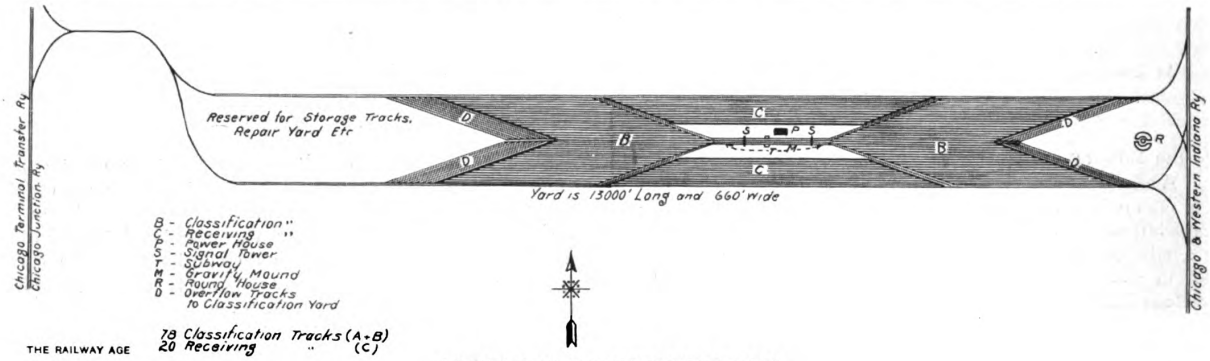
CLEARING YARDS AT CHICAGO.

The Improvement of the "Stickney Tract" by the Chicago Union Transfer Railway Company.

Railway traffic in and about the vicinity of a large city invariably presents problems of considerable complication, especially in connection with the rapid and satisfactory handling of freight. From the fact that the city is a centering point for a large number of roads, there are constantly arriving from every section trains of through freight destined for various parts of the country to be reached by a number of different roads. To furnish a means of transferring these cars to the different roads running trains to the destination of the freight, requires considerable time and no little expense. It is to overcome this difficulty and to furnish a satisfactory means of transferring and classifying through freight that the present work of the Chicago Union Transfer Railway Company in its clearing yards has been undertaken.

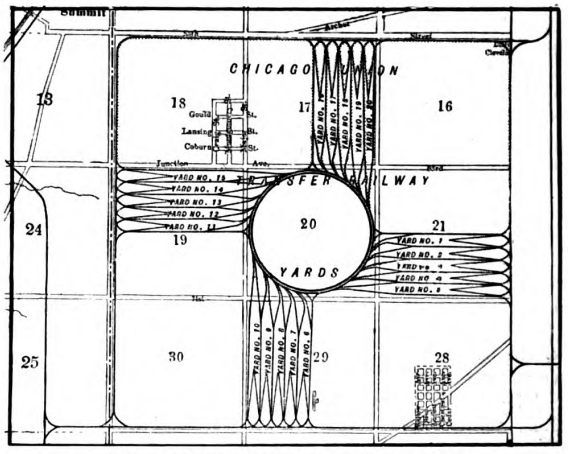


GENERAL PLAN CHICAGO CLEARING YARDS.

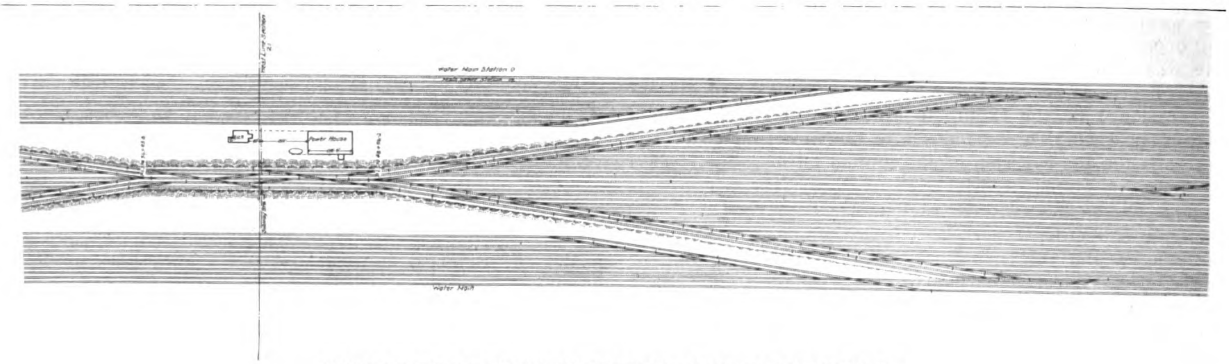
The improvements of this company, known variously as the "Stickney Tract," the "Chicago Clearing Yards," etc., include 105 miles of tracks, covering an area measuring 13,000 by 600 feet, and are located about 12 miles southwest of the city of Chicago, of easy access to the three belt railways around the city—the Chicago Junction, the Chicago & Western Indiana and the Chicago Terminal Transfer. The two lines used by these roads are about 3½ miles apart, the Stickney yards lying about midway between the two.

The plan proposed is that freight coming into Chicago shall be taken over any of these lines to the clearing yards for classification without being allowed to enter the generally congested inner circles of the railroads in the business portion of the city, the advantage thus apparently being the more rapid classification of the cars, together with relief for the crowded conditions prevailing at the freight stations and inner yards of the roads.

The plan of the yards is well shown in the accompanying illustrations of the tracks, taken from the operating tower located in the middle of the yards. The tracks are laid out symmetrically on either side of the center and from both ends converging toward the operating tower. The tracks are built on an artificial embankment 24 feet high at the central point and sloping toward either end, the grade for the first 200 feet being 2 per cent and for the remainder of the distance 9-10 of one per cent. The additional slope at the center is provided so that the cars when cut off will more quickly run to their respective tracks, allowing more rapid operations. The embankment is built entirely of sand, requiring 1,400,000 cubic yards, while the entire yards and embankment are covered with a layer of slag, of which some 275,000 cubic yards were used in addition to 300,000 yards of gravel and cinder used for ballasting. Cars may be classified from either end or from both ends of the yard at the same time. The proposed plan for operation is, that the train shall first be run into the receiving yards, where the destination of the cars and their respective roads will be marked from the waybills; a record of each train being furnished to the yardmaster and to the operator in the tower. The train will then be pulled out of the yards and be pushed



PLAN OF CLEARING YARDS ORIGINALLY PROPOSED.



MIDDLE SECTION OF TRACKS AND SWITCHES—CHICAGO CLEARING YARDS.

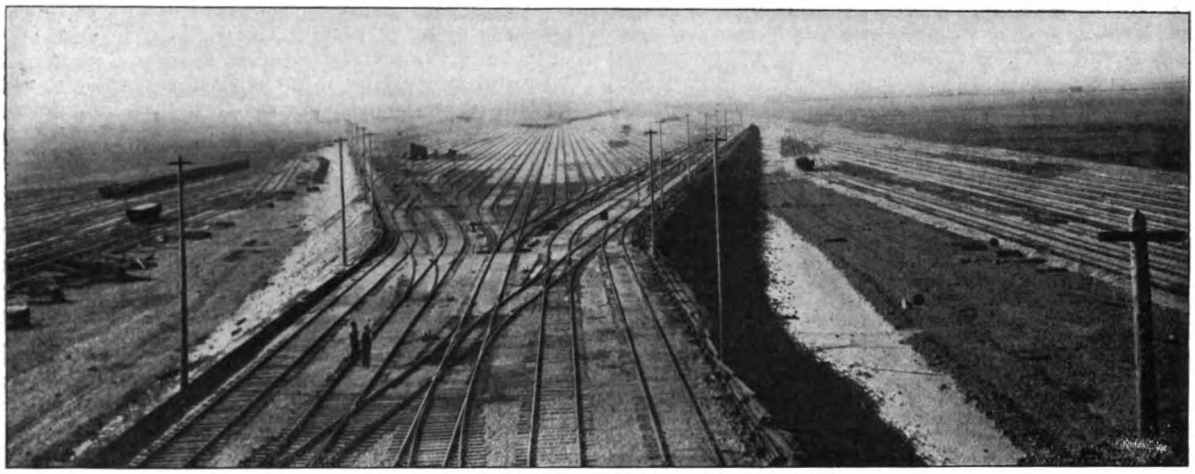
up the incline from one end to the center, where the cars will be cut off singly or in sections and allowed to run by gravity to their respective tracks. One man will be sent with each car or section to its destination except in a case where a section includes 10 or more cars, when two men will be needed for operating the brakes. The plan at present is to provide an engine running on the middle track for the purpose of bringing the men back to the tower after taking the cars to their proper places. It is estimated that trains can be classified at a speed of from 2 to 4 miles an hour, and from 5,000 to 8,000 cars can be handled into and the same number out of the yards per day.

The tracks on either side are equipped with 60 switches; a controlling, electro-pneumatic system being used, to be operated by push buttons, and all of the switches to be controlled from the tower. The switches, switching machinery, air cylinders, etc., are furnished by the Union Switch & Signal Company, Swissvale. Pa.

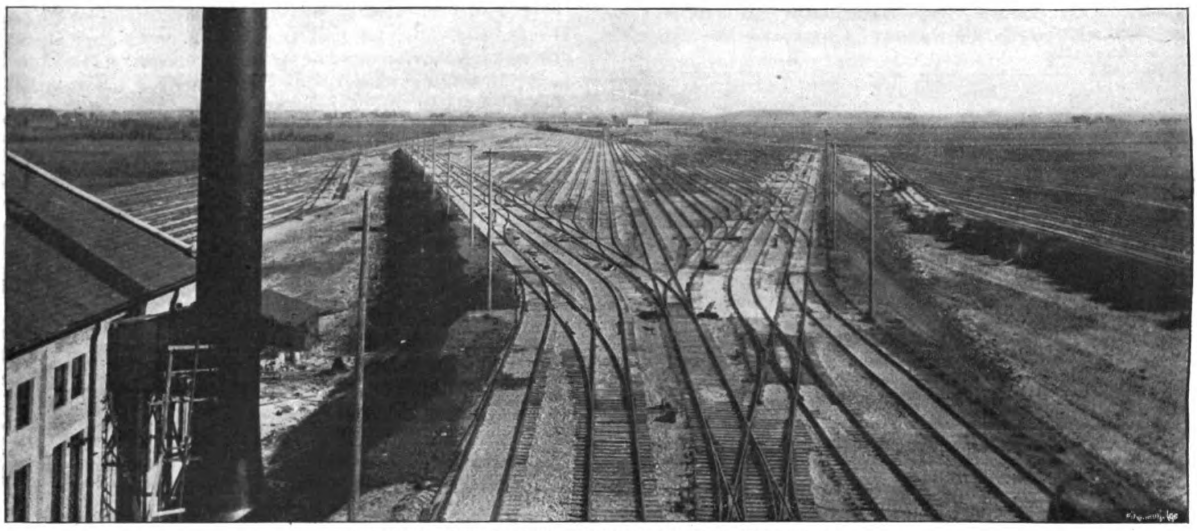
The yards as built include at either end 40 classification tracks, each 2,500 feet in length. Three extra tracks on each side of the yards will be used as thoroughfare tracks for the yards and at the ends of the yards these are supplemented by two tracks, which are used for entrance purposes. The receiving tracks as shown in the diagram are located within the yards and on both sides of the central section, there being 10 tracks on either side. One track will be used from either end on which the trains to be classified will be pushed to the center, from which point the cars will be cut off and run upon a ladder track on the other side to the classification tracks. The ladder tracks are supplemented by pole tracks, the two being connected at intervals so that in case of a wreck, no serious delay would result.

The ladder tracks and central portion of the yards from the first will be lighted by electricity for night operations. At present some 30 arc lights have been placed, but additional power is provided for lighting the entire yards if thought advisable after the lights for night operations have been tested. In this connection an unusual feature will be the use of electricity in the switching lamps. A switching lamp similar to the standard of the Pennsylvania Railroad has been adopted and wires encased in galvanized iron or wooden trunking will be run to each lamp, the connections being made so that the light will remain stationary as the lamp revolves. The dynamos, electrical machinery and connections are furnished by the General Electric Company, Schenectady, N. Y.

The power house is of brick, 74 by 138 feet, and is divided about equally into an engine and boiler room. The boilers are of the water tube type, made by the Babcock & Wilcox Company, there being three batteries of 300 horsepower each. The engine equipment includes two Ideal 250-horsepower engines, with three air compressors, dynamos, etc. The compressors are of the type made by the Rand Drill Company of New York, the largest one being 270 horsepower, with a capacity of compressing air to 800 pounds per square inch.



CHICAGO CLEARING YARDS - LOOKING WEST FROM THE TOWER.



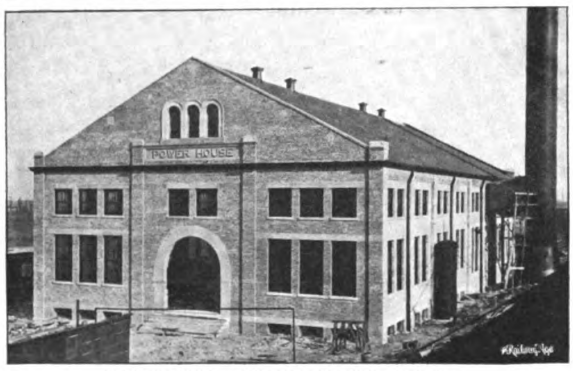
CHICAGO CLEARING YARDS—LOOKING EAST FROM THE TOWER.

The other compressors are of 225 and 200 horsepower respectively.

The roundhouse is located in the east end of the yards 1 mile from the operating tower, and is just visible in the eastern view of the tracks given. The house will have nine stalls and accommodations for eight engines. In connection with the roundhouse a 70-foot turntable, built on concrete foundations, is provided. In the east end of the yard and in the vicinity of the roundhouse, a coal chute of about 80 tons capacity is being built by Fairbanks, Morse & Co. of Chicago.

OPERATING TOWER, CHICAGO CLEARING YARDS.

All points in the yards will have telephone connections and in addition to this, private sewer and water systems have been installed. The water will be secured from three driven wells, 1,600 feet deep, and will be raised to the surface by means of an air lift, and then pumped into the water tank, which has a capacity of 100,000 gallons. The water will be piped to all points in the yards, about 9 miles of 12 to 18 inch pipe being used in the system. The sewer and drainage problem is one of the important features in connection with the improvements. The land on which the yards are located is unusually flat, and though 35 feet above the drainage canal at periods during the year, especially in the spring, portions were formerly covered by water. To overcome this extensive



POWER HOUSE, CHICAGO CLEARING YARDS.

drainage, sewer systems have been built. At the beginning of the system at the roundhouse, a 12-inch pipe is used, which is at intervals increased to pipes of 15, 18, 24, 27 and 31 inches diameter. From this point the larger sizes of the sewer are built of concrete, ranging from 36 to 96 inches in diameter. About 4½ miles from the roundhouse an open ditch one-quarter of a mile long has been built to the Illinois-Michigan canal. From the main sewer laterals are built to each side at intervals of about 660 feet.

In addition to the area included in the yards, the company owns adjoining land amounting to about 3,700 acres, a large portion of which is available for extensions, manufacturing industries, warehouses, etc. On this land about ½ mile to the north of the yards, a small town of some 12 buildings, including two boarding houses, is being built for the accommodation of the men to be employed at the yards. It is expected that the construction work will be completed about January 1, 1902, but it cannot be stated when the actual operations of the yards will begin.

The company have placed orders with the Cooke works of the American Locomotive Company for four 185,000-pound consolidation engines for feeding the cars on the inclines and for two 6-wheel switching engines, weighing 120,000 pounds, for the work of switching in the yards.

The present project is supplementary to a movement of a similar nature in 1890-1892, of which A. B. Stickney was at the head. The present company, however, were in no way interested in or related to the original one, whose plans and operation were entirely different from those just described. The original yards, a plan of which is shown, were to include circular tracks 1 mile in diameter, around which were to be laid out yards for every road entering the city. In these yards the switching for each road was to have been done, the freight for other lines to be transfered by means of the circle to the desired yards of the other roads. After about 20 miles of track had been laid the company failed and the project was given up.

The yards and engineering work were built under the direction of A. W. Swanitz, chief engineer, to whom, with other officials of the company, we are indebted for the information given.

ALL FLANGED ENGINE TIRES AND TRACK.

At the September meeting of the Rocky Mountain Railway Club an interesting paper was presented by Mr. Hugh Wilson, roadmaster of the Burlington & Missouri River Railroad at Lincoln, Neb., upon the "Relation of All Flanged Engine Tires to Track." This paper was discussed at the October meeting. In the course of the paper the writer took occasion to analyze carefully and show by means of diagrams the relative positions of the flanges of all the drivers upon a consolidation locomotive for the purpose of demonstrating that there is in all cases sufficient play so that there is no greater wear upon the flange when all flanged drivers are used and consequently no greater strain upon the track. While there are as many distinct problems in this matter as there are different classes of engines in service having more than two pairs of driving wheels, yet the principles involved in the consideration of any one case are general and will cover all cases.

The writer referred to the fact that in the case of the engines in question with all flanged drivers, the trackmen complained of having considerable trouble in keeping the track spiked in gauge on sharp curves. They also claimed that there was a noticeable increase in the tendency of the rails to turn outward from the center of the track, thus cutting the ties badly. In relation to this point the writer of the paper presented a diagram of the position of each of the four pairs of drivers upon a 20-degree curve, and showed by means of other diagrams, taking into account at all times the play between the wheel hubs and frames and the wheel flanges and rail heads, that there was always sufficient room so that no unusual strain would be exerted upon the rails. The conclusion reached from this investigation was that the track was actually in better condition than if the engines with all flanged tires had not been put in use.

In the matter of effect of all flanged tires upon frogs, the writer concluded that there was only one dangerous situation, which was when the frog is on the inside of a curve and that the danger only exists in this case where the curvature is above 9 degrees or thereabouts.

In the course of the discussion, Mr. Calvert of the Denver & Rio Grande, stated that that road had been making a practice of flanging all tires and then if necessary turning them down. One engine which they had in service came from the works with all wheels already flanged, but he had never seen any indication of any trouble arising from the use of all flanged tires on 16-degree curves.

The practice of the Colorado & Southern was stated to