

## Electrical Pressure Discussed in Chicago

Reports of an interesting meeting held on Dec. 15 come from the Chicago Elevated Railroad section. P. B. Woodworth, professor of electrical engineering at the Lewis Institute, Chicago, lectured on "Electrical Pressure." The less serious part of the program comprised musical and humorous selections. The latter culminated in an imitation by one of the entertainers of Richard Mansfield in his famous walk to the lunch counter which was quickly copied by all present.

## Newport News & Hampton Railway, Gas & Electric Company Section

The following notes regarding the men who are charged with the responsibility of conducting section affairs at Hampton, Va., form part of the series begun last week.

Edgar C. Kelly, who was re-elected president of Company Section No. 10 this fall, has been in railroad work for about twenty years. At present he is head electrician and pit foreman in the car shops of this company, having previously been master mechanic of the West Chester, Kennett & Wilmington Railway & Electric Company, and master mechanic of the Hampton



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Roads Traction Company. He is forty years of age, and hails from Huntingdon, Pa. After obtaining a public school education he took a course of study at the Coast Artillery School, Fortress Monroe, Va.

John W. Howard, secretary of this section, is at present taking the student course offered by this company. He completed the four-year course in civil engineering at Rensselaer Polytechnic Institute, Troy, N. Y., in 1916, immediately thereafter entering the service of his present employer.

## Annual Smoker in Newark

Thursday evening, Dec. 21, was ladies' night at the Public Service Company Section. A real "movie" show, with vaudeville, was presented under the personal direction of the general manager of Loew's theaters. After the program there was informal dancing and a buffet luncheon was served.

In addition to the entertainment described, a short business session of the section was held. The feature of interest was the announcement of the result of the membership campaign started in October. President Warner stated that 107 new members were added during the campaign and that the award of \$20 in gold announced as the prize for the member enrolling the largest number went to J. R. Cameron, assistant instruc-

tor Hoboken School of Instruction, Mr. Cameron having secured forty-six applications. A. J. Bliss, supervisor, was a close second with forty recruits. The names of seventy-one applicants for membership were read. They were men in all departments and from several divisions of the property within reasonable reach of Newark. The largest number were from the transportation department and the carhouse shops. The attendance at the meeting was 200.

## Operation on the Milwaukee

### Results of Increased Speed and Train Loads Outlined by G. H. Hill Before New England Railroad Club

At the November meeting of the New England Railroad Club, George H. Hill, assistant chief engineer of the General Electric Company, read an illustrated paper on the electrified section of the Chicago, Milwaukee & St. Paul Railroad, in which comment was made on the results of operation on this notable installation. He stated that, in operation, the success of the regenerative method of braking had far exceeded all expectations. The braking effort is so completely under the control of the engineers that they much prefer it to the air, and find that regenerative braking means less danger of drawbar failures and much less care required to avoid dangerous surges in the trains. As to operating results of the electrification, the period of use has not been sufficient to present accurate comparative data but does give an indication of results.

The electric locomotives were designed to haul 2500 tons up a 2 per cent grade at 15 m.p.h. They have been used successfully to haul 3500 tons on the 2 per cent grade, and it has been found necessary to increase the length of the passing sidings in order to utilize the maximum hauling capacity of the locomotives. Before the electrification it was usual to have the freight cars congested at the entrance of the mountain division and it occasioned some surprise to find that the electric locomotives not only could easily keep this congestion from forming but delivered the tonnage to the neighboring divisions of the railway faster than it could be hauled away.

The time occupied on the mountain division has been much reduced. Both the passenger and the freight schedules have now been reduced by about 30 per cent, and the schedule is maintained with greater reliability. Freight trains that formerly required ten or twelve hours to make the run of 115 miles from Three Forks to Deer Lodge now require seven or eight hours. The mountain division is now counted upon to make up time lost by steam passenger trains on adjacent divisions.

Tests between Colorado Junction and Three Forks show that the total power taken to cross this division (including the 2 per cent grade) corresponds to 31.7 watt-hours per ton-mile neglecting the power returned by electric braking. The actual net power required, taking account of the regenerated power, is 23.7 watt-hours per ton-mile. From these figures it may be calculated that to move the train over the same distance on level track of the same curvature would be 20.4 watt-hours per ton-mile. It appears, then, that the energy actually required to move the trains over the mountains is only 16 per cent greater than for a level track, and that the energy required to move the train without any return from braking is 55 per cent more than that actually taken. In other words, electric propulsion by regenerative braking has eliminated 70 per cent of the mountain from the point of view of actual power required.