

The 19-Track Addition Gives the Erie a Complete and Modern Unit

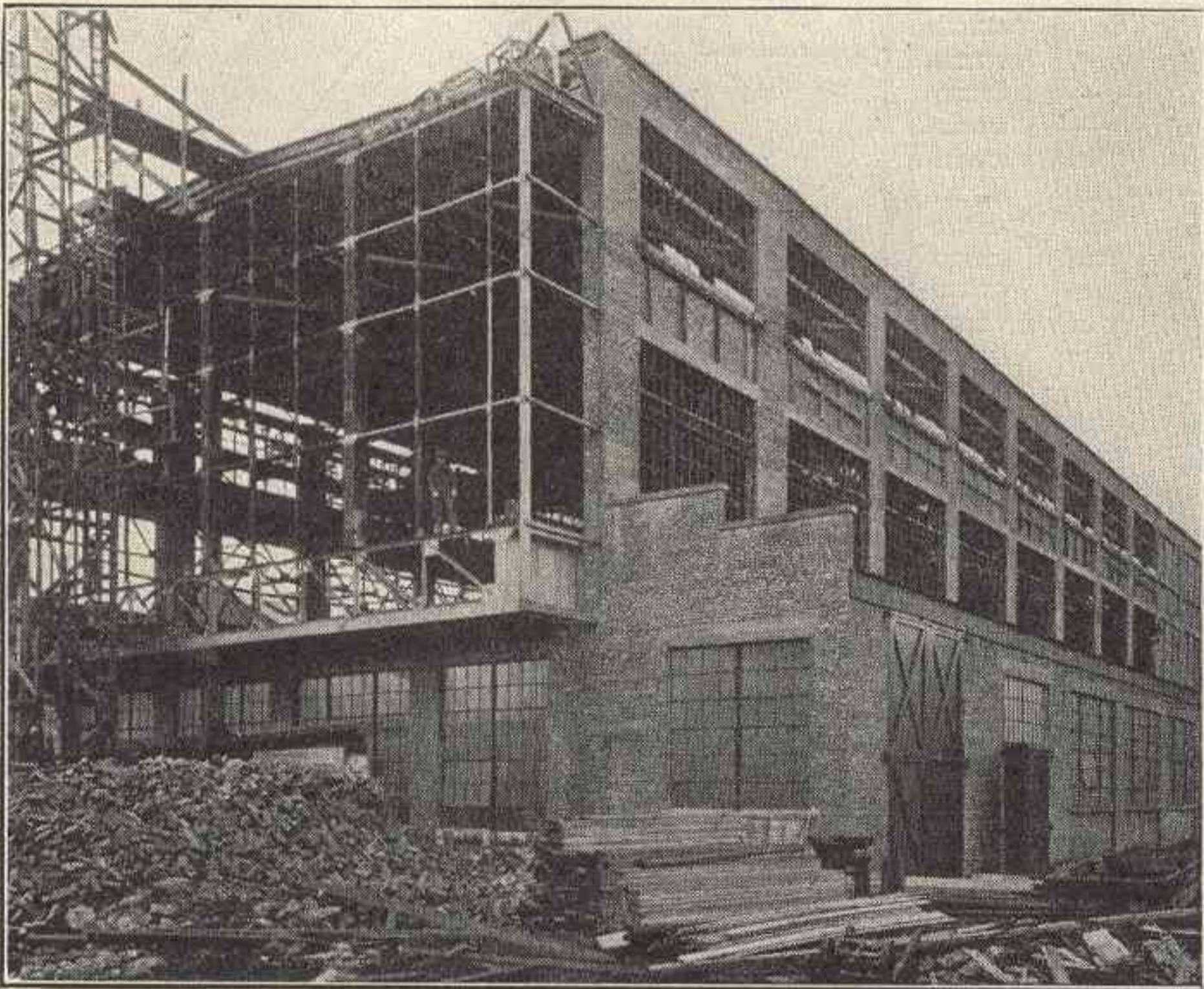
Erie Completes Modern Addition to Hornell Shop

Gap Crane of 250 Tons Capacity Comprises Interesting Feature of Development

IN ORDER TO HANDLE its repair work more efficiently and to increase the capacity of its present layout, the Erie has recently constructed a transverse type locomotive erecting shop at Hornell, New York. The new structure con-

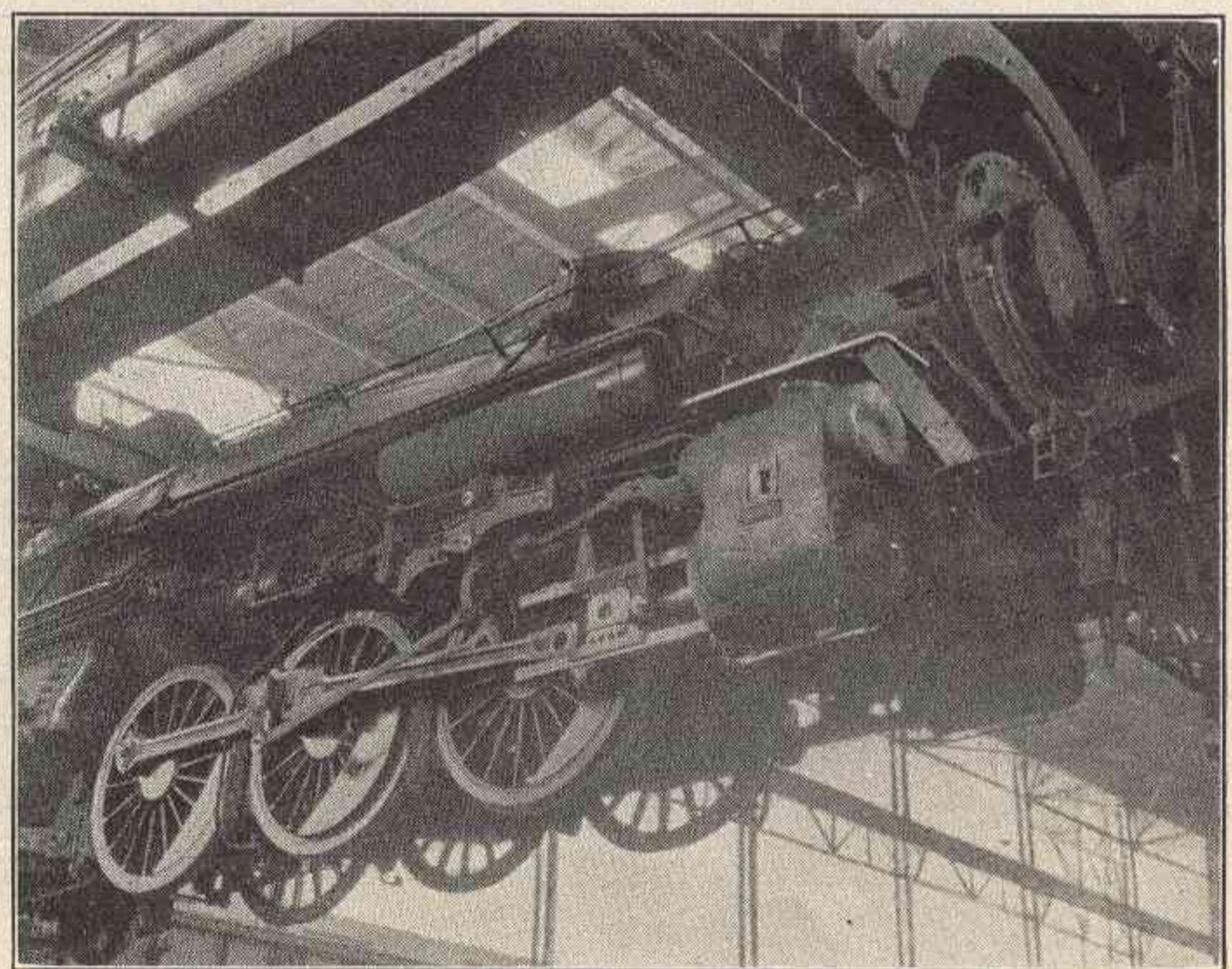
shop will be discontinued and its space, together with that of the old machine shop, utilized for a new unit which will be equipped with considerable new machinery.

While the facilities at Hornell serve primarily the Allegheny, Buffalo and Susquehanna divisions, they are also used by the system as a whole, power being brought in from all points because of its advantageous location. All classes of repairs are handled at Hornell, although in late years it



The Overhang Made Necessary by the Increased Wheel Base of the Crane

sists of a 19-track addition to a former 7-track building, which is being remodeled to conform to the new. An interesting feature of the layout is the installation of a 250-ton gap crane on a lower level and two 15-ton light travelling or messenger cranes, on an upper level, contrary to the usual arrangement. In connection with this work the old back

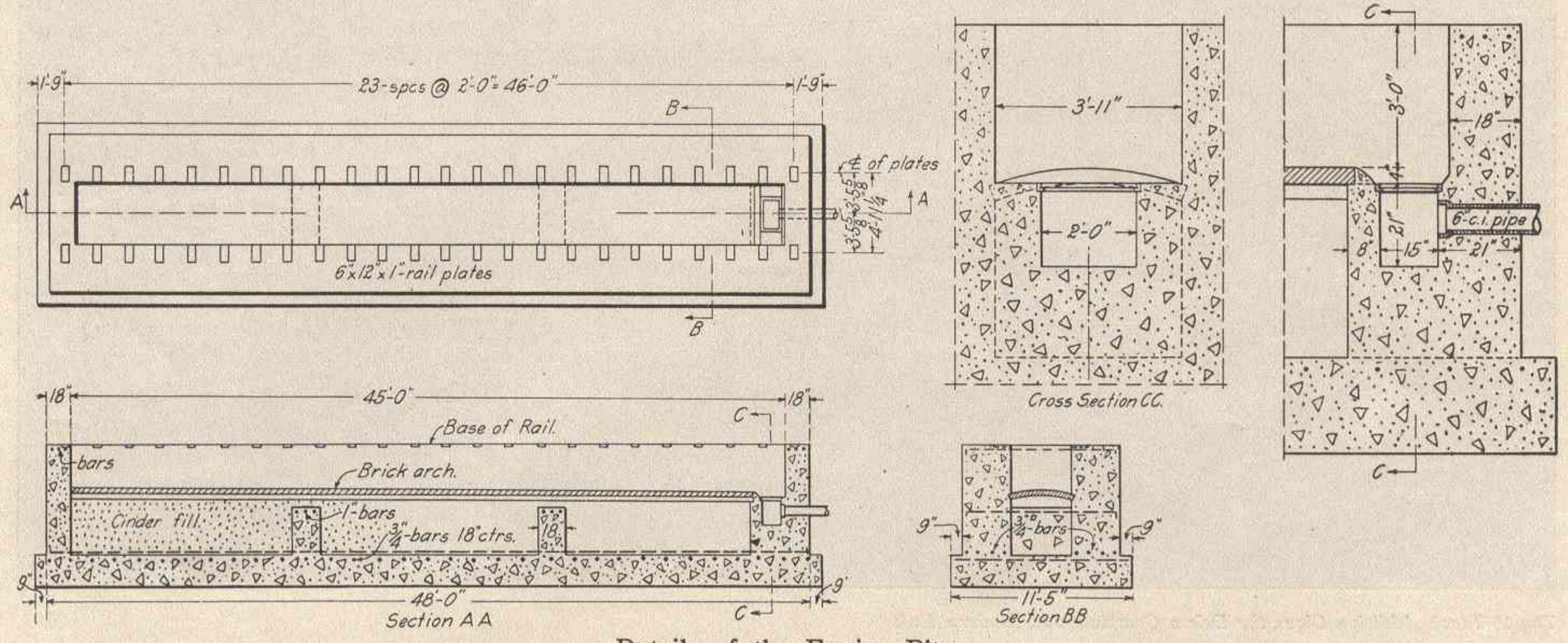


A Locomotive Hoisted Up Between the Gap Crane Girders

has been somewhat handicapped, both in regard to capacity and equipment. The old erecting shop contained 7 pits and an overhead 120-ton crane which gave lift-over service to these tracks and to a transfer table which ran in under the

structure itself and along the outer wall of the combined back shop and machine shop building. The transfer table served 12 tracks in the old back shop, and a firing-up shed located at the opposite extreme from the erecting shop.

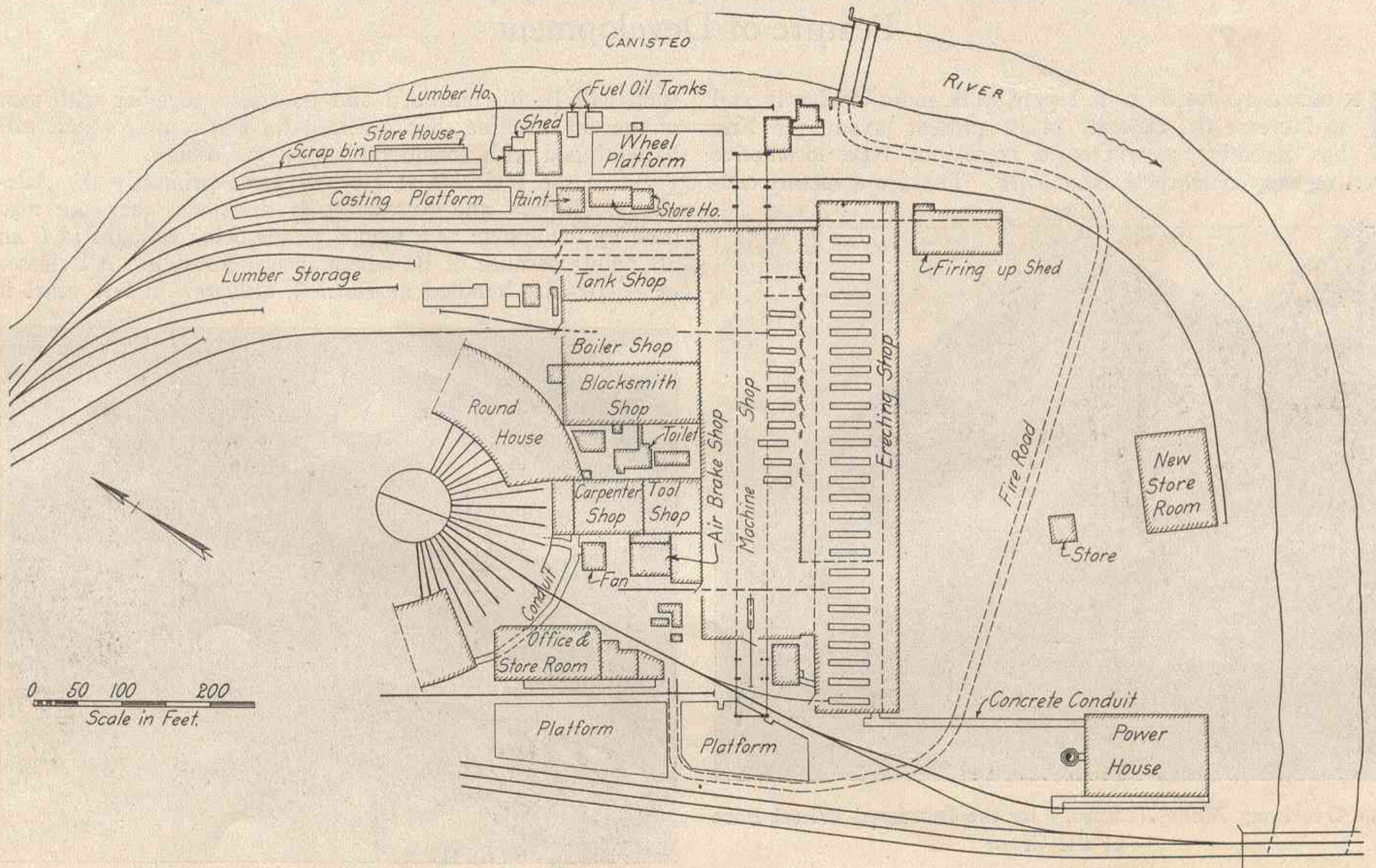
the power that could be handled in this manner was limited by the capacity of the crane. Owing to the increased weight of locomotives which were being brought to Hornell for repair, it was decided to revise the old structure in order to



Details of the Engine Pits

A locomotive to be repaired was brought in on the end, or No. 1, track, where it was stripped, after which it was picked by the crane and placed on the transfer table, which moved it to the back shop tracks when heavy repairs were

handle this class of power and at the same time to modernize the entire unit by the construction of a new erecting shop and by the expansion of the old machine shop into the space formerly occupied by the back shop.



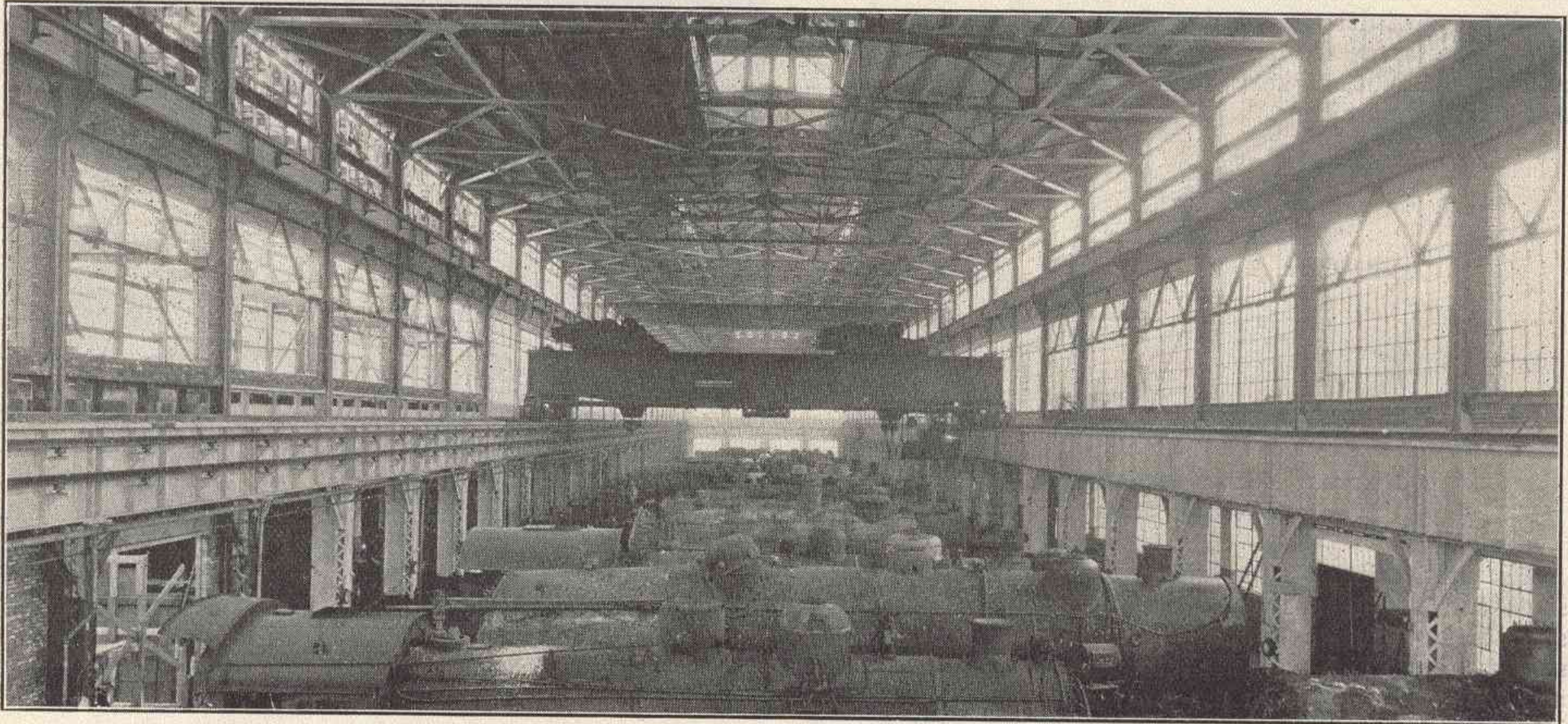
Layout of the Terminal Facilities at Hornell

necessary. This movement in connection with the movements necessary for outgoing or repaired power, in addition to consuming a longer length of time than was thought necessary, was also complicated by the fact that the size of

The new erecting shop unit is practically a continuation of the old seven-track building, having the same clear span and elevation to the roof trusses. It occupies the area formerly taken up by the transfer table. It will be equipped with a

modern 250-ton double trolley, eight-motor, gap crane operating on a 24-ft. level and two 15-ton messenger cranes on a 44-ft. level. Under this arrangement it is estimated that the time required for the transfer of the equipment will be about one-seventh of what it was previously. This arrange-

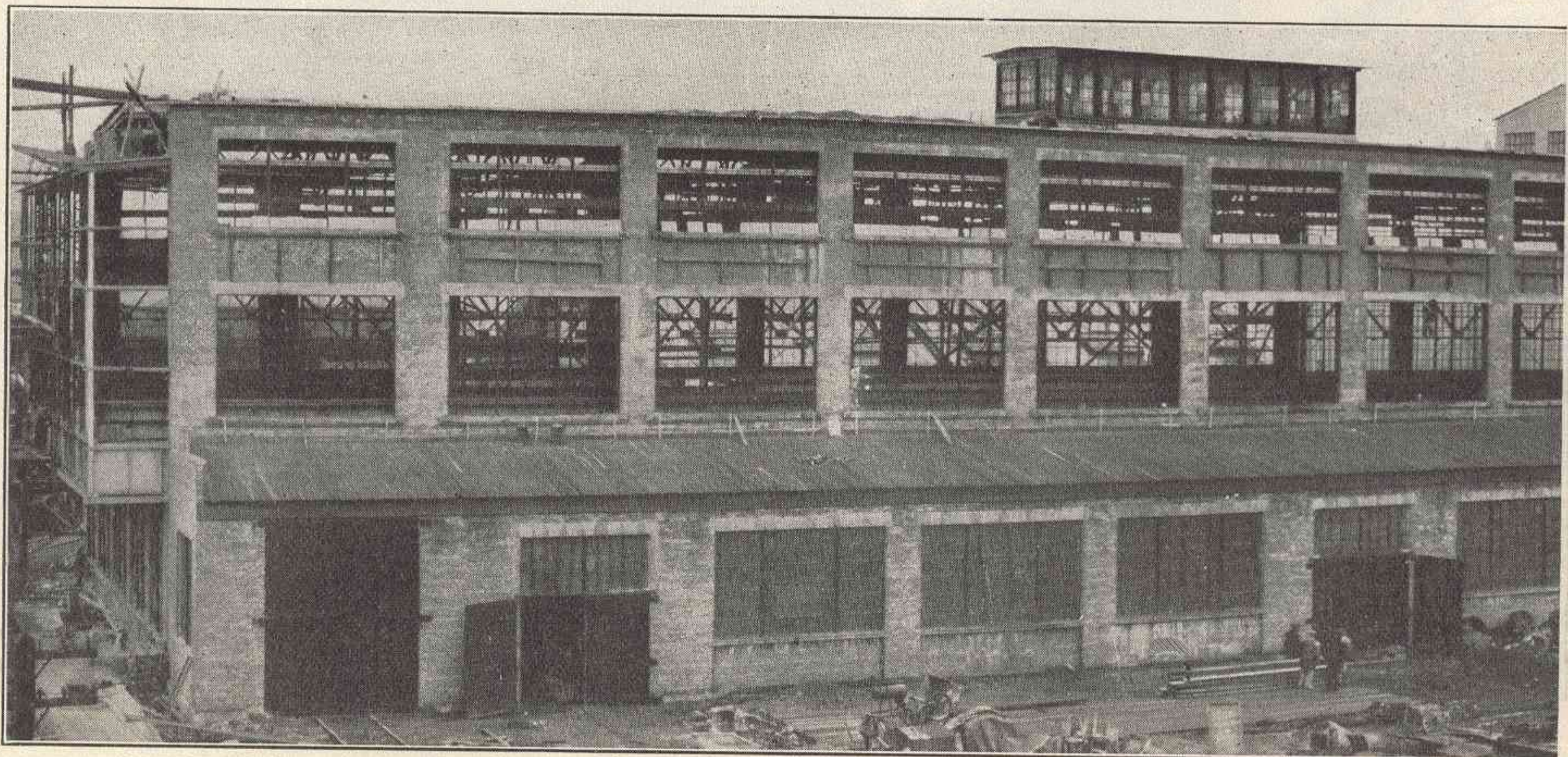
overhang and seven 21-ft. bays in the old structure, connecting with 17 new bays of the same width, flanked by one 24-ft. and one 30-ft. bay at the extreme end of the building. The center line of the back line of columns is at a slight angle with the wall of the machine shop and at a distance



The Shop Is Substantially Constructed and Well Lighted

ment possesses several operating advantages from a mechanical standpoint, the major ones being that the crane that handles the very heavy loads is close to the work, and that the light cranes are always free to move the full length of

varying from 17 ft. 11½ in. to 19 ft. 2¾ in. This area will be utilized as a lean-to while a similar extension has been secured along the other side of the building by the construction of a shed roof section 20 ft. 4 in. wide. This latter



The Old Erecting Shop Was Rebuilt to Conform to the General Design

the erecting aisle, regardless of the position of the locomotive lift. There is also a material advantage to be gained by this type of installation in that comparisons of this form of structure and those formerly used show a saving of from 17½ to 22 tons of steel per pit.

The layout of the new structure, center to center of steel, is 586 ft. and is made up of one 24-ft. bay with an 8-ft.

extension will be continued for the full length of the old and new structures.

The steel roof trusses and the 15-ton crane runways are carried on the main columns which are spaced normally 21 ft. center to center longitudinally and 73 ft. 3¼ in. transversely. These columns are supported upon concrete pedestals carried down 16 ft. below the top of rail to a gravel

foundation. They measure approximately 12 ft. 6 in. square on the base and 5 ft. square on top. In addition to carrying the main steel columns these pedestals also support an inner line of columns capped by a girder 5 ft. deep which forms the runway for the 250-ton crane, 24 ft. above the top of rail. The runways for the 15-ton cranes are carried upon a bracket and girder construction riveted to the main columns 44 ft. 1 in. above the top of rail. Transversely the runway rails for the light and heavy cranes are 71 ft. 3 in. and 72 ft. 3 in. apart, respectively.

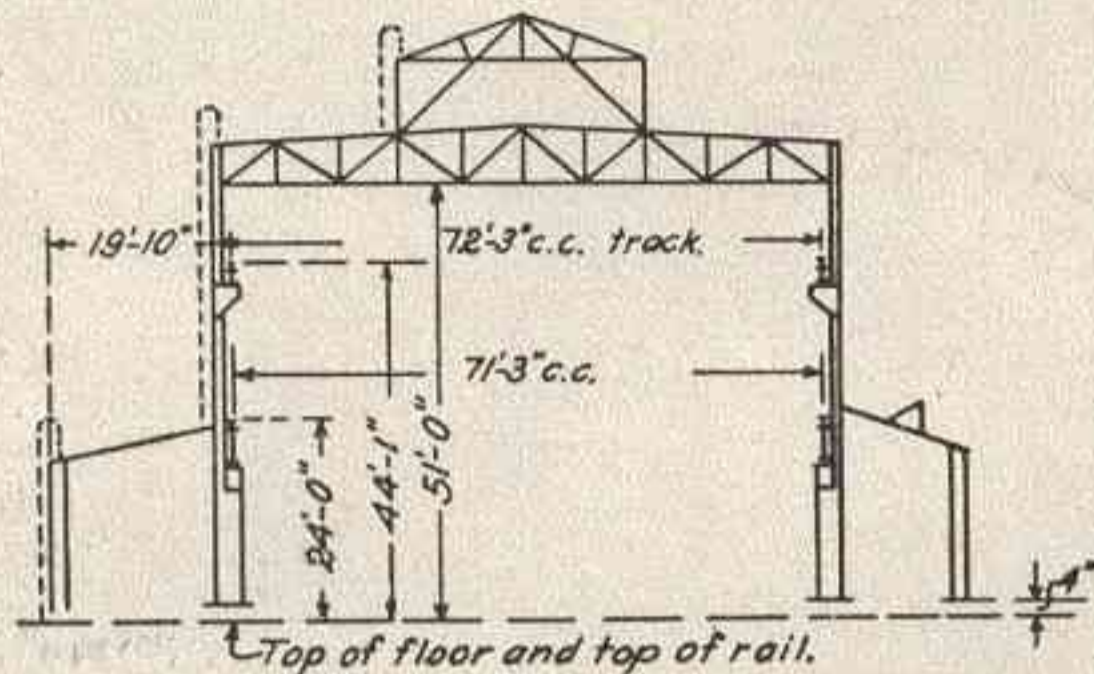
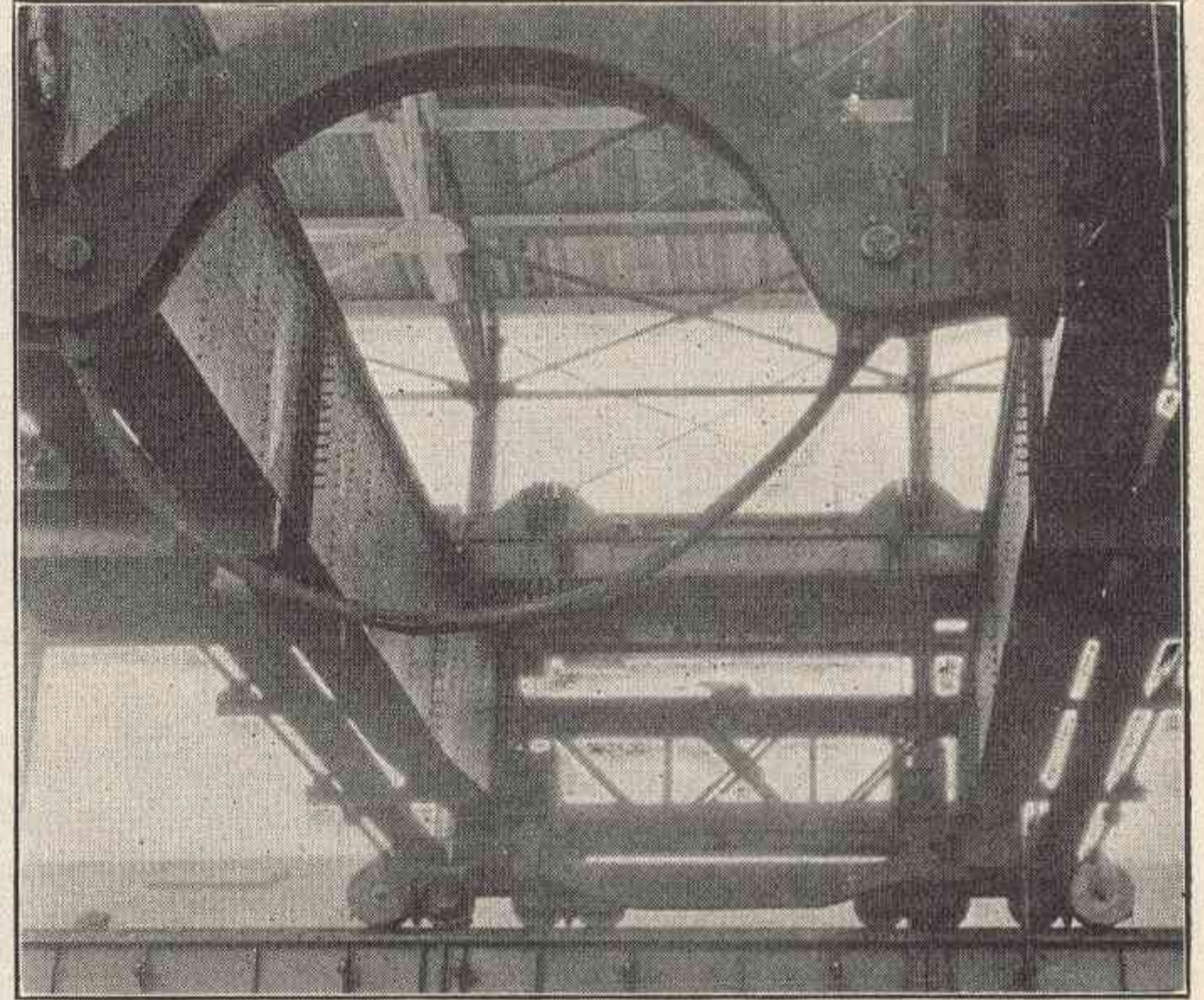


Diagram Cross-Section of the Erecting Shop

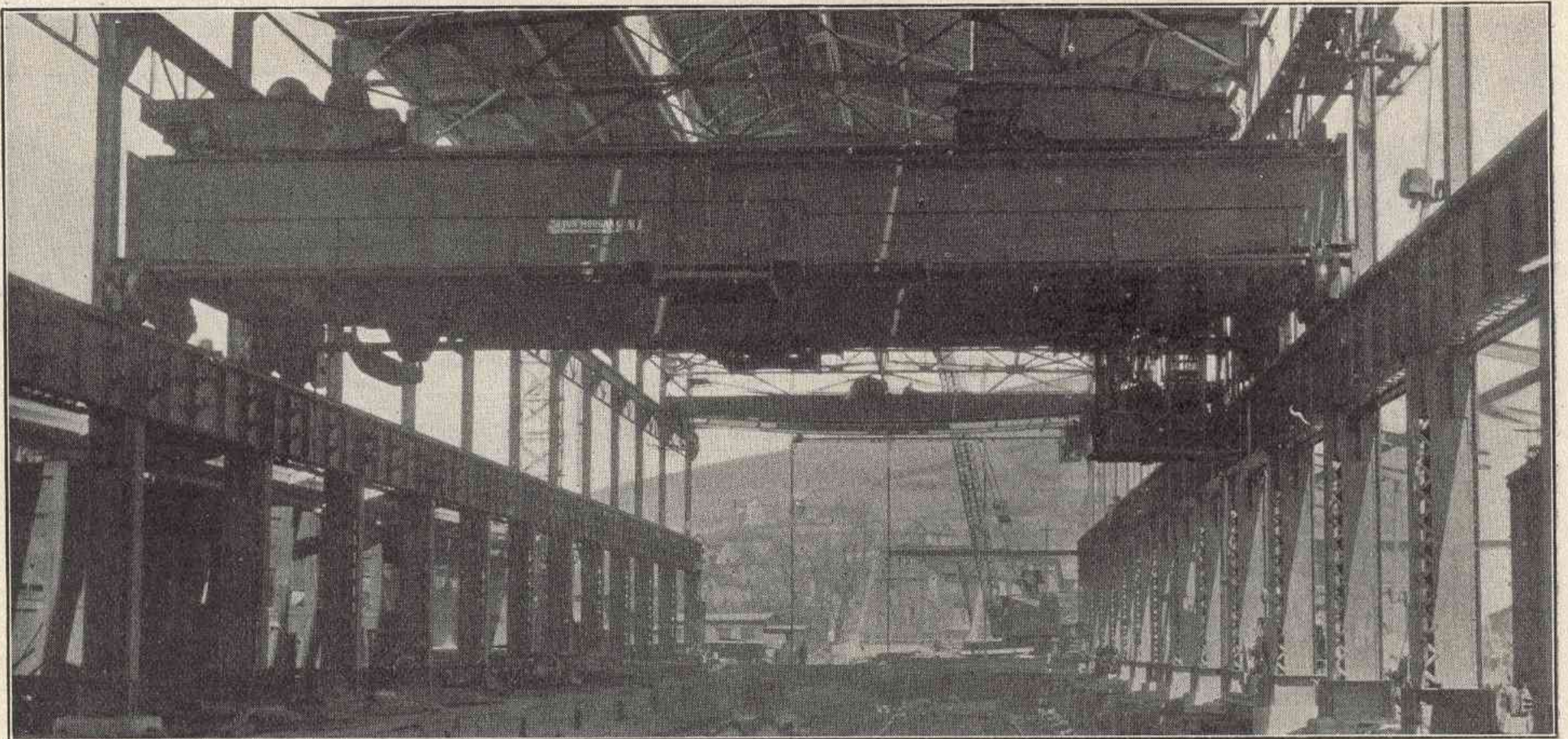
The foundations for the side walls of the lean-to extensions and of the end walls are carried upon light piers spanned by concrete beams. The walls are of brick and steel sash, of which there are three lines in the new addition and four in the old with pre-cast concrete sills and lintels. The roof structure consists of a series of steel trusses overlaid with tongue and grooved timber covered with tar and gravel. The total clearance from top of rail to bottom of trusses is 51 ft. Expansion joints have been provided at the center of the new unit and between the old and new.

end walls and by two intermediate 18-in. tie walls, the latter two being brought up only about 3 ft. above the mat. The over-all dimensions of the pit are 48 ft. long by 9 ft. 11 in. wide with an interior opening 45 ft. long and 3 ft. 11 in. wide.



A Center View of the Gap Crane Showing Hoisting Arrangement

The pit is floored 3 ft. from the bottom of the rail by a brick arch which is laid on a compacted cinder fill within the pit itself. The space in and around each pit is filled with cinders as a foundation for a 5-in. concrete sub-floor



The Messenger Cranes Are Above the Gap Crane

The pits under the tracks are of concrete and are of unusually heavy construction, brought about chiefly by the fact that the building was constructed on filled land. The excavation for the pits was carried down to gravel and upon this a reinforced concrete mat measuring 49 ft. 6 in. long, 11 ft. 5 in. wide and 18 in. thick was poured at each pit location. Pit walls 3 ft. thick were then poured upon this base and carried to the elevation of the bottom of rail or approximately 9 ft. above it. These side walls were tied together by 18-in.

a working floor of 2½ in. Kreolite wood blocks.

An interesting feature of the steel work occurred in the reconstruction of the old erecting shop to provide for the operation of the cranes over the full length of the combined buildings. Originally the shop had been designed for a 120-ton crane operating upon a runway of girder and column construction on a 40-ft. level. These runways were later reinforced to carry two 150-ton cranes, although no other change was made. When it was decided to utilize the heavier

crane a careful study of the old columns and runways was made. This study showed that the girders, as reinforced for the 150-ton crane, were sufficient for the increased load of the new unit, owing to a difference in wheel base between the two types of 10 ft. It was also found that, owing to the 16 ft. less column length required, the old sections could be used without any further changes than cutting them down to the proper height. It was, however, necessary to reinforce the main columns in order to have ample leeway for the addition of the 15-ton crane runways. This consisted chiefly of the riveting on of two plates on the outside face and one on the inside face of each column. A further change was necessitated by the increased wheel base of the 250-ton crane in order that it could be centered over the incoming or No. 1 track. This was met by the reconstruction of the end wall to give an overhanging bay 8 ft. deep across the full width of the building and extending from the bottom of the crane girder to the roof.

The main feature of the gap crane which the Erie has installed lies in the spreading of the crane girders and in arranging the crane trolley so that the locomotive may be lifted up between them. In this particular unit the spacing of the girders is 21 ft. 6 in. It is of the double trolley type for the main hoists and has a total lift of 30 ft. from high to low, with a capacity of 250-tons with the trolleys at 45 ft. centers. It is also equipped with an auxiliary hoist on each trolley, each having a capacity of 15 tons. Each main hoist is provided with two sheave blocks spaced 14 ft. center to center, which are attached to spreader beams, the front end hitch being a combination of a yoke and sling. The entire unit is carried on four two-wheel trucks at each end and is operated by eight 220-volt D. C. General Electric motors with dynamic control. Its chief characteristics are:

	Speed in feet per minute	
	Full load	No load
Main hoist	7½	...
Auxiliary hoist	25	...
Trolley travel	125	150
Bridge travel	200	250

The design and construction of the new erecting shop and the remodeling of the old has been carried out under the general direction of the engineering department of the Erie, R. C. Falconer, assistant to the president and chief engineer; C. H. Splitstone, superintendent of construction; F. A. Howard, engineer of construction, and A. Cook, resident engineer, and later A. B. Fowler, resident engineer, in direct charge of the field work. The contractors for the work were the Bates & Rogers Construction Company, Chicago, Ill., who let to the American Bridge Company a sub-contract for the steel structure. The 250-ton gap crane was installed by the H. K. Ferguson Company, Cleveland, Ohio, and was developed by that company in conjunction with the Morgan Engineering Company, Alliance, Ohio.

Report of A. R. A. Committee on Automatic Train Control

THE COMMITTEE on Automatic Train Control of the American Railway Association, C. E. Denney (N. Y. C. & St. L.), chairman, has made an annual report, dated December 1, which is issued by Secretary J. E. Fairbanks as circular No. 2416. The first part of the report reviews the doings of the committee since its appointment in November, 1920, its activities having been carried on in conjunction with the Bureau of Safety of the Interstate Commerce Commission, until January, 1923.

The committee consists of 20 members, five from the operating division, five from the engineering division, five from the signal section and five from the mechanical division; and there is a vice-chairman from each division. These are T. H.

Beacom (D. & R. G. W.), A. M. Burt (N. P.), W. J. Eck (Southern), J. T. Wallis (Penn.). The secretary of the committee is G. E. Ellis, 431 South Dearborn street, Chicago.

The committee is thus divided according to the character of the membership and it is also divided into regional sub-committees consisting of all the members located in a given territory.

Since the last report, the committee has made observations on the Sprague apparatus and that of the National Safety Appliance Company. The results of the tests of the Sprague apparatus are already well known to the readers of the *Railway Age*. The committee's observations on the National apparatus, which is installed on the line of the Southern Pacific, near San Francisco, are summarized in the report as follows:

"During the joint inspection with two to three engines assigned to regular service and equipped with the apparatus, there was a total of 3,921 operations with a mileage of 2,016 on the test zone and 29,593 on the unequipped track. Since the period of joint inspection was closed, there has been a total of 6,325 operations with a mileage of 3,342 in the test zone and a mileage of 50,383 outside of the test zone.

"The joint observations with the Bureau of Safety were discontinued on this device on January 31, and a report was prepared and submitted to the committee and the Bureau of Safety. The commission has not published the inspectors' report. Conclusions were as follows:

"It is our opinion that the track magnets and the stop valve will give no particular trouble. The duplex valve, and more particularly the valve assembly, will function as designed provided the valve is given a high degree of maintenance and supervision at frequent intervals. Under freezing temperatures and severe winter conditions the maintenance and inspection will have to be more rigid as the clearances between parts as well as the dimensions of the entire valve assembly itself, are so small that unless all foreign matter is excluded entirely, serious trouble will occur. The cause of the false clear failures has not been determined to a point that relieves the valve stem of all doubt and insures the reliable operation of the device on all occasions. It is our opinion that more time will have to be spent on the adjustment and operation of the speed control relay in order to secure proper operation both above and below a definite fixed point."

"The reports of the committee's inspector are being analyzed and the secretary will give any member line upon request, all available information."

Reviewing the general situation, the report says:

"The monthly reports as requested in Circular 2355 are being received from the roads named in the order and these show that 29 roads have selected a device for installation. Sixteen of these have selected the continuous induction and 13 the intermittent induction type; no roads have reported as selecting any of the mechanical contact types except the three upon which installations existed at the time the order was issued. Experimental installations of intermittent induction type are in operation on five roads and continuous induction type on two roads.

"A number of the carriers have asked for a change of location and their requests have been granted by the commission. The commission's order specified the territory within which a passenger engine division is to be equipped. Our information indicates that 46 carriers have advised the commission as to the division selected. The divisions so selected comprise about 2,570 miles of single track road, and about 2,567 miles of multiple track road. At the hearings in Washington in the spring of 1922, 28 devices were presented, and this number was considered by the committee as comprising a new available list, although it was recognized that some of them would not meet the requirements. Since the last annual report, nearly 100 devices have been brought to the attention