

TRACK RAISING, tamping and lining on E-L are done largely with one-man-operated Autojack Electromatic Autoliners.

REBUILDING
FROM
THE
GROUND
UP

Erie Lackawanna track maintenance hits full stride

By MERWIN H. DICK, Engineering Editor

Perhaps "turnaround" is the way to describe it. Or maybe "comeback" is better. But it's probable no single word can be found that will fully and accurately portray the changes that are taking place in track-maintenance policies and practices on the Erie Lackawanna. There are too many facets involved. They include:

—Large increases the last several years in tie and rail renewals and other forms of track work over the extremely low levels that prevailed during practically the entire first half of the decade.

—The acquisition of an impressive fleet of modern track-maintenance machines for use in carrying out the enlarged track-work programs. From 1964 to 1968, inclusive, the total investment in such equipment has come to \$3,587,438.

—The ability to perform greater amounts of work while reducing the total number of man-hours expended.

—A management which holds that present-day conditions, including the prac-

tice of using large amounts of costly machinery in track maintenance, favor M/W programs that are relatively uniform from year to year as against a policy that produces sharp cyclical fluctuations in such programs.

● **Merger—and decline.** For the complete story it's necessary to go back to 1960. On Oct. 16 of that year the Erie Lackawanna was born through the merger of the Erie and the Lackawanna. It was also the beginning of a period during which operating revenues of the new company went into a sharp downturn. From \$220 million in 1960, operating revenues dropped to a low of \$206 million in 1963. Deficits racked up in these years were staggering.

Following 1963 a reversal took place in operating revenues. By 1966 they had recovered to \$236 million and the road was in the black. However, 1967 saw another slump in revenues to \$224 million and EL was back in the red.

The period of low revenues was also

Conventions kick off this week

The fall season of railroad conventions gets into full swing in Chicago this week with concurrent meetings of the Roadmasters' and Bridge & Building Associations. Sessions will be held at the Conrad Hilton Hotel, Sept. 9-11. Joint sessions are scheduled Monday morning, Tuesday morning and Tuesday evening. Separate meetings are on the docket Monday afternoon, Tuesday afternoon and Wednesday morning.

● **JOINT SESSIONS.** At an opening meeting on Monday, AAR President Thomas M. Goodfellow will speak on the topic, "Bright Stars Above—Puddles in the Road." An address by Southern Pacific President B. F. Biagini will be on the subject, "M/W Budgets are Everybody's Responsibility, Especially Yours." Also scheduled is an address by Dr. Carl Winters of General Motors, "Your Human Relations are Showing."

Tuesday morning's joint meeting will feature addresses by W. H. Moore, operations vice president of the Southern, "Building Railroad Profitability Through Sound Maintenance Practices"; E. Q. Johnson, chief engineer, Norfolk & Western, "Your Association and You"; and Mac E. Rogers, director of the Bureau of Railroad Safety, Federal Railroad Administration, "The DOT View of Railroad Safety, and What to Do About It."

The annual banquet of the two groups is scheduled for Tuesday evening.

● **ROADMASTERS.** President W. J. Jones of the Roadmasters will open that group's session Monday afternoon. Reports will be heard from committees on ties, ballast and rail. At a Tuesday afternoon session, reports will be presented on track maintenance, track inspection, and surface grinding. CF&I Steel Corp. will show a film, "Rails to Go." The Wednesday morning session will feature reports on communications, and machinery, and a motion picture, "That We Might Live," to be shown by the Union Pacific.

● **B&B.** Bridge & Building sessions open Monday afternoon with an address by President Joel W. DeValle. Members will hear reports on "in-place" treatment of timber bridges, new work materials, repairing and replacing expansion rollers under bridges, and will hear an address on corrosion protection by an officer of Zinc Institute, Inc. There will also be a presentation on high-strength Huck fasteners.

More committee reports are on tap Tuesday afternoon—on tools and equipment, heavy construction tools, and replacing of timber trestles with steel and concrete structures. On Wednesday, members will hear an address, "How We Stabilized the Potrero Hill Tunnel," by SP Chief Engineer H. M. Williamson (San Francisco).

a period of deep cuts in M/W work. During several years, the amounts of new ties and rail applied in the tracks (see table p. 20) were almost non-existent, although to some extent the deficit was overcome by inserting quantities of relayer rail and used ties, obtained largely from abandonment of a section of Lackawanna main line between Corning, N. Y., and Buffalo.

● **Turning point for M/W.** Along with the recovery in revenues there occurred a turning point in the fortunes of the maintenance-of-way department. By this time R. F. Bush had become chief engineer, having assumed that position on Oct. 1, 1964. In planning his track-maintenance programs Bush was governed to a large extent by a goal that had been established by management. It was to get the road's main line between New York and Chicago, mostly double track, in shape for handling freight trains at 60 mph. Actually, this line, 977 miles long, extends from Hoboken, N. J., on the west bank of the Hudson river opposite Manhattan, to Hammond, Ind. From the latter point the EL operates into Chicago over the Chicago & Western Indiana.

Faced with the task of upgrading the road's entire main line and of keeping it at the higher standard of maintenance, Bush decided it would be necessary to embark on a program to place tie and rail renewals and track surfacing on a cycle basis. For the double-track main line he established a cycle of 5 to 6 years for tie renewals with two intermediate surfacings. On single-track main lines the cycle for tie renewals is four years with one intermediate surfacing.

Bush is convinced that the cycle plan is necessary if the desired track condition is to be achieved and maintained with a maximum of economy. His objective is to establish his tie and surfacing programs at a level that will bring an additional mileage of track under the cycle plan each year. Already, he says, about 400 miles of track in both the eastbound and westbound main lines have been brought up to the standard required for 60-mph speeds.

● **Bigger programs for '68.** The goal for upgrading the EL's main tracks has meant sharply increased M/W programs. The program for 1968 was made the subject of a recent statement by John P. Fishwick, the road's chairman and chief executive officer. Main points made in the statement:

—The 1968 program calls for an expenditure of almost \$24 million compared with an average of \$18.5 million spent in each of the past seven years.

—Quantities of work programmed for 1968 include 97 miles of rail, of which 62 miles will be continuous welded rail, the insertion of 375,000 crossties, the raising of 829 miles of track and the

placing of 469,500 tons of new ballast. All of these quantities are in excess of those for previous years.

—Twelve gangs of seven men each will be renewing a total of 352 grade crossings at various locations.

The fact that Fishwick issued the statement on the 1968 work programs, indicating approval of them, has special significance since he didn't assume his position on the EL until April 1 of this year, months after the work programs for the year had been established. April 1 was the date on which EL became a subsidiary of the Norfolk & Western. This came about as a result of efforts of EL, the Boston & Maine and the Delaware & Hudson to be included in the N&W system. To effect ownership of the smaller lines N&W created Dereco, Inc., a wholly-owned subsidiary, for the purpose of acquiring all the stock of the smaller companies.

Fishwick is senior vice president of the N&W and president of Dereco. He was appointed also chairman and chief executive officer of the EL to represent the interests of the N&W in the management of its new property. (For the same reason he has assumed the post of president of the D&H which is now also a subsidiary of the N&W through ownership of its stock by Dereco.)

● **Making up for "non-work."** For one who admits he knows little about track, Fishwick appears to have a strong appreciation of the need for adequate track maintenance. On assuming his position on the EL, and after taking a close look at the 1968 work programs, he put his stamp of approval on them. In an interview he made a special point of calling attention to the fact that the 1968 programs call for greater amounts of new rail renewals and crosstie insertions than were made during the entire period from 1960 to 1965, inclusive. "We've still got some work to do," says Fishwick, "but at least we are making up for some of the non-work of those years."

But Fishwick's ideas go much further than merely making up for past deficiencies. "What we are trying to do is to build up the property into a first-rate competitive railroad," he says. In attaining this objective he expects the M/W ratio will be around 12% this year due to the enlarged work programs. And he is determined to complete these programs regardless of what happens to business.

What happens then? What will be the management attitude toward M/W expenditures when the properties have been placed in a satisfactory condition? Fishwick sees M/W expenditures dropping back to a somewhat lower but adequate level, with the M/W ratio settling back to about 10%. He anticipates the 10% ratio can be maintained

partly through increased business and partly as the result of greater efficiency on the part of the M/W forces.

● **Getting behind is costly.** Fishwick has some interesting ideas about M/W expenditures. "While I am very net-income conscious," he says, "I don't think we should consider net income for just a month or a year. We need to take a long-term view of net income. I think it costs more in the long run when you get behind in track maintenance with the idea of making up the deficiency in the future. At the same time I don't believe in gold-plating or over-maintaining a railroad."

While recognizing that the railroads are a cyclical industry Fishwick doesn't believe that track work should necessarily be cut back when business is in a sinking spell. His reasoning is that it is actually more economical to do

track work when business is down because then the work is subject to fewer interruptions due to passing trains. "The main thing is the amount of productive time you get, not how much time you have a gang on the track."

● **Changing economics.** In Fishwick's opinion economics are now more strongly than ever in favor of a policy of flattening out the ups and downs of maintenance expenditures. This situation, he maintains, has been created largely as a result of the increased use of costly machinery in track-maintenance operations. "It's expensive," he says, "to allow this equipment to lie idle."

He also points to the difficulty of getting trained employees to operate today's machines, noting that "you just can't pick up such men any time you need them."

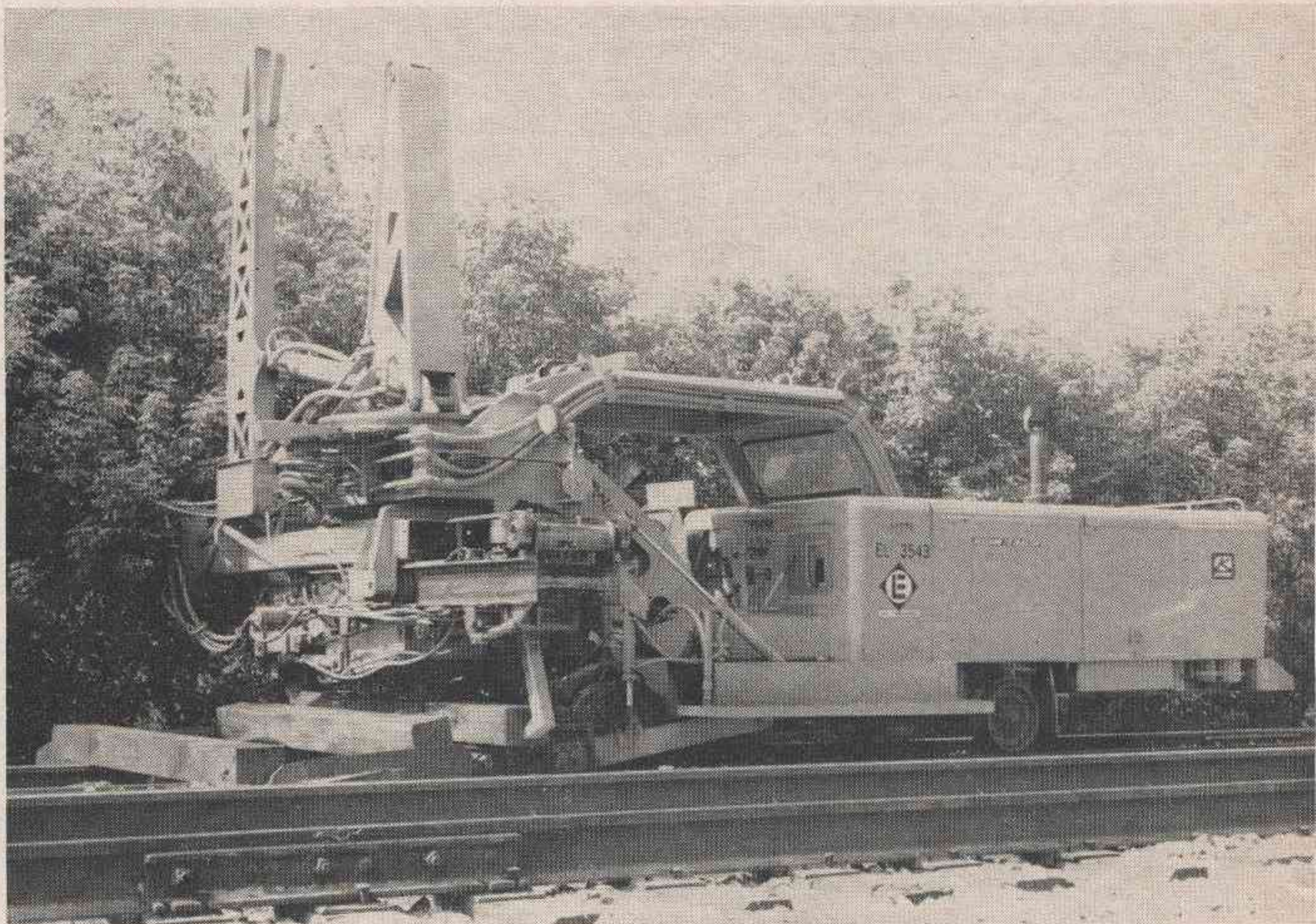
Backed up, as they are, by a green-light signal from management, Chief Engineer Bush and his staff in recent years have been acquiring increased amounts of modern track machinery, taking advantage of the newer machines as they are introduced. Their objective is to beef up both the productive capacity and the efficiency of their forces. An example of what they have been doing in this area is provided by the action taken with regard to tie-renewal operations.

For making main-line tie renewals the EL, by 1967, was using three highly mechanized gangs. These gangs operate under the so-called "detour" system, which means that, using temporary crossovers where necessary, a section of track in double-track territory is turned over for occupancy of the track forces during working hours, with revenue

THE BOSSES—AND THEIR MACHINES

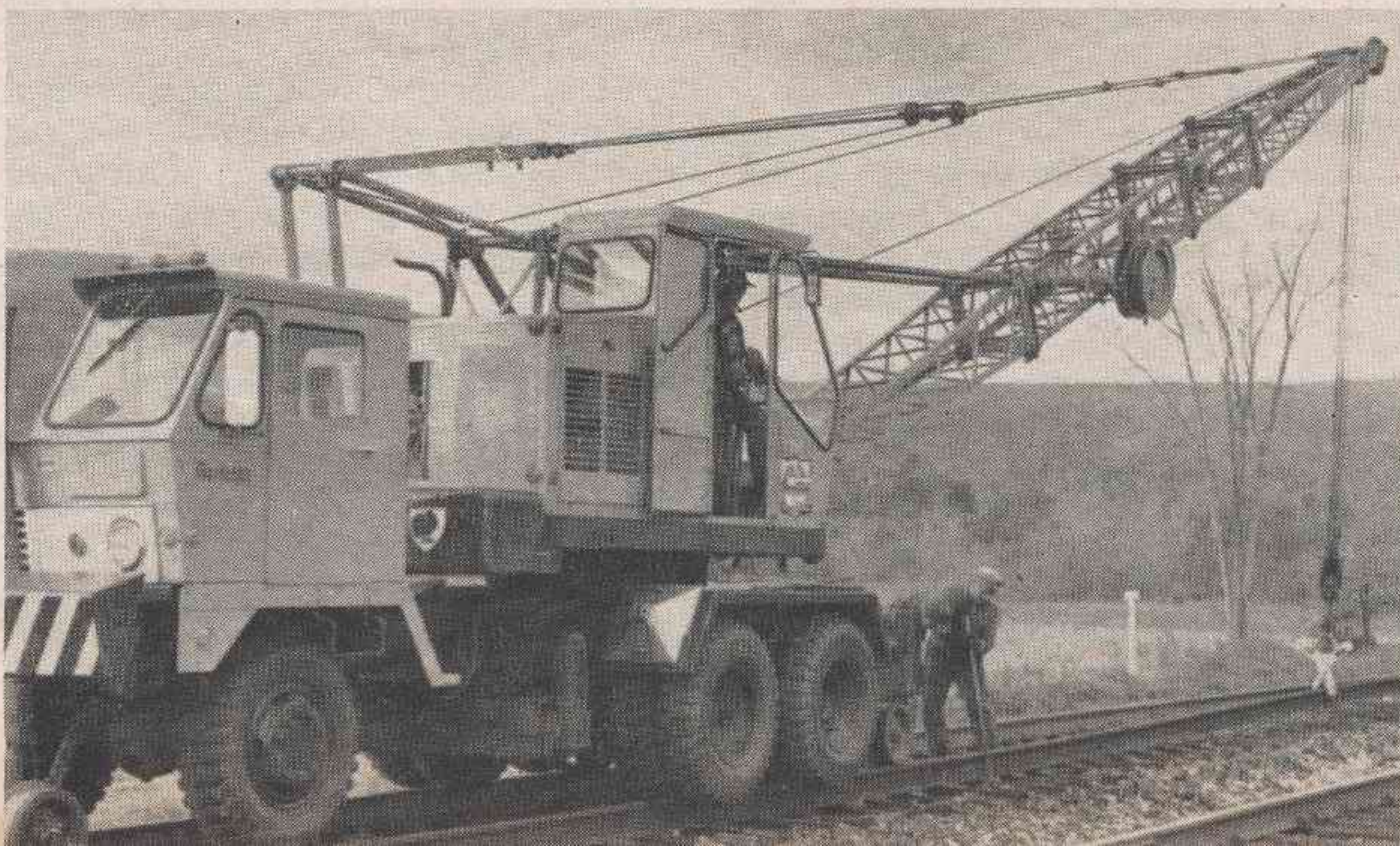


FIRST-RATE COMPETITIVE RAILROAD is the goal of John P. Fishwick (seated), Erie Lackawanna chairman and chief executive officer, and R. F. Bush, the road's chief engineer.



M/W MACHINES RECENTLY ACQUIRED by the Erie Lackawanna include three Kershaw Tie Injectors, which pick up ties and insert them in the track.

RAIL-LAYING MACHINES used on the E-L include this Schield Bantam on/off track crane which picks up welded rail strings and places them on the tie plates.



HOW ERIE LACKAWANNA FIGURES ITS MAINTENANCE COMEBACK

Year	New Stone Ballast (tons)	RAIL LAID—MILES		TIES USED		TOTAL TRACK RAISED—MILES		Total Raising	Man Hours*
		New	Usable	New	Usable	3 Inches	1½ Inches		
1960	—	11.140	89.985	124,091	—	45.87	175.48	221.35	3,421,720
1961	—	.965	47.805	57,003	—	—	—	—	2,779,405
1962	—	.635	57.775	3,386	66,056	—	—	—	2,877,019
1963	—	.995	57.040	2,746	117,106	100.50	86.7	187.2	2,910,693
1964	—	2.275	93.410	5,702	203,744	361.70	212.9	574.6	2,762,664
1965	339,261	.446	127.273	177,659	76,361	732.69	—	732.69	2,776,249
1966	332,740	25.81	60.70	257,365	9,624	732.78	—	732.78	2,787,365
1967	365,480	43.65	39.53	312,447	12,720	324.47	279.91	604.38	2,568,792
1968	469,500	40.2	56.8	375,000	—	453.1	375.7	828.8	—

*Includes roadmasters, general foremen and assistants, gang foremen, section foremen, work equipment operators and helpers and extra gang and section laborers.

traffic being routed over the other track.

As they existed last year the detour tie-renewal gangs each included, among the main units of machinery, an RMC Joint Straightener, an RMC BoltMaster, a Fairmont Spike Puller, two Kershaw Tie Saws, two Fairmont Tie-Bed Scarifier-Inserters and two Nordberg Hydra-Spikers. Behind each of these gangs the track was raised and surfaced by a gang consisting of a McWilliams Ballast Distributor, an Electromatic raising, tamping and lining machine, and a Kershaw Ballast Regulator. In 1967 each of these gangs had an average output of 425 ties per day.

● **Changes in 1968.** Effective with the 1968 working season important changes were made in the tie-renewal gangs. Basic to these changes, as described by W. A. Swartz, engineer maintenance of way, was the acquisition of three Kershaw Tie-Injectors and the inclusion of one of them in each of the "detour" tie-renewal gangs. At the same time three machines—a Tie Saw, a Scarifier-Inserters and a Hydra-Spiker—were released from each of the gangs.

Release of the machines from the detour tie-renewal gangs made it possible to create three additional gangs for making tie renewals under traffic on single-track lines. The road already had three such gangs.

As a result of the changes made in the detour gangs a production goal of 500 ties per day—75 more than before—was set for each of these gangs. For the three gangs, this made a total projected increase in production of 225 ties per day. It was figured, in addition, that each of the three new gangs would have an average production of 150 ties per day, or a total of 450 ties per day. Thus, the total increased production is 675 ties per day. EL engineers say this increased production is needed if the road is to put into track the 375,000 ties allotted for the 1968 program.

In addition to the three surfacing gangs that operate behind the tie gangs in double-track territory, EL has seven gangs that do surfacing work in between tie-renewal cycles. With one exception these gangs also use Electromatic tampers which line the track in addition to raising and surfacing it. In two of these outfits the Electromatic raises and lines the track and tamps every other tie, with the other tie being tamped by an Electromatic Junior tamper.

EL's 1968 rail program calls for the laying of 40.2 miles of new rail and 56.8 miles of usable rail, or a total of 97.0 miles. This compares with 43.65 miles of new rail and 39.53 miles of usable rail in 1967.

For its rail-laying operations in double-track territory the EL relies on a highly mechanized rail-laying gang which, like the tie gangs, operates on the detour basis. Because the road is now butt-welding both its new and usable rail the detour rail gang is geared for laying the long strings.

● **Longer season for rail gang.** To make it possible to get the increased allotment of 1968 rail into the track, the system gang was put into operation in May, a month ahead of schedule. In addition, two smaller gangs were created for laying jointed rail, mostly on curves on the main line.

EL standardized on the use of welded rail in 1964. At the end of 1967 the road had 155.4 track-miles of such rail in service. The practice now is to lay jointed rail on curves over 2 degrees 30 minutes, although there appears to be a possibility that this practice will be changed. All the road's butt-welding is done in an NCG plant at Scranton, Pa.

Experience of the EL provides a classic example of what can be accomplished through mechanization of track work. As the track-work programs have grown the road has been adding new

machines to its fleet, being careful to select the most advanced types when new purchases are made. Along with the new additions Chief Engineer Bush and his staff have been reorganizing their forces and reassigning the equipment with the aim of promoting efficiency.

This does not mean that the road has been smooth all the way. There has been, for example, the problem of educating—and indoctrinating—the forces in the use of the equipment. One of the bigger problems today, explains Swartz, is to obtain trained mechanics to accompany the gangs for the purpose of making necessary repairs on the job.

But it is apparent that these efforts to put more efficiency into the track forces are paying off. That is shown by the man-hours figures given in the table. As the degree of mechanization has gone up, and as the familiarity of the forces with the machines has grown, there has been a tendency for total man-hours expended in track-maintenance work to decline even in spite of the much larger amounts of work being done. As Bush puts it "we are doing more work while bringing our manpower requirements down."

Indications are that the effects of mechanization will be even more pronounced during the 1968 working season. Quantities of work programmed in the major categories—rail and tie renewals and track raising—this year are substantially greater than last year. "Even so, and barring unforeseen difficulties," says Bush, "our man-hours will be less than last year."

In the efficiency of its track forces, in the amount of work done and in the condition of its main tracks the EL has come a long way in a few short years. Considering the attitude of its present management it would not seem unreasonable to expect a continuation of this progress. ■