EXHIBITION TESTS OF 3000-VOLT DIRECT-CURRENT PASSENGER LOCOMOTIVE

As a demonstration of the performance of the new 3000-volt, direct-current bipolar gearless passenger locomotive, described in the preceding article, exhibition tests were run off at Erie, Pa., on November 7. This exhibition was witnessed by many prominent railroad representatives, including engineers from Canada, South America, France, Belgium, Japan, and Australia. In all, nearly two hundred visitors attended the tests which began at 10 o'clock in the morning and extended to late in the afternoon.

The high-speed tests were the first to be made and included a series of runs with about twenty passengers at each trip, operating at speeds as high as 65 m.p.h. This was the maximum speed possible on the test track, which is slightly less than three miles in length. Two standard passenger coaches were hauled for those passengers who did not ride in the locomotive cabs.

After luncheon, regenerative braking tests were made with two steam locomotives obtained from the New York Central Railroad for this purpose. One of these was a high-speed passenger locomotive of the Pacific type, having a total of 173,000 lb. on the six drivers. The second was a freight locomotive of the Mountain type, having eight driving wheels with a total of 234,000 lb. on the driving axles. The principal data on the two engines are as follows:

	K 2 Passenger	L-1 Freight
Wheel arrangement	4-6-2	4-8-2
Weight lb. engine and tender	421,000	509,500
Weight lb. engine	276,800	343,000
Weight lb. on driving axles	173,000	234,000
Maximum tractive effort (at starting) lb	29,150	51,400
Diameter drivers	79 in.	69 in.
Total wheel base	36 ft. 6 in.	38ft.11in
Rigid wheel base	14 ft.	18 it.
Overall length, engine and tender	77 ft. 6½ in.	82ft.1⅝in

For the regenerative braking tests the three engines were coupled together, the electric locomotive leading. After all three had accelerated to 25 m.p.h. the two steam engines made their best endeavor to push the electric locomotive faster but were prevented from doing so by the application of regenerative braking on the electric locomotive.

At times, as high as 2000 kw. was returned through the substation to the Erie Works. The laborious efforts of the two steam engines to maintain speed with the electric locomotive regenerating were most spectacular.

As a concluding event, a bucking test was made of the two steam locomotives against the electric in which the electric locomotive easily pushed back the two steam engines in spite of their throttles being wide open.

Among the railroad officials attending the tests were the following:

H. R. Warnock, Gen. Supt. of Motive Power; Chicago, Milwaukee & St. Paul Railway
H. K. Fox, Mech. Eng.; Chicago, Milwaukee & St. Paul Railway
C. T. Ripley, Gen. Mech. Inspector; Sante Fe Lines
E. Wanamaker, Elec. Eng.; Rock Island Lines
E. Marshall, Elec. Engr.; Great Northern Railway
C. F. Nutter, Elec. Engr.; Sante Fe Lines
D. W. Jansen, Elec. Engr.; Illinois Central Railroad
J. V. B. Duer, Asst. Engr.; Pennsylvania Railroad
W. F. Kiesel, Jr., Mech. Engr.; Pennsylvania Railroad
C. B. Keiser, Supt. of Motive Power; Pennsylvania Railroad
J. C. Mock, Signal Elec. Engr.; Michigan Central Railroad
A. R. Ayers, Supt. of Motive Power; New York, Chicago & St. Louis R.R. (Nickel Plate)
A. S. Ingalls, Gen, Mgr.; New York Central Railroad (Lines west of Buffalo)
E. B. Katte, Chief Engr. of Elec. Traction; New York Central Railroad
C. H. Quereau, Supt. of Elec. Eqpt.; New York Central Railroad
F. B. Wiegand, Signal Engr.; New York Central Railroad (Lines west of Buffalo)
W. O. Thompson, Supt. of Eqpt., New York Central Railroad (Lines west of Buffalo)
J. Chidley, Supt. of Motive Power; New York Central Railroad
B. R. Mac Bain, Asst. Gen. Mgr.; New York Central Railroad
W. D. Burnham, Ass't Elec. Eng.; B. & O. R.R.
S. B. Clement, Chief Engr.; Temiskaming & No. Ontario Railway
J. Murphy, Elec. Engr.; Railway Commission of Canada
C. P. Price, Elec. Supt.; Canadian National Railways
E. B. Walker, Elec. Engr.; Canadian National Railways
W. G. Hewson, Elec. Engr.; Hydro Elec. Pwr. Comm. of Ontario
J. G. Baukat, Mech. Engr.; Hydro Elec. Pwr. Comm. of Ontario

The visiting Consulting Engineers included Frank J. Sprague of New York, A. L. Drumm of Chicago, and R. H. Wheeler of New York

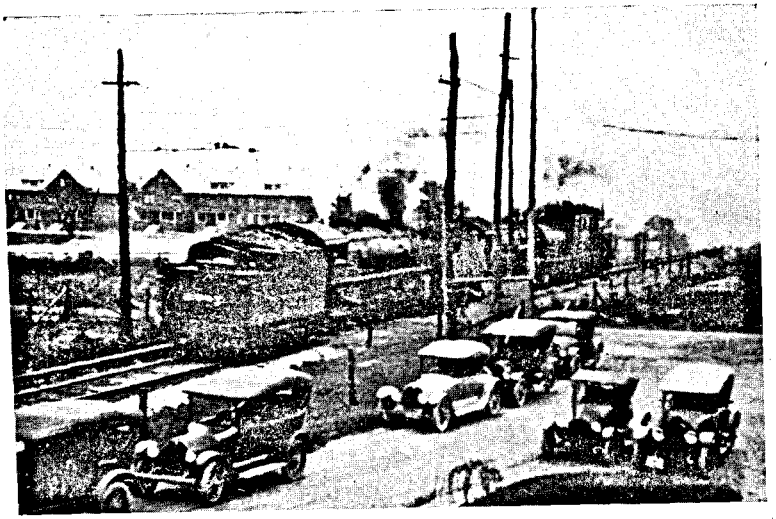
The American Locomotive Company was represented by Mr. C. J. Mellin, Chief Designing Engineer and J. G. Blunt, Chief Mechanical Engineer.

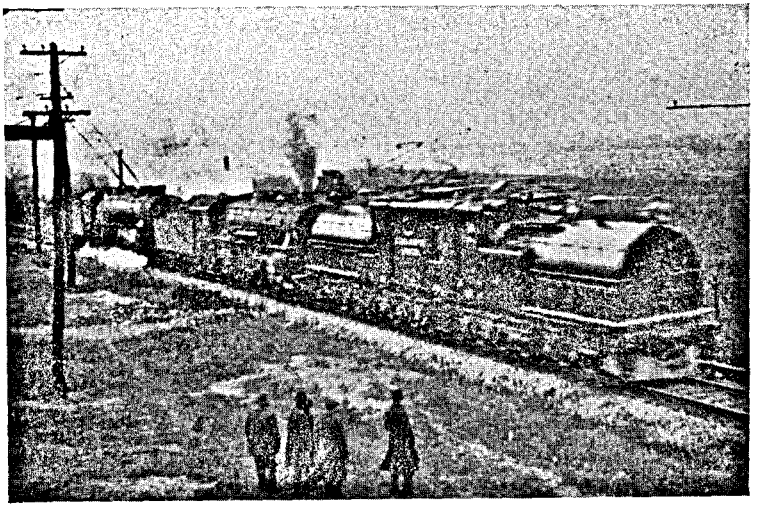
Foreign representatives included:

Mr. L. Levi, Director General; Compagnie Francaise Thomson-Houston Company
Mr. R. Martin, Rwy. Engr.; Compagnie Francaise Thomson-Houston Company
Mr. H. Berger, Rwy. Engr.; Union Electrique, Belgium
Mr. J. Canivet, Tech. Representative; Compagnie Francaise Thomson-Houston Company
Mr. Solar; Chilian Government Commission
Mr. Edward J. Doran, Traffic Mgr.; New South Wales Govt.
Messrs. F. Ohashi and T. Nishioka, Shibaura Tramways Eng. Works, Japan

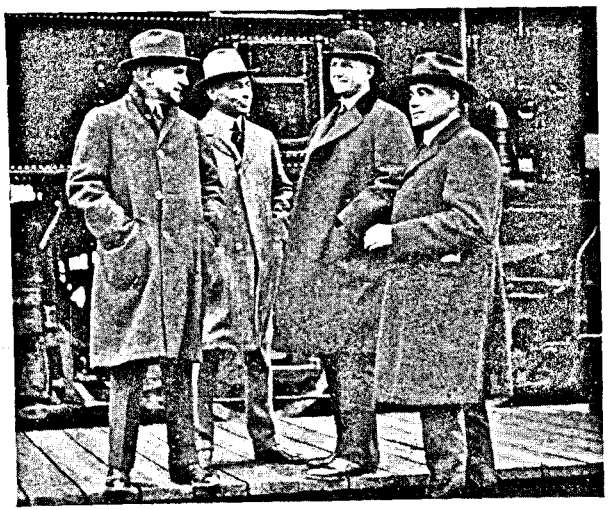
Prominent General Electric Company representatives included:

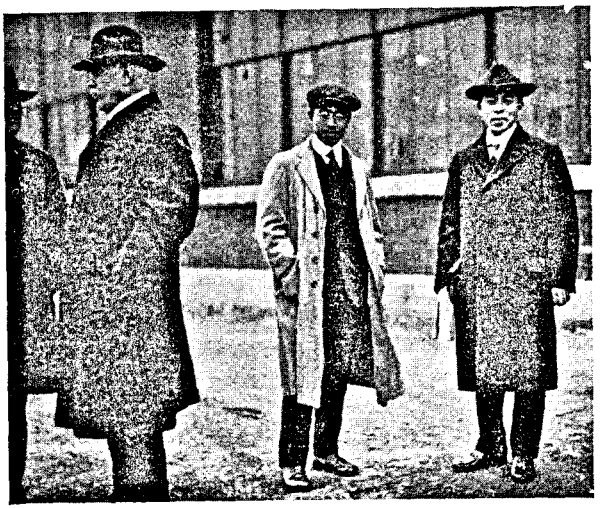
M. Griswold, Mgr.; Erie Works
G. E. Emmons, Vice Pres. & Gen. Mgr.; Schenectady Works
F. C. Pratt, Vice President
H. W. Darling, Treasurer
Langdon Gibson, Mgr.; Production Department
H. F. T. Erben, Asst. Mgr.; Schenectady Works
Wm. Dalton, Asst. Mgr.; Schenectady Works
W. B. Potter, Chief Engr.; Railway & Traction Department
A. H. Armstrong, Chairman; Electrification Committee
A. F. Batchelder, Locomotive Engr. and Designer of the Locomotive
E. D. Priest, Engineer of Railway Motors
F. E. Case, Engineer of Railway Equipment
and many others.





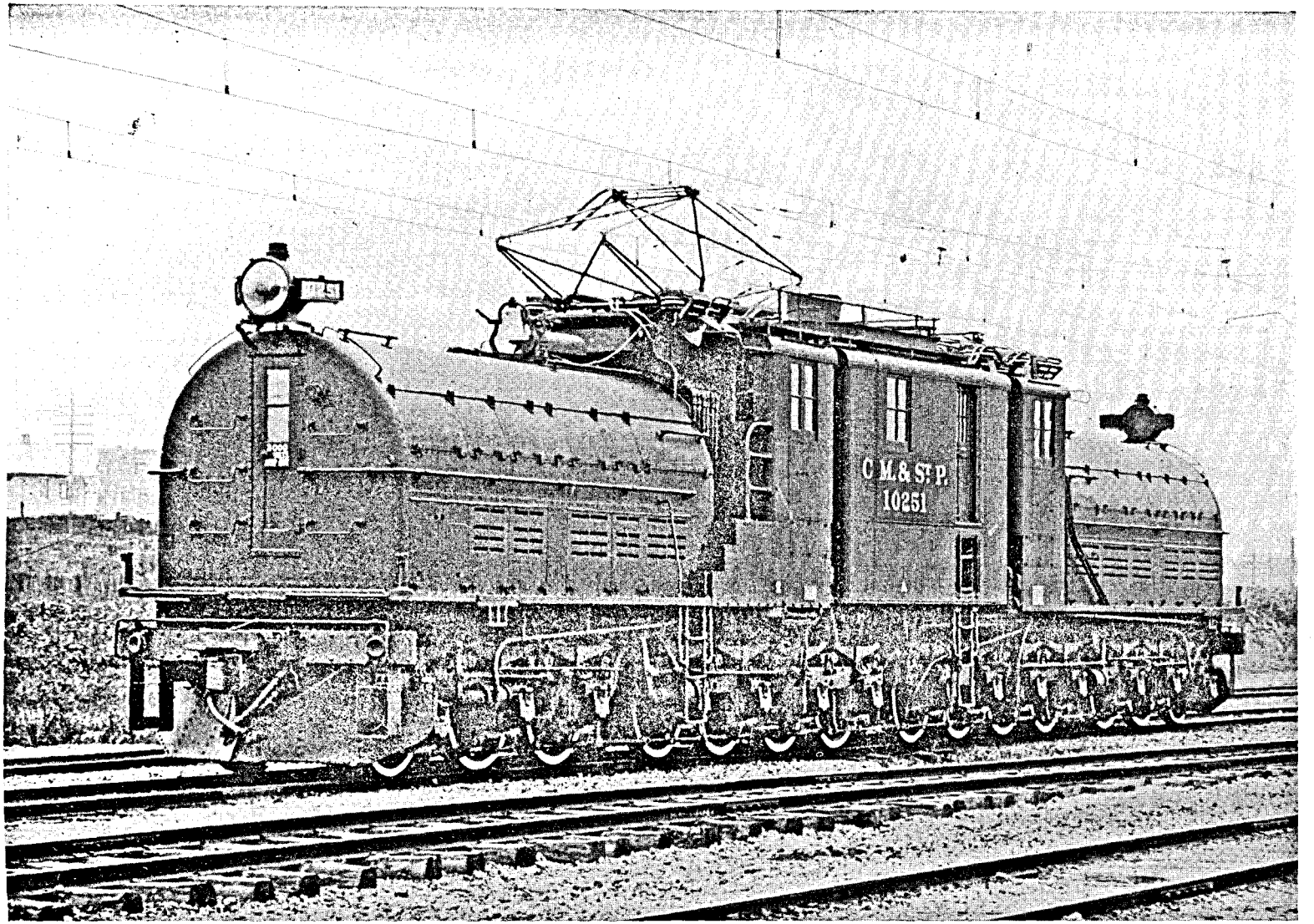
Electric Locomotive Connected for Regenerative Braking and Pushed by Two Steam Locomotives to Simulate the Effect of a Heavy Train Down-grade. At times as much as 2000 kw. was returned to the trolley circuit





Visitors at the Exhibition Tests, November 7, 1919, Erie Works

H. F. T. Erben J. M. Sherwin F. C. Pratt M. Griswold Frank J. Sprague C. J. Mellin F. Ohashi T. Nishioka



THE NEW 3000-VOLT DIRECT-CURRENT GEARLESS PASSENGER LOCOMOTIVE FOR THE CHICAGO, MILWAUKEE & ST. PAUL RAILWAY