

mand of the four units of Divisional Engineers, each consisting of 1 Divisional Engineer Headquarters and 3 Field Companies. He also has directly under him all corps troop companies and independent engineer officers attached to his staff who do the miscellaneous engineer work required behind the G.H.Q. lines.

Corps troop companies and the engineer officers attached to chief engineer's staff, look after the installation of water supplies for all units billeted behind G.H.Q. lines; look after the construction of G.H.Q. lines, construction of strong points between G.H.Q. lines and subsidiary lines; look after special railroad construction immediately behind G.H.Q. lines for the use of artillery; construction of all roads in the corps area up to the G.H.Q. lines, and all main roads from there forward to the most advanced point of motor transport; look after the construction of artillery route roads (both highway and railway) for supplying the heavy artillery with ammunition.

The C.R.E. (or Colonel of Divisional Engineers) has at his command divisional engineer headquarters, three field companies, the ordering of the work of one pioneer battalion and one tunnel company. He usually attaches one field company to each infantry brigade to aid them in carrying out the work in their area. The work in their area consists of the maintenance of the front line; communications to the support line; the support line; communications to the subsidiary line; and all strong points between the subsidiary line and the support line. In some instances they are given the maintenance of the subsidiary line to look after. The working parties for this work are supplied by the brigade in the line and are directed by the field company attached to the brigade, but, in addition, this field company looks after the construction of all new lines in front of the subsidiary line which may or may not be built by working parties supplied by the brigade; the construction of the subsidiary line, which is usually constructed by troops supplied by division; the construction of strong points immediately behind the subsidiary line by working parties supplied by the division; the digging of wells in the billeting area of the brigade; the construction of roads in the brigade area which are not main roads looked after by corps, and the construction of huts for billeting reserve battalions of brigade; construction of routes for the use of working parties in dry weather; and all the innumerable drainage schemes required in the rear brigade area, also the construction of light railroads in the brigade area. At the same time, considerable portion of the personnel of this company may be working under C.R.E. for construction of such things as divisional bath-houses, Y.M.C.A. recreation huts, etc.

The C.R.E. usually splits up his pioneer battalion by keeping one company to work directly under his own orders and attaching each of the other three companies to a brigade to work under the orders of the respective field companies. The tunnelling company works directly under the orders of the C.R.E., and is supplied with material and working parties by the field company in whose brigade area the tunnelling company may be operating. The C.R.E. for the construction and maintenance of the works looked after by him also gets working parties from corps troops, such as battalions in corps reserve, dismounted cavalry, and any other units who may be at the disposal of corps and lent to division.

The lecturer emphasized the point that engineering work at the front was carried on by "working parties" drawn from the infantry and pioneer battalions, a "sapper" from the engineers being in charge of each working party. The sapper must, therefore, be the foreman type—

a man who can handle men and lay out work. The engineer N.C.O. has charge of his sappers, and therefore of a number of working parties; and the engineer subaltern in a field company has charge of the engineering work in the front, held alternately by two infantry battalions.

Capt. Mathieson described the interesting features of trench construction, construction of strong points, splinter-proofs, dug-outs, etc.; and told of the large amount of standard engineering material needed in this work, which standard material was made up in the engineer parks in the rear. These standard materials include splinter-proof frames, dug-out frames, "A" frames for trench riveting, bath mats, wire entanglements, etc. This engineering material is made up by working parties of tradesmen under supervision of sappers; and is brought up to the trenches by horse transport and by carrying parties. He outlined some of the difficulties met with by the engineers in siting trenches in ground which had been contested again and again, resulting in the mud being many feet deep and interlaced with miles of wire entanglement, steel beams, corrugated iron, rifles, shell splinters, bodies, trench revettment, etc. To get a line of trenches fightable in ground such as this, doing the work at night in the dark, is no child's play.

Capt. Mathieson concluded his talk with a strong appeal to every one present to get at least one man of the type required as a sapper in the engineers interested, so that he would see Lieut. Armer at the Armouries, Toronto, and enlist in the Canadian Engineers.

RAILWAY EARNINGS.

The following are the weekly earnings of Canada's trans-continental lines during February:—

Canadian Pacific Railway.				
		1917.	1916.	Inc. or dec.
February 7	.....	\$1,890,000	\$1,876,000	+ \$ 14,000
February 14	.....	2,180,000	1,912,000	+ 268,000
February 21	.....	2,225,000	2,093,000	+ 132,000
February 28	.....	2,537,000	2,665,000	— 128,000
Grand Trunk Railway.				
February 7	.....	\$ 928,462	\$ 937,937	— \$ 9,475
February 14	.....	828,671	957,195	— 128,524
February 21	.....	956,487	949,490	+ 6,997
February 28	.....	1,129,386	1,174,099	— 34,713
Canadian Northern Railway.				
February 7	.....	\$ 493,600	\$ 429,400	+ \$ 64,200
February 14	.....	602,000	453,100	+ 148,900
February 21	.....	598,700	559,000	+ 397,000
February 28	.....	664,300	647,700	+ 16,600

Wallace and Tiernan Co., Incorporated, 137 Centre Street, New York City, manufacturers of chlorine control apparatus and scientific engineering specialties, announce the following changes in their organization, and additions to their technical staff: A Chicago office has been opened at Peoples Gas Building, Michigan Blvd. and Adams St., Chicago, Ill., Room 550, with Mr. C. A. Jennings in charge. Mr. Jennings is well known to waterworks men through his connection with the Bubbly Creek Filters of the Union Stock Yards, and his research work in the field of water purification, particularly along the lines of chlorination. Mr. H. K. Davies will be transferred from the New York office to Chicago as assistant engineer to Mr. Jennings. Mr. J. C. Kaelber has been appointed to the technical staff as assistant engineer. Mr. Kaelber is a graduate of the University of Rochester and formerly connected with the Western Electric Co. Mr. R. V. Donnelly has also been appointed to the technical staff as assistant sanitary engineer. Mr. Donnelly is a graduate of Columbia University and formerly connected with the New York Continental Jewell Filtration Co.