



At Pier 68 in New York a low-lift truck takes a loaded live skid up the ramp onto a car float



Some carload freight is handled at Pier 68, such as this palletized cement being stacked by an electric fork truck

Program began 27 years ago with live skid-platform lift operation in New York; successful mechanization of relatively small station completed just this year

How Mechanical Handling of Freight Pays Off for the Lackawanna

Back in 1924, the Lackawanna, searching for better and more economical ways to handle freight, installed in a New York City freighthouse, Pier 68, North River, its first mechanical handling equipment. Since that time mechanization has been continued, both extensively and intensively, to the point where, in 1950, about two million tons, or over 80 per cent, of the l.c.l and carload freight handled at piers and major stations by the Lackawanna were handled mechanically. At first mechanization was confined to stations receiving a large volume of freight daily, but within the past year the problem of mechanizing a moderate-volume station has been attacked with success.

The 1924 purchase of equipment for Pier 68 consisted of three electric low-lift trucks and 60 live skids. Later acquisitions brought ownership of electric lift trucks to 16, in 1930, and permitted 100 per cent mechanization of Pier 68. (There have been no hand trucks at this station for many years.) Subsequent purchases have brought today's roster of electric lift trucks to 33, distributed at Piers 13, 26, 41 and 68 in New York, Hoboken City, N. J., freighthouse, and the Hoboken passenger terminal mail handling operation. Despite

the fact that in recent years other methods of handling l.c.l. have been tried, and with considerable success, Lackawanna officers feel that the low-lift-live-skid operation is the best method yet devised for handling large quantities of miscellaneous freight.

In 1941, the Lackawanna purchased its first gasoline fork-lift truck. It continued to make additional purchases during and immediately after the war, so that in 1947 it had a fleet of 38 gasoline fork-lift trucks, more than enough to mechanize completely its Hoboken pier operation. (The Lackawanna also installed fork-lift equipment at a few other stations.)

Ten machines delivered in 1947 were of the fork-lift pusher type, and 15 more were purchased in 1949. The railroad has ordered 13 additional units which are scheduled for delivery in November and December of this year.

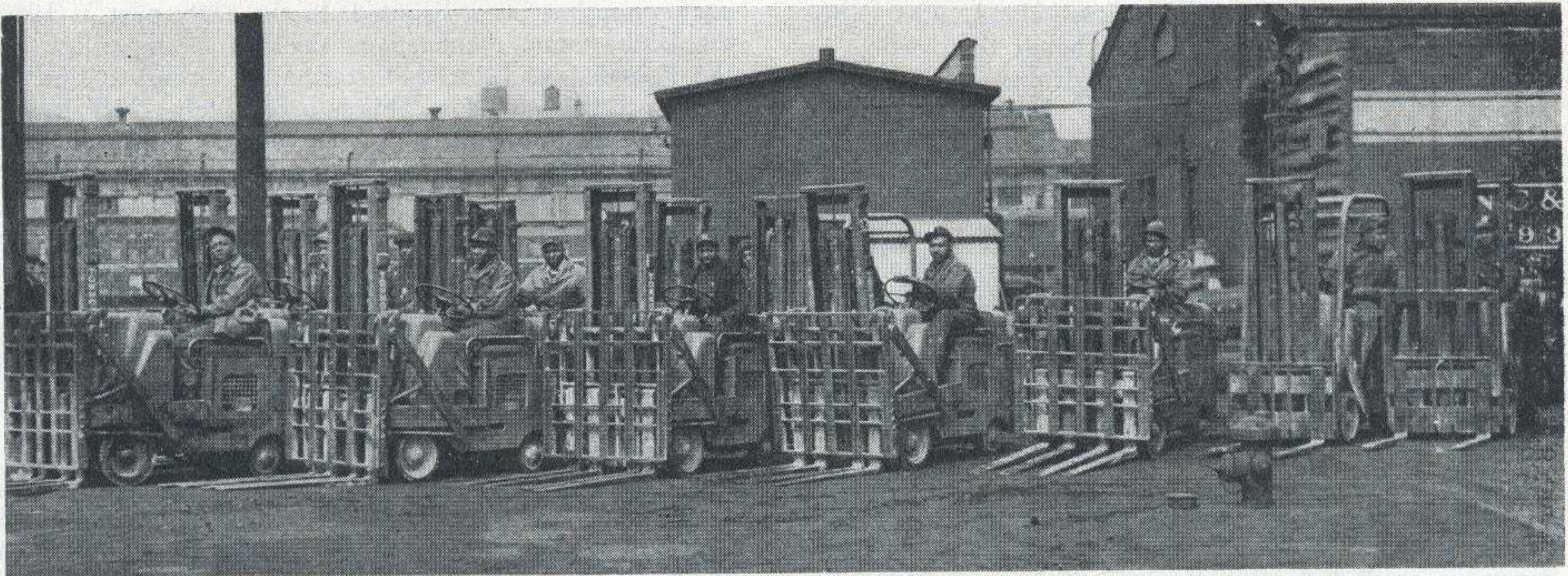
The fork-lift truck with push-off device and the take-it-or-leave-it pallet have been combined to form the basic handling medium on the covered docks at Hoboken Terminal Piers. This station handles a large volume of carload export freight, which moves either directly from car to barge or lighter, or from car to pier for temporary



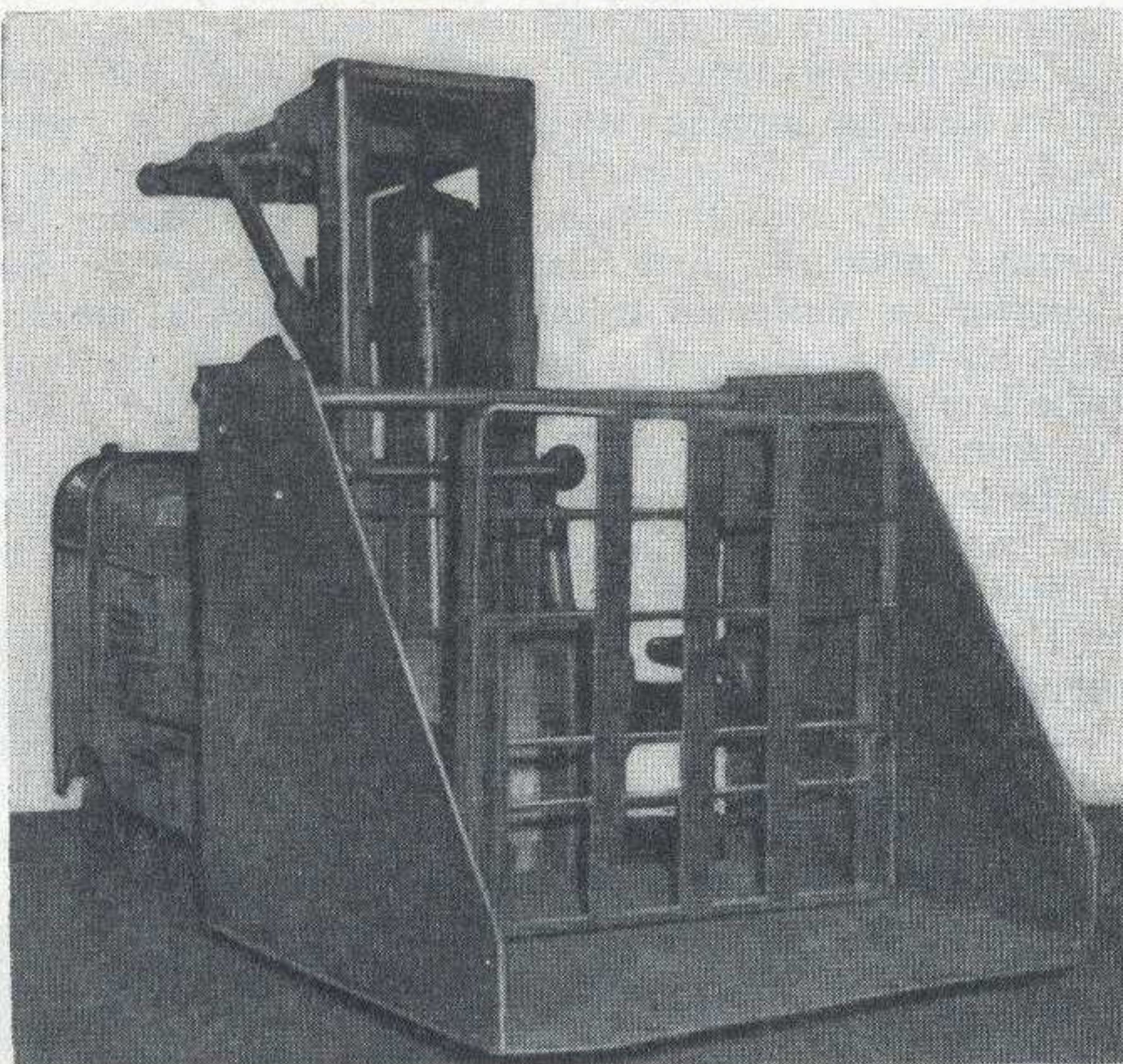
Fork truck, equipped with push-off device, picks up load of sugar from take-it-or-leave-it pallet at Hoboken piers, which have a total of 35 fork trucks



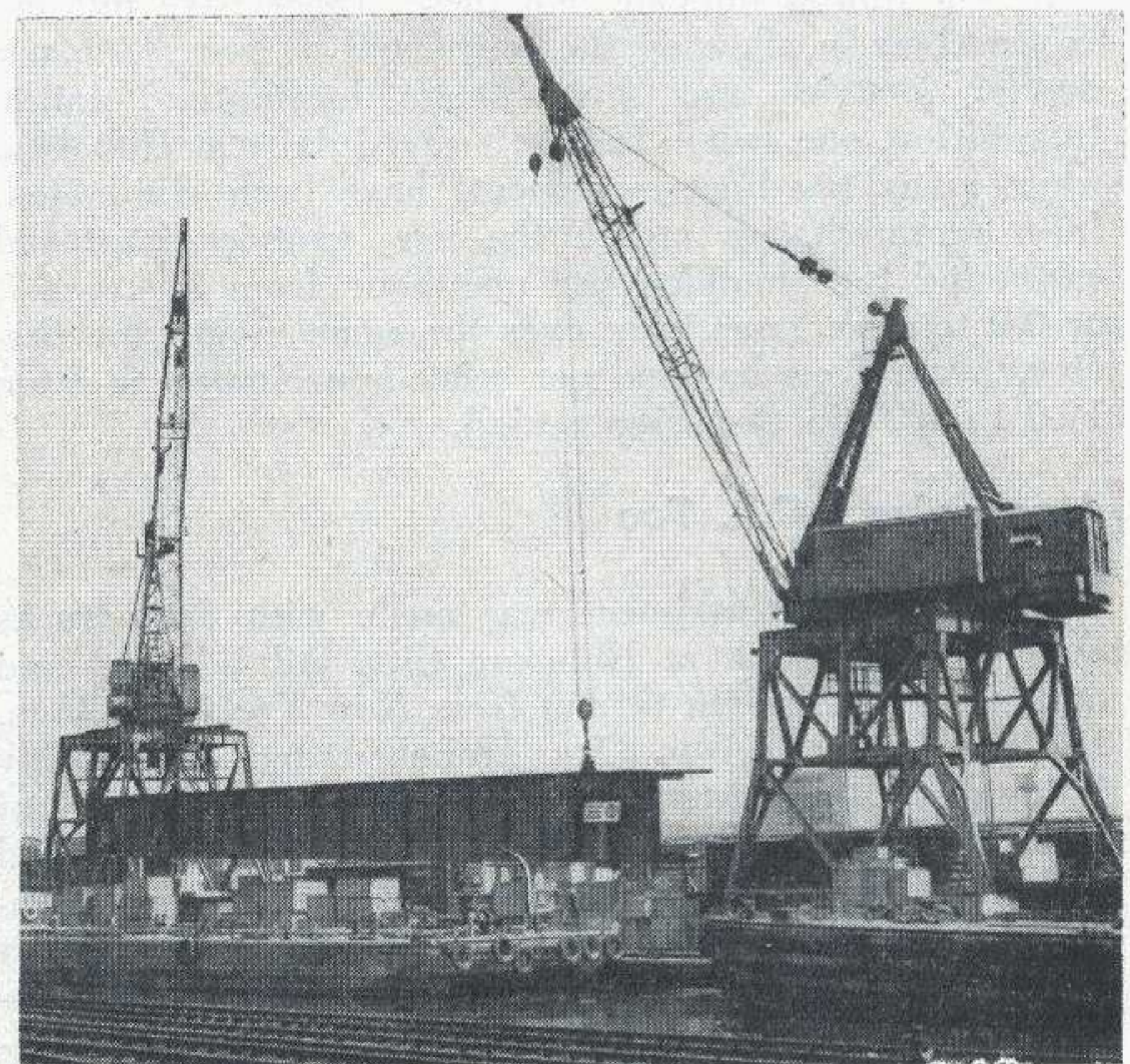
Operator at Hoboken uses push-off to unload sugar on paper-covered floor of barge. All Lackawanna New York City piers are equipped with fork trucks, as are many other stations



Gasoline fork-lift trucks of the Lackawanna are maintained in a specially built shop at the Hoboken piers, while electrics are maintained by a separate shop in the Hoboken passenger station



Much hard labor was required in handling baled crude rubber, prior to adoption of the scoop attachment for doing this work. The job is easy now



Two new gantries lifting together handle with ease a 103-ton girder. One of these cranes may be rigged with a magnet, the other with a clamshell bucket

storage and later, when export orders are received, from pier to barge or lighter, and thence to ships. (Import freight, for the most part, is handled directly from barge or lighter to car.)

Palletization, particularly since the take-it-or-leave-it pallet was adopted, has been found especially useful in handling much of the export-import freight. In 1945 (before the take-it-or-leave-it pallet was adopted) the combined average output of hand trucking and fork truck-pallet gangs at the piers was 1.75 tons per man-hour, while in June 1947, with complete mechanization, the production figure had reached 2.52 tons per man-hour. Highest production to date for any one month has been 3.156 tons per man-hour. These figures include the time of supervisory and auxiliary personnel, as well as truckers.

Constant experimenting with the fork-lift pusher type trucks at Hoboken piers has developed refinements of operation as well as some useful accessories (*Railway Age*, March 25, 1950, page 52). Scoops, easily attached to the forks, have proved useful in handling crude rubber in bales, as well as other commodities which do not make satisfactory pallet loads. Steel plates, also easily attached to the forks, have proved better than pallets in handling such shipments as oil in drums.

Cranes for Open Docks

In addition to progress at the covered piers, in 1950 the Lackawanna bought two 60-ton capacity gantry cranes for use at the Hoboken lighterage station open docks. These cranes are installed so that they can load or unload lighters tied up at any point in a 1,600-ft. slip.

The gantries share a running track 1,500 ft. long, and are protected from collision by an electric-eye track circuit warning system which registers in the operator's compartment of each crane. The cranes span two tracks, with a total capacity of 60 cars, and in addition, reach two other tracks within practical lifting distance. Ample space for ground storage of commodities not subject to weather damage is available within reach of the cranes. Working together, these cranes have accomplished lifts up to 106 tons.

Recent studies indicate that these cranes have fulfilled expectations in allowing the retirement of two older and smaller gantries and seven steam locomotive cranes. In addition, one switch engine is saved daily at Hoboken, while many tug boat movements have been eliminated. In a representative month the new gantries improved eastbound tons handled per man-hour from 3.9 to 4.7, or 0.8 tons per man-hour over the same month the previous year. Tons handled per crane-hour improved from 19.9 to 28.9 in the same period.

Mechanize L.C.L. Too

In 1947, an experiment was made with fork trucks and pallets on l.c.l. at Hoboken City. All inbound and outbound l.c.l. freight to and from New York, Brooklyn, Harlem, Bronx, Jersey City, Hoboken and Union City is handled at this station. Prior to the introduction of fork-lift and pallet equipment, this freight was handled with live skids and low-lift platform trucks. At the conclusion of a nine months' trial period, the fork-lift pallet operation was discontinued and the live skids and platform trucks were returned to service, since the experiment showed the latter method to be superior for the work at that particular station.

While better handling methods were being effected

in the New York area, the larger inland stations were not neglected. For example, 32 Chore Boy gasoline-powered burden carriers were purchased for the Binghamton, N. Y., transfer in 1946, which permitted almost complete mechanization of that station. This transfer handles, roughly, 400 tons of l.c.l. per working day. A typical average performance of Chore Boy gangs is .93 tons per man-hour, despite the fact that the Binghamton operation requires truckers to travel relatively long distances, working through cars, and on comparatively narrow platforms.

Other methods of improving freight handling performance adopted by the Lackawanna have included the use of semilive skids and hydraulic jacks at the Syracuse, N. Y., freight house, to supplement the hand truck operation and to keep a high percentage of freight on wheels. In addition, all large stations and many one-man agencies are equipped with gravity conveyors.

It Was Profitable

Whether or not small stations can be mechanized with profit long has been disputed. In the early part of 1950, the Lackawanna management decided to experiment at the Passaic, N. J., freight station, in order to find an answer to this question. This is a relatively small station, handling about 85 tons of freight per working day. Three gasoline fork-lift trucks—each of 2,000 lb. capacity—and necessary pallets were purchased for the station, and the operation was completely mechanized. The experiment has justified itself, since the work performed per man-hour has increased from .662 tons before mechanization to .954 tons in September of this year. In other words, each man handles 4,600 lb. more freight daily than he did a year ago.

Mechanical Mail Handling

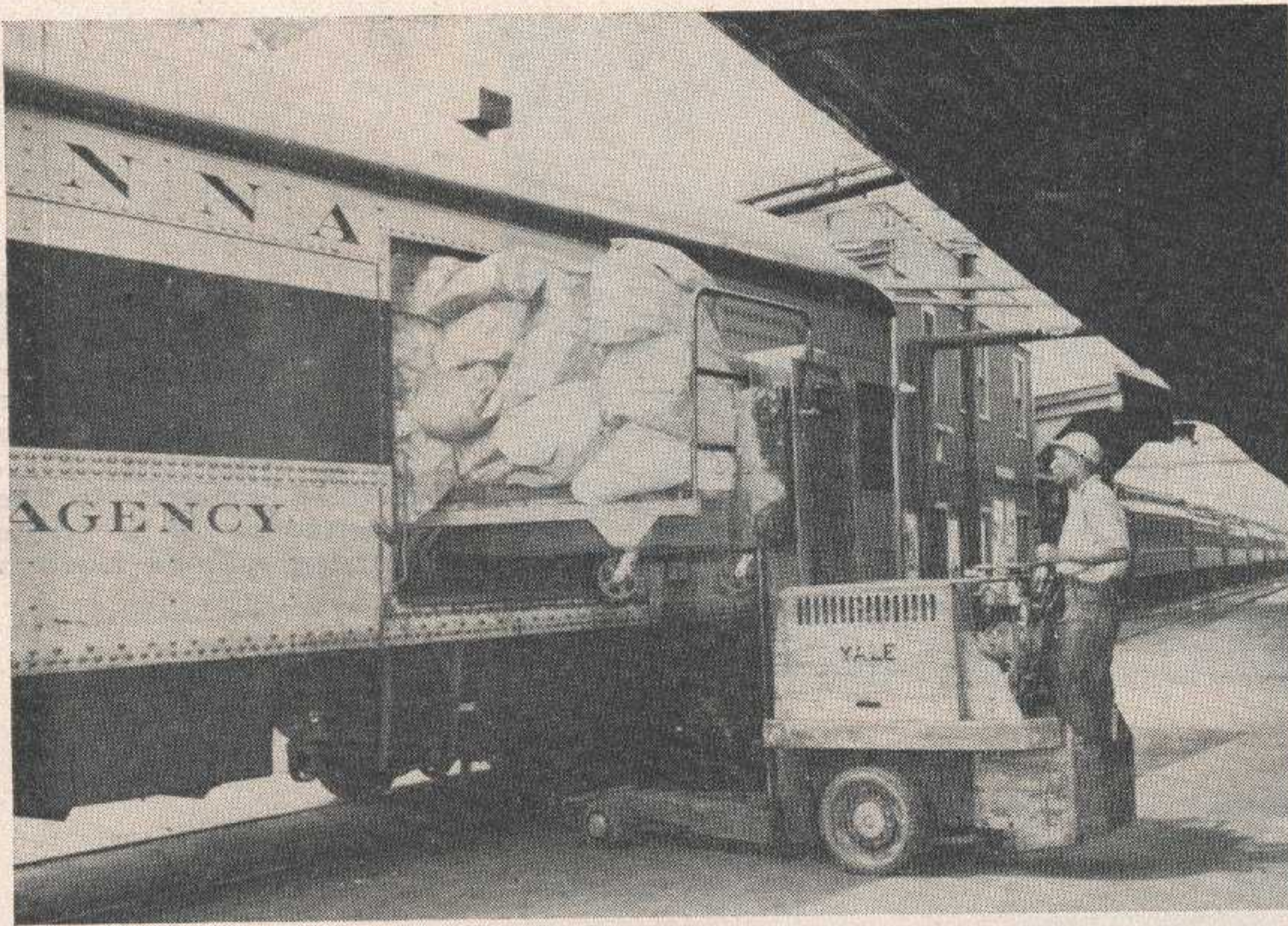
At the Hoboken passenger station, electric lift trucks and live skids have been used in the mail handling operation for many years. During rush periods in the Hoboken mail operation, the electrics are supplemented by gasoline fork trucks which handle mail loaded in wooden pallet boxes of large capacity. Both live skids and pallet boxes are designed so that they may be placed inside mail cars through the large doors.

Conventional four-wheel wagons are used at most other stations, supplemented at Binghamton by a tractor and at Buffalo by electric flat bed or "body" trucks. Four electric body trucks are employed at Hoboken for hauling pouches (first class mail), newspapers and baggage to and from trains. Scranton uses a gasoline fork-lift truck with pallet boxes in addition to the four-wheel mail wagons. This truck places the pallet boxes on four-wheel wagons, beds of which are high enough to be level with car floors. This type of operation makes for comparative ease in getting mail from platforms to cars.

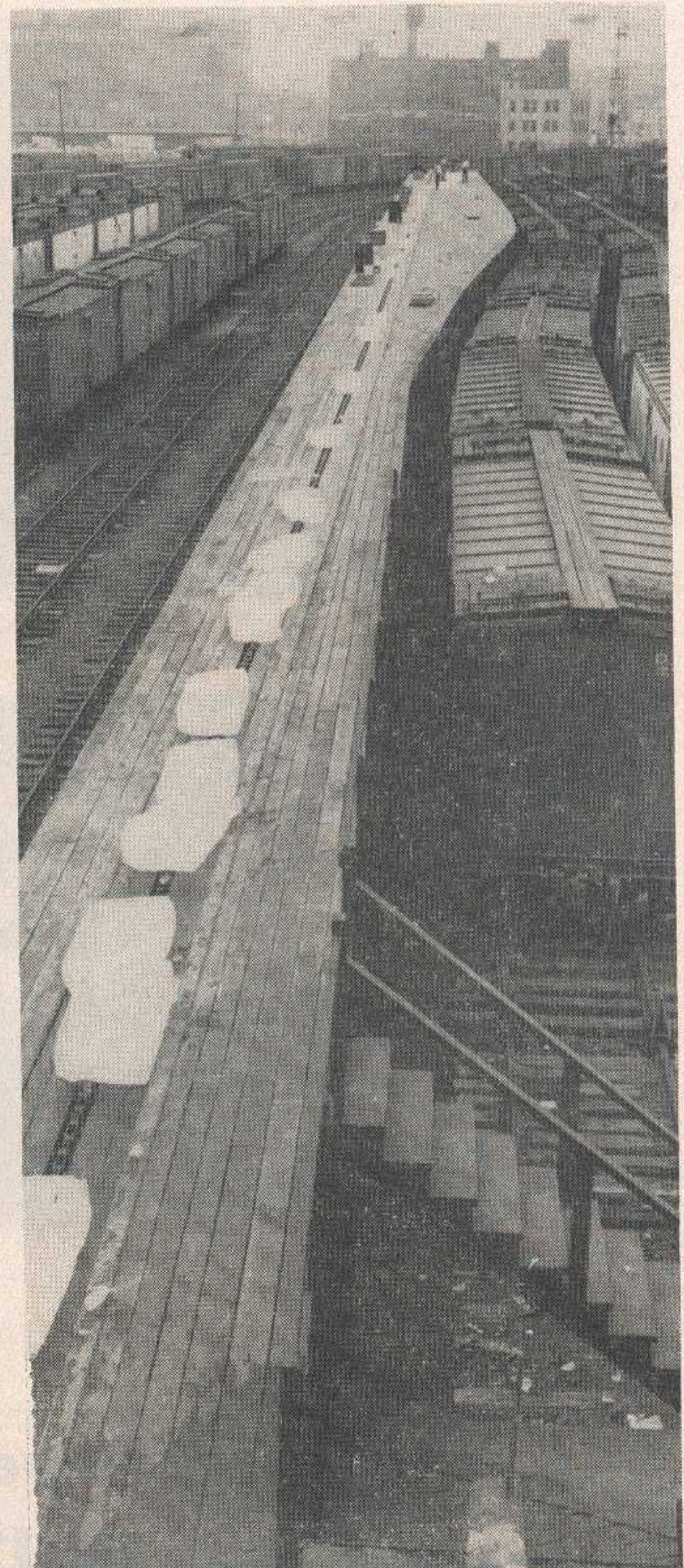
Daily mail counts are maintained at major mail handling stations and have proved valuable in policing handling performance. Efficiency comparisons are made on the basis of feet* of mail handled per man-hour. The composite average production of five major mail handling stations is running about 2.00 ft.* per man-hour.

Advantages to the Lackawanna from mechanization in the last 27 years have been great. Mechanization-minded operating officers will see to it that this parade of progress continues.

*These figures refer to linear feet of space in mail cars; 46 bags of mail are considered to equal three linear feet, and 1 1/2 parcels to equal one bag.



High-lift truck at Hoboken passenger station transfers a live-skid load of mail into through-train mail car



In 1950, extensive changes were completed at Hoboken icing station, including building a new ice house and installing a conveyor



Two pallets loaded with merchandise are being moved at the Passaic, N. J., station by a 2,000-lb. capacity fork truck



Chore Boy gets loaded with freight from pick-up truck at Binghamton. This station and Scranton Transfer use single-return ballot system in checking freight