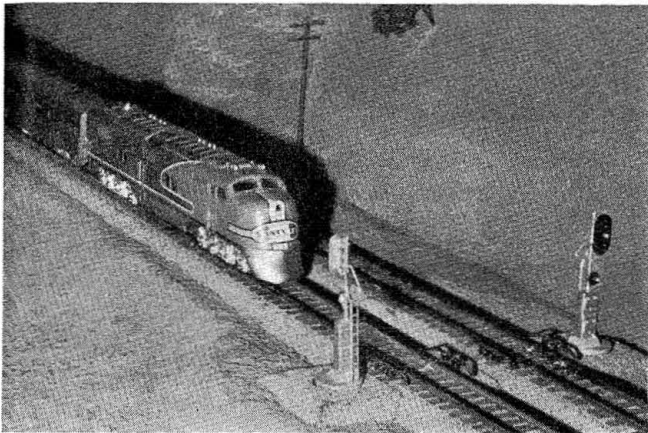


Railway Exhibit Presented to Museum of Science and Industry

Centralized traffic control and three-block, four-aspect signaling are features of 50-ft. by 60-ft. miniature display including buildings, Grand Canyon and 1000 ft. of track

At a luncheon on January 29, Edward J. Engel, president and chairman of the executive committee of the Atchison, Topeka & Santa Fe, presented a



miniature railroad exhibit to the Museum of Science and Industry in Jackson Park, Chicago. This exhibit, built by Minton Cronkhite, San Marino, Cal., for the A. T. & S. F., is 49 ft. by 60 ft. The terrain, track, bridges, signals, rolling stock, fruit orchards and the Grand Canyon, as well as structures such as locomotive shops, steel mills, grain elevators, coal tipples, and oil derricks are reproduced in miniature on the scale of $\frac{1}{4}$ in. equals 1 ft.

Tracks and Rolling Stock

The exhibit includes 1,000 ft. of $1\frac{1}{8}$ -in. gage track, with electrically-operated rolling stock including 9 steam-type locomotives, 3 diesel-electric type locomotives, 14 passenger cars and 60 freight cars. The cars are 2-7/16 in. wide, the freight cars being 10 in. long and the passenger cars 20 in. long. The passing tracks

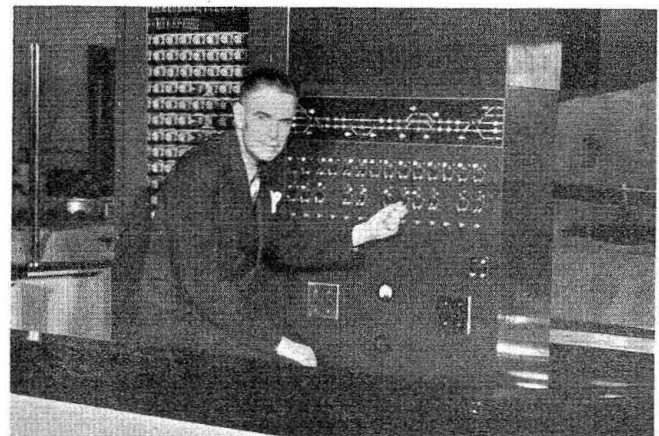
are long enough to hold passenger trains of 7 cars or freight trains of 15 cars.

Automatic Signaling

The main line is all double-track and each track is equipped with automatic block signaling for single-direction right-hand running of trains. The signaling conforms with the present-day Santa Fe system of three-block, four-aspect signaling using miniature color-light signals. The signal behind a train displays an aspect of a single red light, the second signal to the rear

Left — Streamlined train passing one of the typical double automatic signal locations. The yellow-over-yellow aspect is being displayed by the signal on the opposing track

Right — Minton Cronkhite, designer and builder of the elaborate model system, seated at the control machine for controlling the switches and the signals

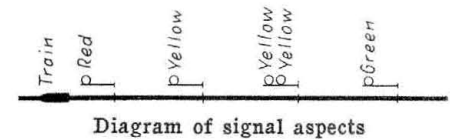


of a train displays a single yellow, the third a yellow over a yellow, and the fourth signal a single green.

Passing Tracks

The double-track main line is continuous, being arranged in the forms of one loop inside another. The "terminal" includes two passing tracks,

one on either side of the main line with switches and crossovers at each end of the terminal. From these passing tracks, hand-operated switches connect to storage tracks. Out on the line, two passing tracks are provided, one for trains in each of the two directions. A unique feature of the "eastward" passing track layout is that turnouts are arranged so that the portion of the normally "eastward"



track can be used as a "westward" passing track, thus, in effect, accomplishing the same result as a center passing track.

C.T.C. System

The 20 switches involved in main line train operation, including all the passing track and crossover switches, are power operated. These 20 switches, as well as the non-automatic signals in the vicinity of these switches, are controlled from a central point by a standard-sized C.T.C. control machine which includes an illuminated track diagram showing the locations of trains in operation on all portions of the main line as well as the passing tracks. The levers on this C.T.C. machine, control the switches and signals, and the signals, in effect, control the trains. If a signal is not displaying a proceed aspect,

propulsion current is not present in the rails to operate a train. When operating in blocks governed by the yellow-over-yellow or the yellow aspect of automatic block signals, the speeds, at which trains run, is controlled accordingly, by cutting resistance in the propulsion current feed to the rails. The propulsion power is 12 volts d-c.