



TRAIN MOVEMENTS signaled both ways on each track of double track helped give the Milwaukee the flexibility and . . .

## Capacity for 15 More Trains Fast

When the Milwaukee late in 1955 took over Union Pacific passenger trains between Chicago and Omaha, the immediate job was to increase track capacity and obtain needed new flexibility to assure on-time performance. Additional signaling with centralized traffic control was the answer. A rush program on 35 miles of three-track was completed in 60 days. Now the whole project has been finished with all the added trains being handled without new trackage.

News of the pending switch of UP streamliners from the Chicago & North Western to the Milwaukee broke on August 1, 1955. Target date for the change was set at October 31, only 90 days later. The Milwaukee had three months in which to make special preparations.

Certain moves could be made quickly and were. In the Chicago area, five power crossovers were installed; automatic block signals were put in and about 9.2 track miles of rail were changed out between Towers A-3 and B-12. These were only the first steps. By early 1956, a few weeks after the shift, additional new crossovers and turnouts, with complete CTC, were in

place on about 22 miles between Towers B-12 (Franklin Park) and B-35 (near Elgin, Ill.)

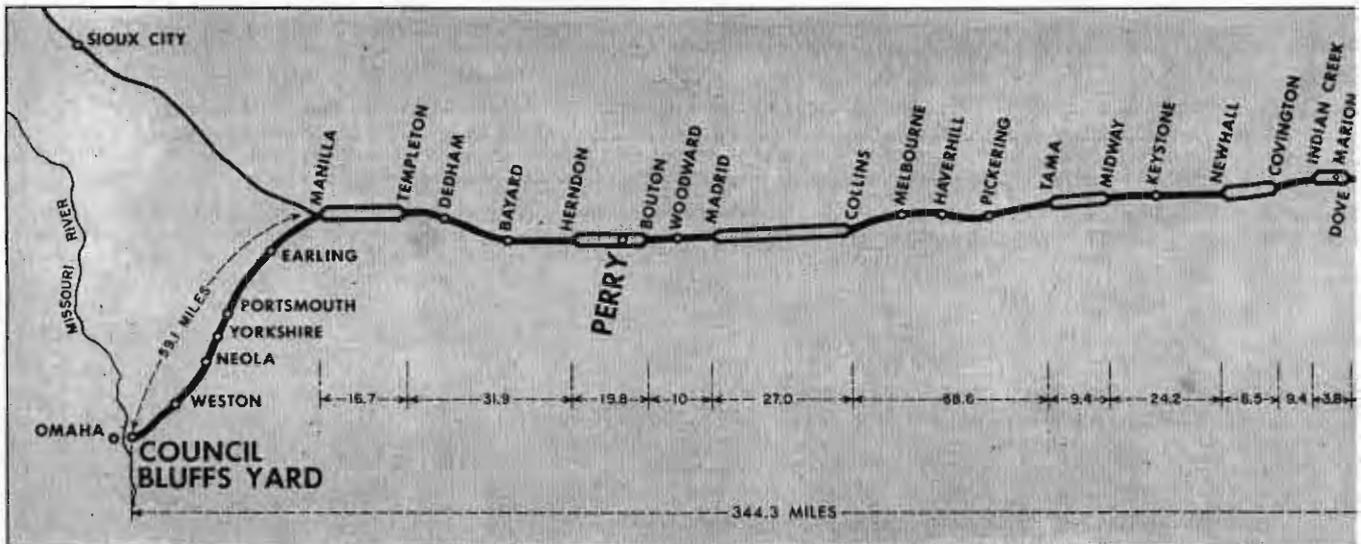
These steps marked the beginning of a longer program of increasing over-all track capacity between Chicago and Omaha. That program, requiring some 18 months, embraced extensive signaling changes and new CTC installations over several segments of the 488-mile route. The job was finished late in 1957.

Prior to the 1955 train shift, the Milwaukee had main tracks between Chicago and Council Bluffs as indicated on the accompanying map. This arrangement continues in use today.

### What They Did

Five of the through passenger trains depart from Chicago between 4:30 p. m. and 6:45 p. m., and during this period seven westbound suburban passenger trains depart from Chicago for Elgin, 37 miles, making numerous station stops. In order to run the through passenger trains around the suburban trains, new 132-lb rail was laid on a previous freight transfer track on 9.5 miles between A-3 Tower and Franklin Park. New signaling, for westbound trains only, was installed on this track.

To further increase track capacity, both main tracks on the previous double track



main line were signaled for train movements in both directions from Franklin Park to interlocking B-35 on the east side of the Fox River 1.4 miles east of Elgin passenger station. To cross trains from one track to the other, No. 20 crossovers were installed at Franklin Park, B-17, Roselle and Spanlding, with No. 20 turnouts at B-35 tower Elgin. Trains are authorized to use these crossovers for diverging moves at 50 mph. These crossovers and turnouts, used by through trains, are all power operated and included in interlocking, or are remotely controlled by levers in interlocking. As advance information that a 50 mph crossover or turnout is lined for a diverging route, the approach signal displays a flashing-yellow, rather than steady yellow.

On the 102.7 miles between Elgin B-35 and Savanna, no changes were made in the conventional 2-track main line, which is equipped with automatic block for right-hand running.

#### On the Iowa Division

The bridge across the Mississippi between Savanna, Ill., and Sabula, Ia., is single track. Two-track, with each track signaled right-hand running, extends 12.1 miles to Green Island, this section being used also by trains to and from the Dubuque line.

Centralized traffic control with six power sidings has been in service since 1950, on the 71.4 miles of single track between Green Island and Dove. Also, centralized traffic control has been in service since 1942 on the 59.1 miles of single track between Manilla, Ia., and the yard office at Council Bluffs. This territory now includes five power sidings as indicated by dots on the map.

On the remainder of this Iowa Division, sections of single and two track, as indicated on the map, were in service prior to the change over. Automatic signaling was in service on these sections, train movements being authorized by timetable and train order. The switches at the ends of double track were in interlockings or were operated by spring switch mechanisms to permit trailing moves without stopping. However, all the sidings were operated by hand-throw switch stands. CTC was in service between Indian Creek and Covington, and Madrid to Bouton with remote control power sidings (one end) at Melbourne, Haverhill and Pickering.

#### Capacity and Flexibility

To secure the track capacity and flexibility for additional train movements, the Milwaukee, within a period of 12 months, installed centralized traffic control on those portions of this division that were not previously so equipped. These new projects included power switches at seven sidings on single track; power switches at the ten ends of double track; and signaling for train movements both ways on each track.

The turnouts at the ends of double track are No. 20 with 34 ft 6 in. points, over which diverging train moves are authorized at speeds up to 50 mph, and signal aspects are arranged accordingly. Turnouts at ends of sidings are No. 11, diverging moves being authorized at 13 mph. As part of the overall project, sidings were lengthened to 175-car capacity at Bayard, Dedham, Portsmouth, Neola, Keystone and Pickering.

With the completion of this work, centralized traffic control is now in service throughout on the 329 miles between Green Island and the yard office at Coun-

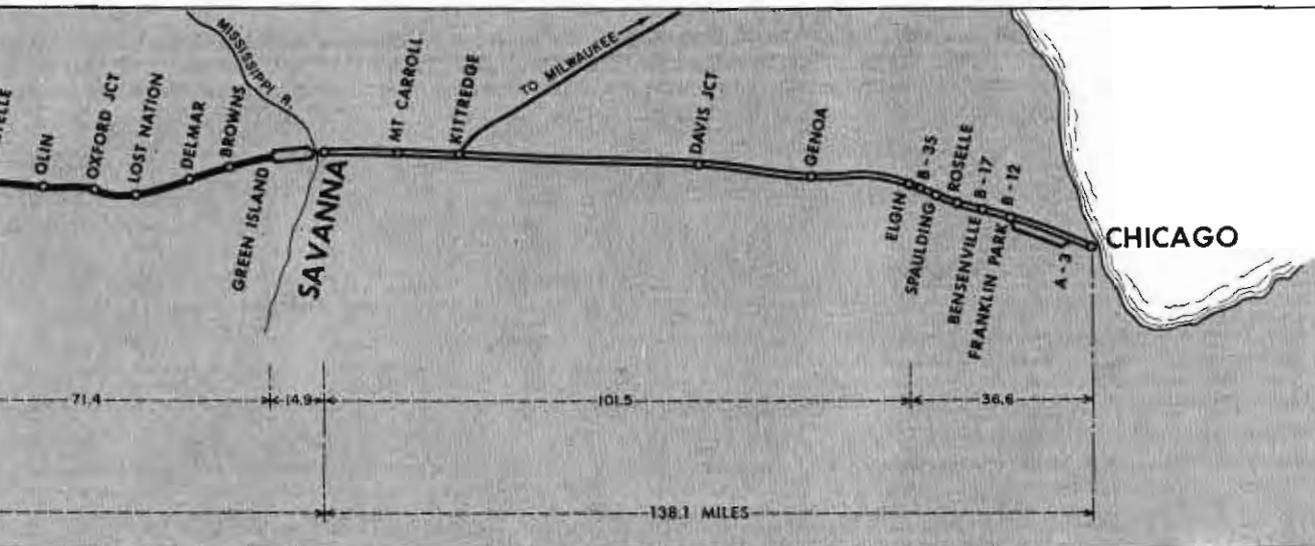
cil Bluffs. All this CTC is controlled by one machine, manipulated by the dispatcher at division headquarters in Perry, Iowa. This CTC, including power switches and train operation by signal indication, is an important contribution toward the success that is being attained in train performance.

#### More Trains

Prior to the change over, the Milwaukee had operated two passenger trains each way daily on the Chicago-Omaha runs. When the change was made, the Milwaukee night train each way was continued, but the day train each way was combined with the Challenger, operated over the UP between Omaha and Los Angeles. The other trains are the City of San Francisco, City of Los Angeles, City of Denver, and City of Portland. Thus the traffic in 1957 included six passenger trains each way daily. Also the Milwaukee operates 16 suburban trains each way daily between Chicago and Elgin.

Five scheduled time freights are operated each way daily between Chicago and Savanna, and three such trains are operated daily each way between Savanna and Council Bluffs. A second section of one eastward time freight is operated six months each year. Extra trains are operated as required, and local freights are operated on daily schedules on some subdivisions.

To haul the additional traffic, longer trains are being operated. Four diesel units are used on such trains, compared with three units on shorter trains before. Thus, the number of through freights has not increased in as high a proportion as the increase in cars or tonnage. Freight trains are operated at 60 mph maximum



and are powered to maintain this speed except on some grades.

Cars going to or coming from the line to Sioux City are set off or picked up at Manilla. During grain movements or other peaks of traffic from the Sioux City line, extra trains are operated through from Sioux City to Savanna and to Chicago.

The maximum speed for passenger trains is 79 mph. The through trains change crews at Savanna, Marion and Perry. The overall time of the four through trains, either way on the 488 miles between Chicago and Omaha, varies from 8 hr. 5 min. to 8 hr. 15 min. depending on the number of station stops.

The Milwaukee is maintaining an excellent record of on-time train performance. If trains leave Chicago or Omaha behind schedule, the Iowa Division and the Illinois Division can make up a considerable amount of the time late.

Through freight trains with more tonnage, are making the same time as previously, which is about 8 hours either way on the 344 miles between Savanna and Council Bluffs Yard, and about 2 hours 45 min. either way on the 121 miles between Savanna and Bensenville Yard near Chicago.

Because the five westward through passenger trains leave Savanna in the period between 6:44 p. m. and 9:55 p. m. difficulty would be encountered in operating freights either way in this territory, if the CTC were not in service to authorize moves promptly by signal indication, rather than by train orders. For example a typical move is for westbound freight No. 63 to leave Savanna shortly after the second passenger train No. 105, and go 170 miles to the siding at Melbourne to let the two remaining westward passenger trains, 101 and 103 pass.

Westbound time freight No 63 meets all five of the eastbound through passenger trains in the 59 miles of single track between Manilla and Council Bluffs Yards. Also in this section, some of the westbound through passenger trains meet some of the eastward passenger trains.

Consideration is being given to a proposed change from two-track to single-track with three power CTC sidings, on the present section of double-track between Collins and Madrid, 27 miles. This change will provide better flexibility to advance a freight train one or more sidings ahead of a passenger train of the same direction, this being the needed flexibility in this area, rather than a need to meet opposing trains.

The signaling projects and track changes in this change-over program were planned

and constructed by Milwaukee Road forces under the direction of Philip H. Linderoth, signal engineer, and under the jurisdiction of Chief Engineer W. G. Powrie and Virgil E. Glosup, assistant chief engineer signals and communications, now promoted to engineer maintenance of way. The major items of signal and CTC equipment installed were furnished by Union Switch and Signal Division of W.A.B. Company.

Design of the carrier control system, as well as the wayside telephone system, was handled by communication forces under the direction of D. L. Wylie, communications engineer. Carrier equipment was supplied by F. W. Lynch Company and telephone equipment by Automatic Electric Company and R. W. Neill Company.

**POWER SWITCHES** on single track in CTC setup increased capacity on much of the Iowa Division.

