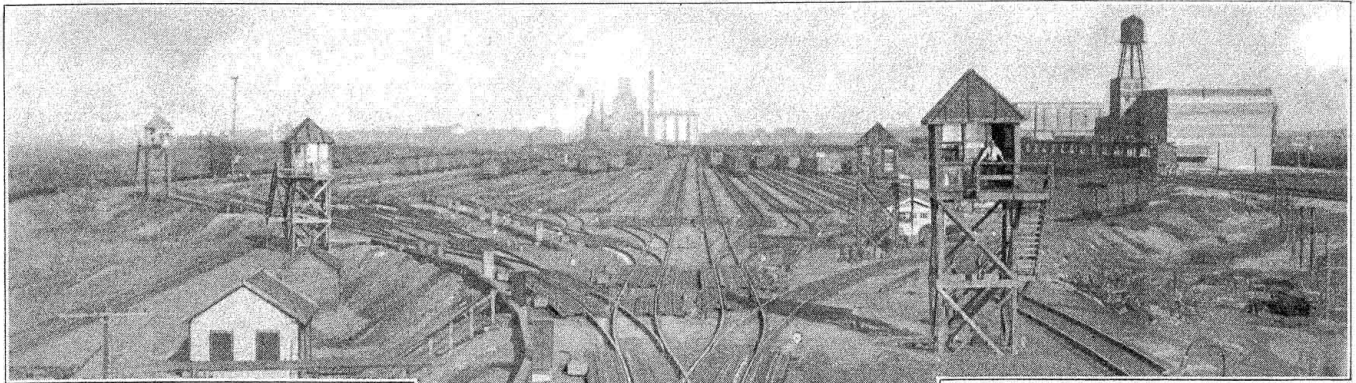


Indiana Harbor Belt Rebuilds Flat Yard Into Hump Layout Providing Retarders and Power Switches

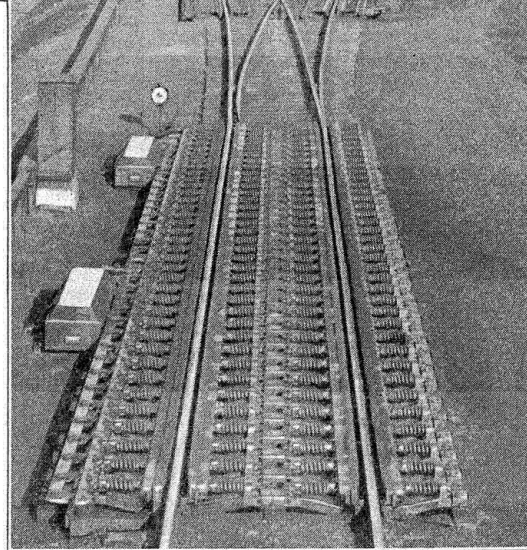
Capacity of yard increased efficiently using smaller crews to classify an average of 2,000 cars a day under all weather conditions



BLUE ISLAND, originally a flat switching yard of a half mile in length, on the Indiana Harbor Belt between South Racine avenue and Halsted street, on the southwest side of Chicago, was rebuilt last summer and is now one of the busiest hump classification yards in the United States. All of the western and northern railroads enter the Chicago area either at or west of Blue Island and all of the eastern and southern lines at or east of Blue Island, thus making this location ideal for the handling of interchange traffic.

The best expansion that could be made without moving the yard several miles east or west, which would have necessitated serious back-hauls of traffic, was by closing Racine avenue and extending the yard so that it occupies a full mile between Halsted street and Ashland avenue with room for leads extending on the west from the cross-line of the Baltimore & Ohio Chicago Terminal and on the east to the Illinois Central. This condition forced the building of train and receiving tracks parallel to and adjoining the classification tracks as shown on the plan. The final plans call for a fourth lead on the west end so that there will be a separate lead for each receiving yard and two leads to the hump.

Converting this flat switching yard into a power-operated hump classification yard, including the installation of the G-R-S all-electric car retarder system was accomplished in less than six months' time. The record follows:



General view of Blue Island yard looking east down the hump with the first retarder in foreground—Retarder control towers at edge of yard

February 22, 1926—Work authorized.

March 11, 1926—Filling for embankment started.

June 1, 1926—Track work started.

June 17, 1926—Retarder installation started.

August 13, 1926 — Installation placed in service.

The Layout Is Now Handled by Small Crews

The north and south receiving yards consist of three and five tracks of 100 cars capacity each located parallel to and on the north and south sides, respectively, of the classification yard. In addition, two ice-house receiving tracks hold 100 cars each. This plan permits hump

engines to pull cars out of one receiving yard while trains are arriving in the other yard. The departure yard consists of three tracks, each holding 100 cars.

The gradients of the classification yard after leaving the last retarder are, at present, 0.25 per cent although 0.3 per cent is ordinarily recommended. The operation of the yard, so far, shows less gradient required to overcome curvature than was originally contemplated. The entire gradients are so well balanced as to take care of all kinds of traffic.

The hump yard crew for each eight-hour shift consists of one yard master, one hump conductor, five car retarder operators, three switchmen, two engine crews (engineman and fireman), and one maintainer. Night switching is facilitated by a floodlighting system so arranged as to supply adequate illumination for the entire yard.

Approximately 50 per cent of all the freight traffic

received is perishable, which is handled on very close schedules. Perishable freights are checked as they are spotted in the ice-house, which facility provides for the icing of 80 cars at a time at a speed of one car every 30 sec. During peak periods, it is necessary to ice approximately 1,500 cars daily, which frequently involves humping 200 cars per hour.

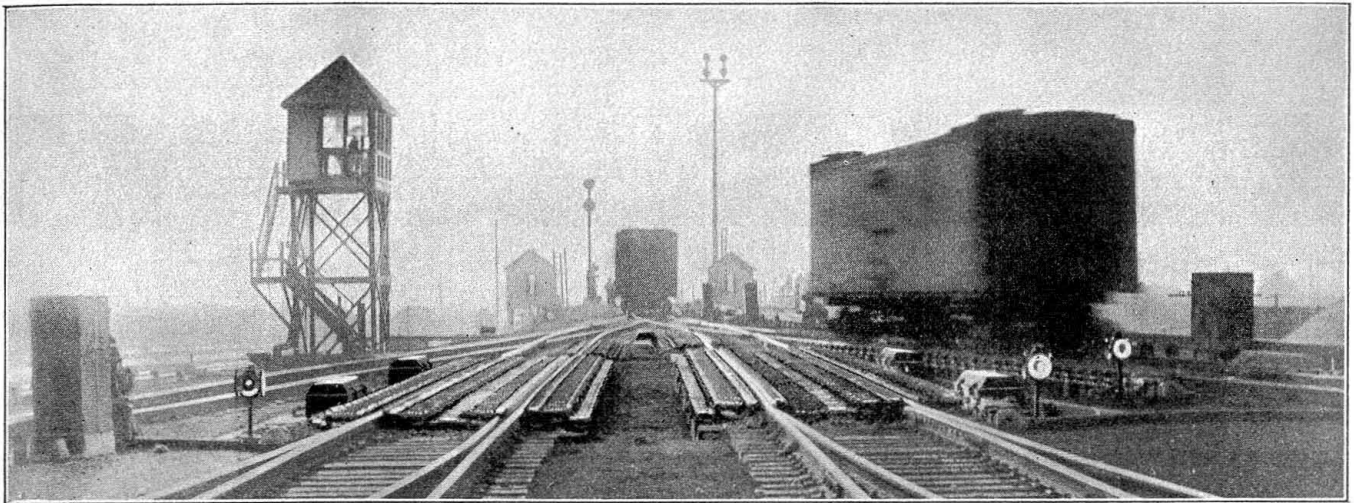
Switching Lists Prepared on Telegraph Printers

As soon as a train arrives, the waybills are brought to the yard freight office at the east end of the yard. Here the rate clerk checks them over for diversions and reconsignments. They are then turned over to

hands of those needing them. The switchman at the head of the hump knows how many cars go in each cut, and the tower operators know to which track the cars are to go. Prior to the installation of the Teletype system it was necessary to prepare manifold copies of the lists on a typewriter which were distributed by messenger, resulting in a delay of from 30 min. to an hour.

Cars Oiled to Increase Humping Speed

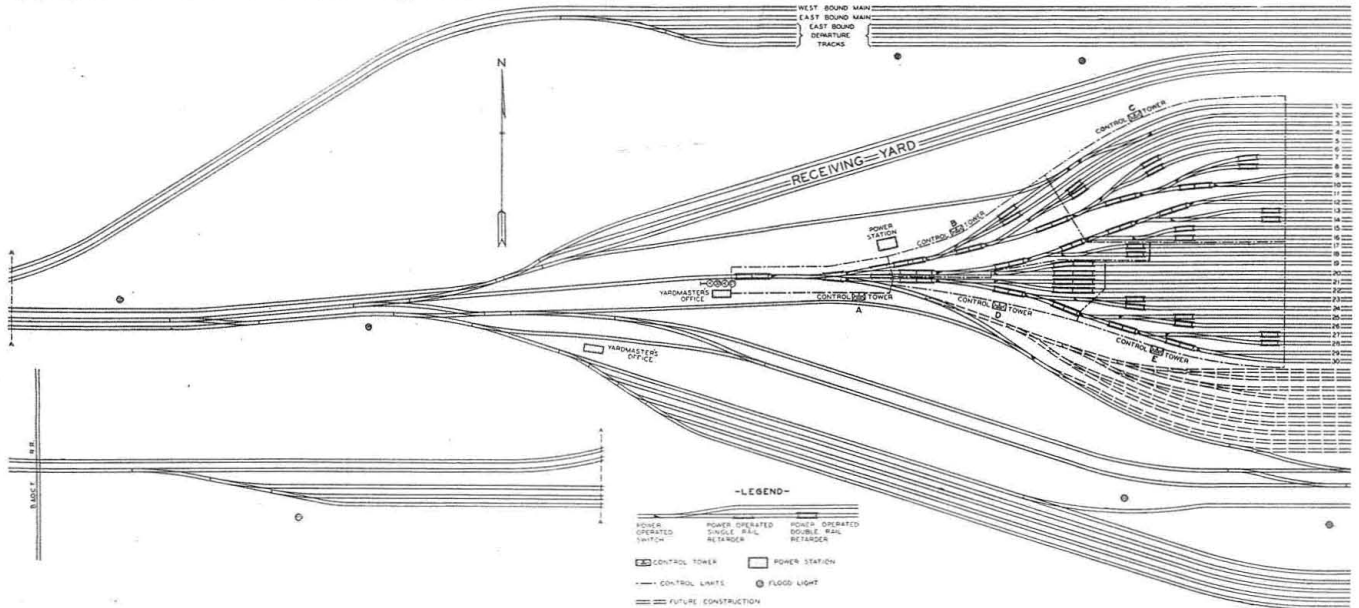
As is well known, the speed of cars in a gravity yard is affected materially by cold weather. Low temperatures cause the journal box packing to con-



View looking from yard up toward the hump showing cars descending through retarder system

an operator who transmits the switching lists to the towers by means of a telegraph printer. By this means the switching lists are made available within five to ten minutes after the arrival of the trains. The telegraph printer installation consists of Teletype printers with a transmitting machine in the yard

geal, which results in slowing down the movement of the cars, if they are not stopped entirely. This is particularly true in hump yards where car riders are employed and it is frequently necessary to put the cars over the hump at such speeds as to cause considerable loss and damage through rough han-



Layout of Blue Island hump classification yard showing location of switches, retarders and control towers

freight office and receiving machines in the yardmaster's office at the top of the hump, in the junction tower near the top of the hump, and in each of the four retarder towers. By the time the humping engine is able to take its drag from the receiving yard to the hump lead, the switching lists are in the

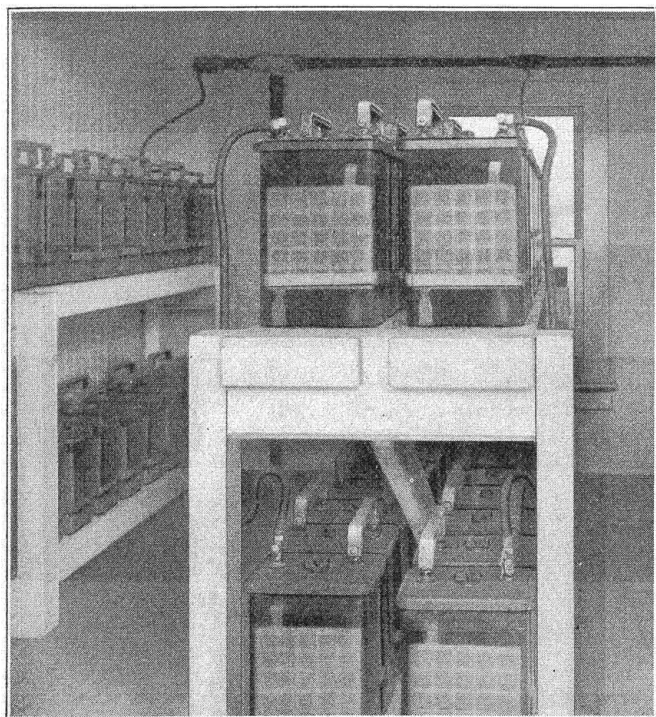
ding. To overcome the difficulty, just before the top of the hump is reached, the cars to be humped pass a car oiling plant, the invention of E. M. Wilcox, master car builder. This plant consists of two oil storage tanks, each of 200-gal. capacity, sunk in the ground next to the first track north of the hump.

experienced in securing additional car riders during the peak traffic periods. It reduces motive power necessary for yard operation and increases the use of all cars.

Method of Classification

The classification in this yard is handled somewhat differently than is the practice on most railroads, because it is a belt line yard. Instead of being classified in station order, as is done on trunk line railroads, the cars put over the hump at Blue Island yard are classified according to the railroad to which they are to be delivered. A separate track is assigned for cars destined to each railroad, certain roads requiring two tracks. For example, all cars going to the Erie are put on track 3 and when this track is full, Erie cars go into track 4.

Under this arrangement, the engine making up the outgoing train at the east end is enabled to pick up its train from adjacent tracks and traverses a minimum of the restricted space over the crossovers at



Storage battery for switch and retarder operation

the east end of the yard. This affects an important saving in time in view of the difficulties encountered in excessive engine and car movements across the busy grade crossing at the end of the yard.

Cars are usually pulled from the classification yard as soon as the tracks are full. A large percentage of the perishable trains run directly out of the classification tracks, the cabooses being handled by the hump engines. The waybills are checked as the cars come down into the classification yard. By the time a train is ready to be pulled from the east end, the yard clerks have the waybills ready for the conductor of the outgoing train.

Performance Records a Regular Occurrence

The classifying capacity of Blue Island hump yard is 200 cars an hour or 4,000 cars a day. The maximum business recorded for a 24-hour period was 2,766 cars classified, which consisted of 934 cars on the first shift, 980 cars on the second shift and 852 cars on the third shift. The largest number class-

ified on an eight-hour shift was 1,190 cars between 3 p. m. and 11 p. m.

Another record was made on October 21, 1926, as follows:

Arriving Trains				Departing Trains			
Train	Conductor	Arrival	Cars	Train	Conductor	Departure	Cars
404	Palkey	2:46 p.m.	88	404	Palkey	4:07 p.m.	56
410	Hartman	2:52 p.m.	24	325	Krieg	4:45 p.m.	57
257	Sherwood	3:24 p.m.	84	257	Sherwood	5:04 p.m.	61
422	McGrath	4:15 p.m.	62	150	Lawrence	5:15 p.m.	65
1607	R. I.	4:15 p.m.	38	422	McGrath	5:44 p.m.	18
407	Newhouse	4:33 p.m.	31	407	Newhouse	6:24 p.m.	37
253	Mathews	4:38 p.m.	41	418	Vandenbenden	7:23 p.m.	57
418	Vandenbenden	4:46 p.m.	70	423	Fox	7:26 p.m.	33
423	Fox	5:32 p.m.	62	320	Scanlon	7:28 p.m.	9
				7989	M. C.	7:32 p.m.	24
				263	McCain	7:37 p.m.	62
				400	Steineck	7:41 p.m.	68
				150	Lawrence	7:43 p.m.	30
				162	Patterson	7:46 p.m.	71
				325	Krieg	7:48 p.m.	17
				318	Albrecht	7:58 p.m.	25
				314	Weatherspoon	8:09 p.m.	34
				406	Miller	8:18 p.m.	42
Total			500				766

In addition to the 500 cars of perishable and time freight shown in the total of the first column, the hump engine switched 202 cars of freight that were in the yard before 2:46 p. m., making a total of 702 cars. The first cut went on the hump at 3 p. m. and the last cut was switched at 7:07 p. m., 502 separations being made in the 702 cars. Of the 500 cars of perishable and time freight, 407 were re-iced, the last one at 6:45 p. m. Summarizing the above performance; in 2 hr. and 46 min., 500 cars of time freight and perishable were received; in 4 hr. and 11 min., there were dispatched 18 freight trains and transfer deliveries carrying a total of 766 cars as shown in the total of the second column; in 4 hr. and 7 min., a total of 702 cars were humped and in 3 hr. and 59 min., a total of 407 cars were iced.

Cold Weather Operation

On January 12 and 13, 1927, a severe blizzard piled snow approximately 14 in. deep on top of the hump and classification yard tracks, which was followed by a temperature 14 deg. below zero. The entire system operated satisfactorily throughout the severe weather, which lasted several days.

The Institution of Railway Signal Engineers, London, held its annual general meeting on February 9, 1927, at its usual meeting place, the Institution of Electrical Engineers, Victoria Embankment, London. At this meeting awards were presented for the best paper read during the year, the first prize (£6) being awarded to M. G. Tweedie, secretary, for his paper entitled, "Electrical Power for Railway Signaling and Communication," presented on December 8, 1926, and the second prize (£4) to H. H. Harrison for his paper entitled "Fundamentals of Automatic Telephone Switching, read at the November 10, 1926, meeting. The membership figures in the annual report of the Institution show a net increase of 34, the total number on January 1, 1927, being 649. The following meeting dates, papers and lectures have been scheduled for the 1927 session: March 2—"Railway Level Crossings" by F. Horler; April 13—"Lecture on Signaling Overseas" by H. M. Proud; May 11—"Four-Aspect Color-Light Signals and Power Signaling in Practice" by W. J. Thorrowgood.

The Standard Underground Cable Company, Pittsburgh, Pa., has been awarded a gold medal by the International Jury of Awards of the Sesqui-Centennial Exposition, Philadelphia, Pa., in connection with the exhibit of its products, including bare and insulated electric wires and cables, cable terminals, junction boxes and accessories, a gold medal being the highest award in this class of exhibits. The company's exhibit as a whole was planned to show the general scope of its manufactured products at the present time and also the progress and improvement made since the early days of the industry.