling trucks hauling anthracite and ships bringing up bituminous from Norfolk, Va. In 1929 the DL&W's coal revenues had been 24 million dollars, three-eighths of the railroad's total freight revenues. Now they were 15 million, only one-fifth of the total; and both figures were declining along with freight tonnage. For the first time in Lackawanna his-

Robert A. LeMassena.

*LOOKING UP at a compact, modern Hudson — 1155 — in East Orange, N. J., when the big Alco was three years old.*



tory, hard-coal loadings weighed less than those of soft coal. In spite of this deteriorating financial picture, the annual report announced the best net-income figure since 1929. The fine print revealed that it was attained only by virtue of some nonrecurrent income items.

Lackawanna management people knew the truth, however; they could read *Moody's Financial Manuals* as well as anyone else. To further decrease fixed expenses, they bought more DL&W bonds, again at a discount. Holding 17.8 per cent of Nickel Plate's voting stock, they pushed the merger idea harder by announcing their desire to sit on the NKP's Board of Directors. To this overture NKP was cool; it preferred to run its own railroad without the dubious assistance of the Lackawanna.

Twenty additional diesels were purchased to eliminate steam power completely. As each new unit arrived, a steam engine was set aside, and by the end of July 1953 the last operating steam locomotive had dropped its last fire. Four orders did the job: 2 800 h.p. EMD switchers, 3 1200 h.p. EMD switchers, 5 GP7's, and 10 FM 2400 h.p. Train Masters.

Steam bowed out minus fanfare and almost without any record of its final performance. The 1121 pulled the last steam-powered commuter train out of Hoboken the evening of June 3. During early July, one of the 1200's dragged a local freight into Scranton from Wilkes-Barre and gave its job to an internal-combustion unit. A little later in the month one of the big 200-series switchers backed into the

Scranton engine terminal to take on coal and water and to await its next trick—which never came. No one seems to have recorded its number or the date. The fact that this was the last DL&W locomotive to carry steam went unnoticed by everyone, including the newspapers and the company magazine.

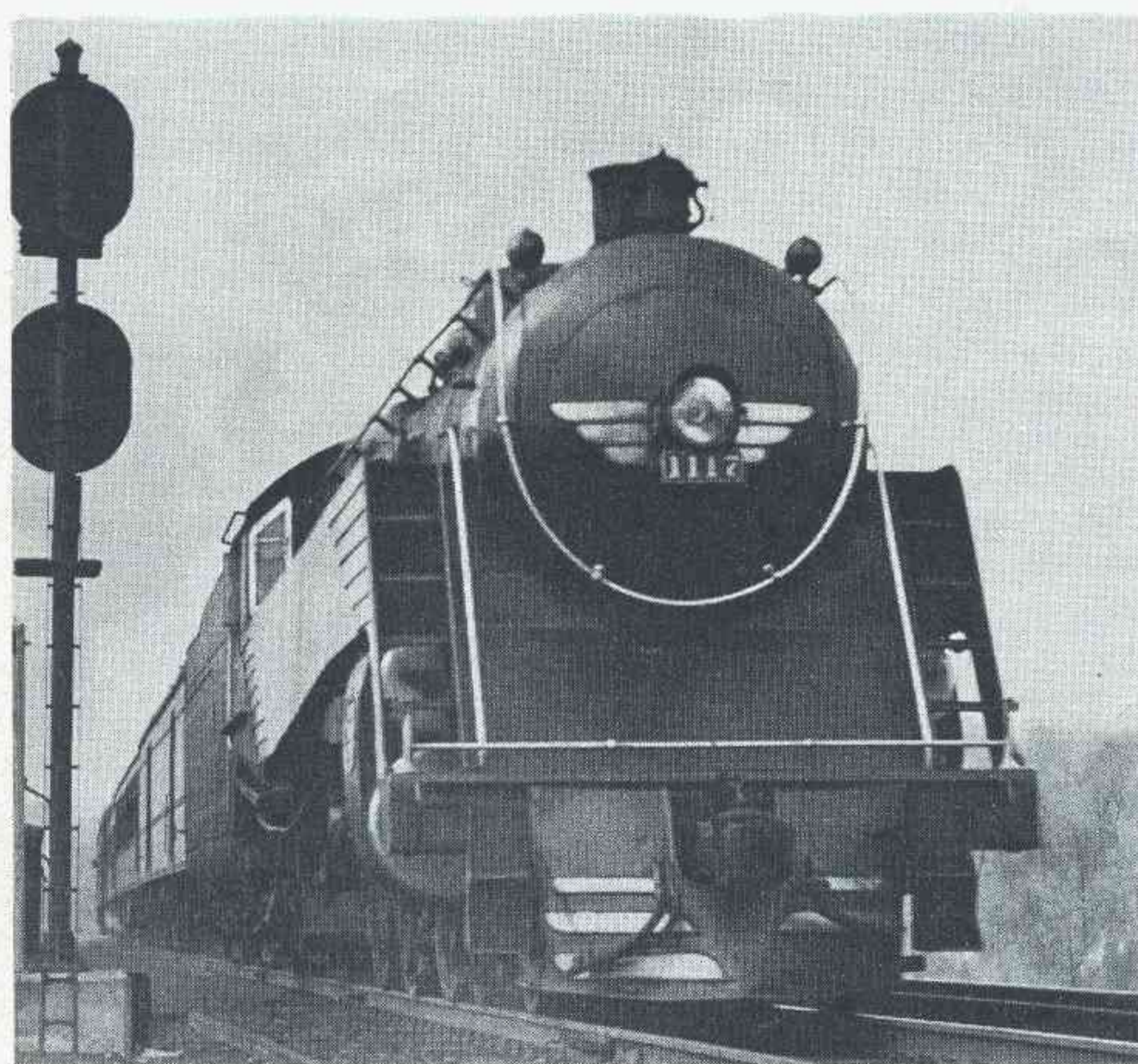
The 1121 still had a spark of life remaining, nonetheless. With its main and eccentric rods removed, it was hauled around the New Jersey countryside for a couple of years, pinch-hitting for steam boilers in plants adjacent to Lackawanna trackage. Unfortunately, not one of Lackawanna's modern steam locomotives has been preserved; none of its 5 Hudsons, 55 Poconos, 35 Mountains, 112 Mikados, or 83 Pacifics escaped the customary fate of displaced steam power. President White did offer one to the city of Scranton, but there was no practical way to move it to Nay Aug Park. The task would have required either construction of several miles of steep and winding trackage through city streets or a direct vertical lift of 125 feet from DL&W tracks in the gorge adjacent to the park. One does still exist though—and in operating condition. It is 2-6-0 No. 565 built at Schenectady in 1908 and sold in 1936 to the Dansville & Mount Morris, a short line connecting with DL&W at Dansville, N. Y. D&MM sold it in 1960 to the Black River & Western, a railfan enterprise at Flemington, N. J., where it has been in operation this summer.

The elimination of steam power, which had saved many a railroad from bankruptcy, failed to revive the fast-

failing Lackawanna. Freight revenues sank to 63 million dollars in 1954 and tonnage was down to a new low of 21 million. Not since the worst years of the depression had coal revenues been so low—13 million dollars. Passenger losses, figured by the I.C.C.'s formula, were some 5 million dollars. Impending doom notwithstanding, the Directors upped the railroad's precarious dividend from 75 cents to \$1, a final showy gesture.

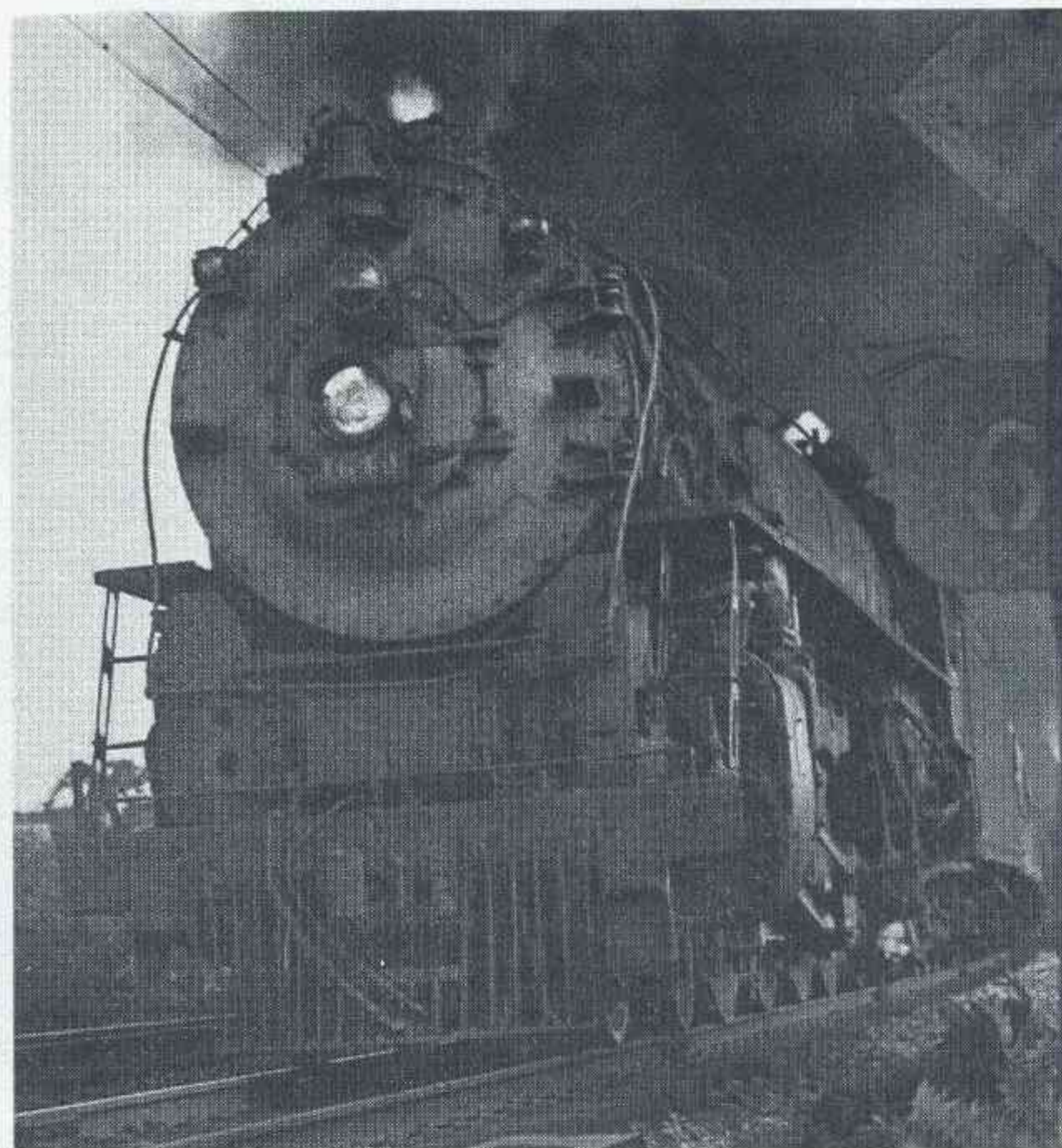
Because of the generally declining tonnage handled by the DL&W during its dieselization period, the usual comparisons may not reflect a true picture of the effects of the conversion. For example, in 1944 34 million tons were hauled with 362 steam locomotives and 33 diesel switchers. In 1954 21 million tons were handled with 214 diesel units, but the gross ton-miles per freight train-hour had risen from 42,000 to 49,000. In essence, although tonnage had dropped by about one-third, the number of locomotive units had been almost halved and they were getting over the road faster with heavier trains. The combined improvement was about 16 per cent even though the inefficient utilization of motive power in the Hoboken commuter pool, an unavoidable situation, reduced the diesel's performance.

Even a comparison of schedules does not tell the story much better. In 1905 the *Lackawanna Limited* went from Hoboken to Buffalo via the longer and more difficult routes through Washington, N. J., and Nicholson, Pa., in 9 hours 45 minutes. Thirty-five years later the *Limited*, consisting of 10 to 12 heavyweight



Robert A. LeMassena.

*STREAMSTYLED Pacific 1117 breezes through Denville, N. J., March 18, 1939, in a design era influenced by the Zephyr.*



John Briggs.

*JUST before the diesels take over, 4-8-4 1644 crests the grade out of Newark, N. J., with No. 11 in 1949.*

cars, was hauled by 4-8-4's over the Poconos and 4-6-4's across the Southern Tier in 9 hours 15 minutes. Three FP's, with a somewhat lighter consist, sliced 1 hour from this schedule, but the timing was not notably speedy. On the gentle profile between Binghamton and Dansville, 145 minutes was consumed running 127 miles — an average of 52.5 mph. By comparison, the overnight merchandise, HB-3, was a ballast-scorcher. Three F7's (4500 h.p.) with 63 cars totaling 4300 tons went from the Hoboken carfloat slip to Buffalo in 12 hours 50 minutes. The train was essentially the same as that given to 4-8-4's (4000 h.p. maximum), but some of the time saved was attributable to a reduction in yard delays en route and elimination of stops for coal and water. Perhaps the most obvious improvement was noted on the 1½ per cent grades, where a heavy 2-8-2 doubleheaded with a 4-8-4. Their speed was so low that their combined horsepower dropped to about 5000; the F7's, with a pair of F3's pushing, ground out 7500 h.p. Since speed on the heavy grades was directly proportional to the drawbar horsepower, the diesels made about 30 mph while steam made 20 with the same tonnage.

WHETHER Lackawanna could survive as an independent railroad was a question surrounded by conjecture in 1955. The future of coal hauling was hopeless; coal contributed less and less to the railroad's coffers. Despite hotshot merchandise trains to speed highly rated commodities between Buffalo and New York, the

trend of freight revenues was downward.

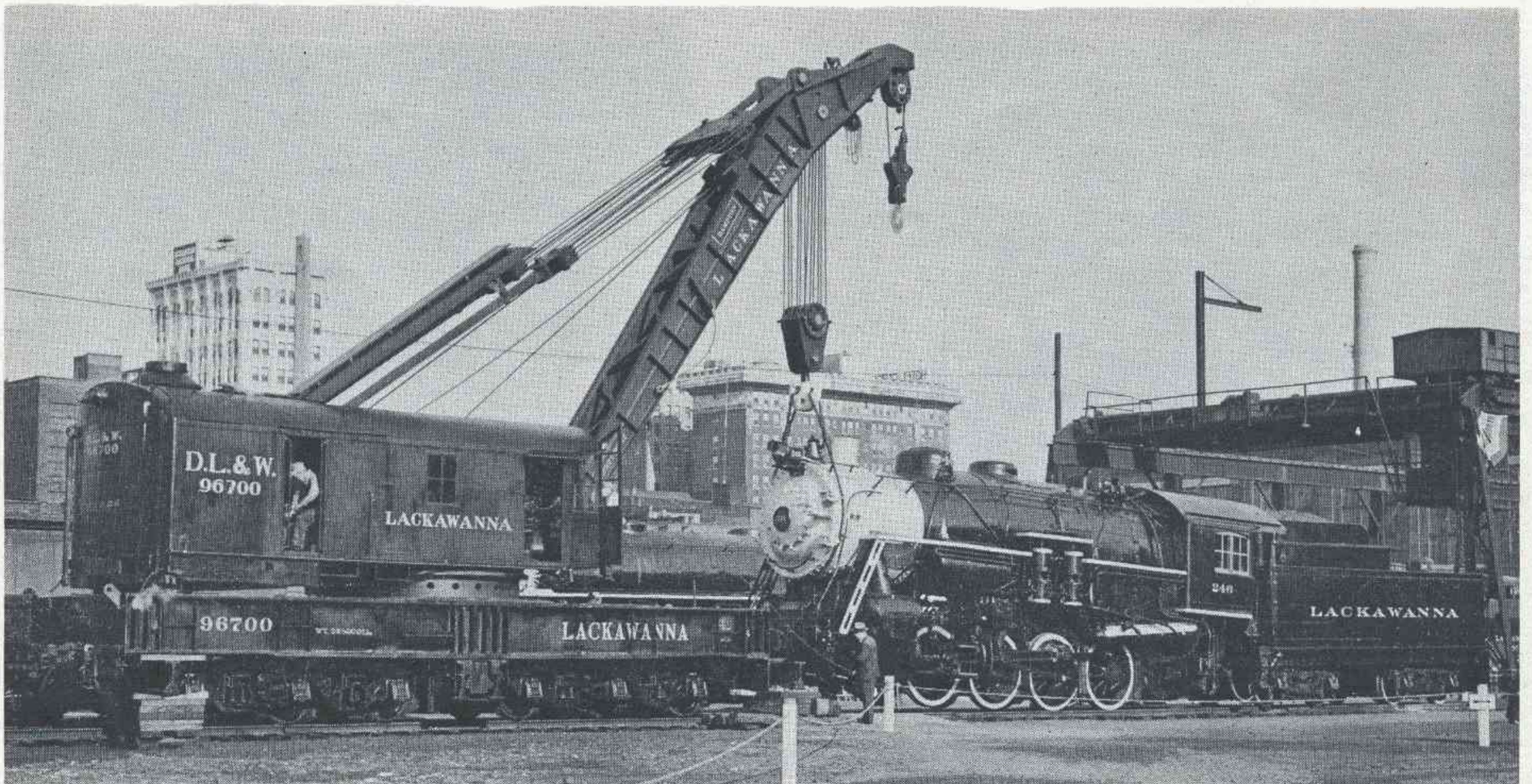
Just as the railroad was feeling the effects of a better-than-usual late summer traffic surge, nature removed whatever doubt remained. On August 18 and 19 Hurricane Diane dumped 10 to 14 inches of rain within 24 hours on eastern Pennsylvania and northern New Jersey. The resulting floods all but erased the 60 miles of line between Scranton and Delaware Gap. There were 105 landslides, washouts, and lost bridges, one of which was the big two-track, four-span structure over Brodhead Creek below East Stroudsburg, where the water rose 30 feet in 15 minutes. Seventeen diesel units, four freight trains, and two passenger trains were marooned until a new railroad could be built to retrieve them. What might have been the worst disaster in Lackawanna history was averted near Cresco by a cautious and alert engineer who discovered that the tracks had been left suspended in midair over a washed-out fill with the signals showing green.

Trains detoured over Pennsylvania; the former West Shore; New York, Ontario & Western; Lehigh Valley; Reading; and Delaware & Hudson. Some of these lines were having high-water problems of their own but nothing like those experienced by DL&W. Bethlehem Steel gave an emergency order for 3000 tons of rail — "rights over everything" — in its great mill. Ten thousand carloads of rock fill was used to plug the gaps, and a temporary bridge was suspended across Brodhead Creek. Private contractors tackled the gigantic job on several

fronts. Even with this army of men and equipment at work around the clock, the railroad was out of business for 29 days. The cost was close to 8 million dollars, a trifle less than one-eighth of all freight revenues for the entire year. Even fate was conspiring against the luckless Lackawanna.

The road's frightening transportation ratio of 49 per cent touched off a three-way merger study with the D&H and the Erie in 1956. Two more C-C FM Train Masters came to work on the railroad, and some of the NKP stock was distributed to stockholders. No dividend had been paid in 1955, and there was none in 1956. The I.C.C. dashed DL&W's last hope for a more successful survival when it ruled that DL&W could buy no more NKP stock (as if it *could* do so) but that it could keep what it had, provided the stock remained in an independent trust. NKP didn't want DL&W, but the I.C.C. wouldn't have permitted the marriage had Nickel Plate felt otherwise.

EMD delivered 8 SW1200's to replace the 1933-vintage Alco switchers; these were the last locomotives to be acquired by the Lackawanna. The year was 1957. Coal revenues were sliding through the depression level, and freight revenues had fallen to 71 million dollars from the previous year's peak of 74 million. The plunge continued into 1958 with the lowest freight revenue figure in 12 years — 59 million. A cement strike put a sizable dent in Lackawanna freight traffic, and coal was down to the lowest level in more than 30 years. One more nail was driven into the Lackawanna's



John F. Endler Jr.

BRAND-NEW crane raised and lowered 0-8-0 246 every 15 minutes during observance of DL&W 100th anniversary.

*POCONO 1608 contends with grade at Port Morris, N. J., as she returns empties to the mines for more anthracite.*



Gordon R. Roth.

coffin when the road was obliged to pick up a 5½-million-dollar tab for a brand-new high-level bridge over the Hackensack River, a stream whose navigability beyond the bridge was open to serious doubt by masters of large vessels. Then, to add insult to injury, state and local governments were overjoyed to add this expensive structure to their tax rolls.

During 1959 D&H bowed out of the proposed merger because the terms by which its securities were to be exchanged for those of the new company were unacceptable. Although DL&W was disappointed in this development, the road continued its studies with the Erie, even though the latter was hardly better off financially. The Erie provided an entry to the manufacturing centers of the busy area north of the Ohio River, and it connected with several important carriers, particularly at Chicago, Cincinnati, and Cleveland. A further advantage was the potential elimination of much duplicate trackage between Buffalo and Hoboken/Jersey City. As a preliminary to integration, Lackawanna pulled up almost all its double track between Corning and Binghamton and operated over about 75 miles of paralleling Erie.

The steel strike of that year pushed freight revenues down to a new low of 57 million dollars, and the railroad sold its NKP stock to obtain cash. The gross national product in 1959 (using the figures for 1947-1949 as a base of 100 per cent) stood at 109 per cent. Revenue ton-miles for all Class 1 carriers had dropped to 95 per cent, however. The Great Lakes roads' average was 77 per cent, and the Lackawanna

was well toward the bottom of this group with 69 per cent.

In the late 1920's, a typical New Jersey suburban station had been a beautiful structure of brick, concrete, and tile, with oak interior. The building was clean and was surrounded by neat lawns and sometimes flower beds. Busy ticket agents were on duty for two full shifts. A baggageman was on duty all day, and there was a newsstand which frequently required the services of two clerks. A shoeshine stand was the site of feverish activity just before train time, often with two Italian polish artists wielding the brushes. Three or four beautifully manicured tracks, consisting of 132-pound rail screw spiked to heavy creosoted ties on sparkling trap-rock ballast, ran between the two depot buildings. Train service was frequent, although not notably fast or the cleanest owing to coal-consuming motive power (at least this was considerably better than on the Erie, whose cars were reputed to be ventilated with the exhausts of its locomotives). Thirty years later this picture had undergone an incredible change. The buildings, constructed of indestructible materials, retained their original solidity; but their interiors were dirty, and vandals had broken windows and ravished the wood furnishings. Few stations afforded a full-time ticket agent for one shift; gone were the baggageman, the news clerks, and the shoeshiners. One track was gone, its rails, ties, and ballast requisitioned for a more urgent need elsewhere on the system. Rails were worn; ballast was long overdue for a cleaning. Passen-

ger service, syphoned off by competing buses and private cars, was pared to the bone; cash-fare receipts served as tickets. Speeds were fairly fast, but the M.U. trains no longer had their old get up and go; the catenary voltage had been reduced to about 2500 volts from the original 3000 to eliminate arc-overs in the mercury-vapor rectifier tubes. The scene was a disheartening one of faded grandeur to one whose memory spanned three decades.

Another indication of how far the mighty Lackawanna had fallen was noted painfully by the New York Central. During 1929 and 1930 its subsidiary, the Securities Corporation, had purchased a 9.2 per cent interest in the Lackawanna for 17 million dollars, equivalent to \$121 per share. In 1954, when the DL&W paid its \$1 last dividend, its stock had sold for \$12 to \$20 per share. Eight years later, after the merger with the Erie, this same stock would be worth twice that \$1 dividend and represent a "paper loss" to the New York Central of 98 per cent of its original 17-million-dollar investment.

THE end came quickly, although not necessarily mercifully. During 1960 the I.C.C. received the application for a merger of DL&W and Erie. The Commission acted promptly, approving the proposal in time for the union to become effective on October 17. One would be inclined to think that at last the Lackawanna's tribulations were over now that it had joined with another troubled system hopefully to form a stronger one. This was not to be, but that's another story. I