Spreading clay on road	93	00
Harrowing and mixing clay and sand	6	00
Sanding road and building shoulders	107.	.685
Dressing road with grader	27	00
Work on bridge, timber, etc	59	53
Repairs, water boy, and sundries	52	75
Cost per square yard of part clayed		138
Rate per mile	1,135	83

Experiment at Bucklin, Kans.

For this experiment a portion of the road leading from Bucklin to Spearville was selected. It was on the south side of the Arkansas River, as in the preceding cases. The general plan of construction was identical with that used at Dodge City, but the clay was of a different quality. At the south end of the road a clay.was used which proved to be a kind of buckshot. It hardened well, although the surface appeared to be of a loamy character and blistered badly at first, though later it packed and gave promise of durability. After removing the surface of the clay pit to a depth of 12 inches the character of the clay changed materially and it promised to be an excellent road material. At first it was feared that it might lack the necessary binding power, but as it was the only material within a mile of the road its use was begun as an experiment. When the pit was lowered 30 inches the clay became excellent in quality. This pit was located at the highest point on the road, and its use proved a great economy because of the ease of haul. From a place near the other end of the road an alkali clay was hauled upon the sand at that end. A section 6,771 feet long was laid out and ploughed and the subgrade shaped ready for the clay. Of this distance, a section 4,271 feet long was improved and a section of 2,500 feet left to be improved by the community.

Following are the cost data of this experiment :---

Foreman for job	\$ 50 00
Excavation (1,584 cubic yards)	224 07
Shaping subgrade	32 37
Ploughing up clay in pit	16 75
Loading clay into wagons	235 75
Hauling clay to road	304.875
Spreading clay on road	44.62
Repairs, etc	40 92
Cost per square yard of part clayed	.14
Rate per mile	1,183 64

Experiment at Ford, Kans.

At Ford a short section forming the south approach to the bridge crossing the Arkansas River was graded and clay added. This was really a matter of grading an incline to the bridge, but as the material for the approach was sand it was necessary to form a hard top surface. This was done by adding clay. The material was gotten from a valley basin where clay had settled. The section of road treated was 350 feet long, and a bed of clay 16 feet wide and about 12 inches deep was put on. The surface was then covered with sand two inches deep and left for traffic to mix. It was frozen hard when placed on the road.

Some of the cost details follow :---

Filling up and widening road	\$ 17 25
Ploughing, loading, and hauling clay	10.50
Spreading clay	8 00
Sanding clay	8 00
Dressing road with grader	. 50
Total cost	\$104 25

TORONTO ENCINEERS' CLUB ANNUAL Excursion.

On Friday and Saturday, July 16th and 17th, the Engineers' Club, Toronto, held their annual excursion. Last inspect it.

year they journeyed from Toronto to Peterboro', and sailed up the Trent Valley Canal from Peterboro' to Bobcaygeon. This year they went by C.P.R. from Toronto to Bobcaygeon, and sailed west through sixty-eight miles of lake, river and canal to Lake Simcoe, then across Lake Simcoe from Beaverton to Jackson's Point, and home to Toronto by the York Radial Railway.

The members of the club who were along, together with a few friends, were: C. H. Rust, City Engineer; J. G. Sing, Government engineer, both of whom are past presidents of the club; John Tolmie, M.P., J. H. McGregor, C. J. Printz, W. A. Johnson, John Scott, W. G. Bligh, E. A. Collyer, E. A. James; A. T. Malone, resident engineer, Newmarket Canal; O. N. Scott, J. A. Richardson, W. A. Bucke, B. G. McBurney, T. C. Irving, jr., R. Home Smith, C. B. Hamilton, A. F. McCallum, W. C. Brennan, R. A. Baldwin, chairman Executive; T. L. Somerville, D. D. James, C. W. Dill, E. H. Keating, T. J. McConkey, R. Southam, J. S. Fielding, and L. J. Street, the treasurer of the club, and who capably managed the expedition.

On the boat the party were the guests of Mr. M. J. Butler, Deputy Minister of Railways and Canals, and in the hands of Mr. J. Harris McClellan, superintendent Trent Valley Canal, who was not only an ideal host, but a veritable cyclopedia of information as well.

The trip was really the second chapter of last year's outing, which was over the eastern end of the canal. The day was spent aboard, with intervals for examining the engineering works along the route.

The expressions of approval were very general among the visitors at finding the work done along the whole route of so substantial and permanent a character. The new steel lift locks at Kirkfield naturally drew the closest attention, and the ease and precision with which these immense steel tanks lowered the boat from the level of Balsam Lake, the highest of the system, to the reach forty-eight feet below, as well as the massive and finely-finished character of the whole lockage work, was the subject of much favorable comment.

Boats can now travel on the canal from Lake Simcoe to Healy's Falls, a distance of 165 miles. Between Simcoe and the high level at Balsam the rise is 122 feet, this being overcome by six locks, one of eleven feet, three of fourteen feet each, one of twenty-two feet, and the Kirkton lift of fortyeight feet. There will be eight feet and four inches of water over the sill, and the locks will accommodate vessels 140 feet long by 34 feet beams. A barge this size will hold 25,000 bushels of grain. The total length from Lake Simcoe to Trenton will be 210 miles, or, when the Severn works are completed from Georgian Bay to Trenton, it will be 272 miles. The supplementary canal from Cooke's Bay on Lake Simcoe to Newmarket is 171/2 miles in length. On the main canal there are great contributory lake and river waters, which are controlled by dams and weirs, while there is a drainage area of over one hundred square miles contributory to the Newmarket system, over which the water can easily be controlled, thus assuring abundance of water for operating at all times of the year, and furnishing as well very large quantities of valuable water power.

Before parting, Mr. Rust, on behalf of the club, expressed to Mr. McClellan their appreciation of the most hospitable entertainment provided. They were delighted to see the country and the work that was being done. In his reply Mr. McClellan spoke of the scope of the work and the good progress that was being made, especially since the Deputy Minister, Mr. Butler, had taken it in charge. He hoped to see it opened all the way from Midland to the Thousand Islands. In New Jersey alone, he said, there were \$50,000,000 spent annually in the tourist trade, and the large and increasing tourist traffic in the waters served by this canal would soon make this alone a very important source of revenue, in addition to the local and through commodity trade. The character of the work showed for itself, and he was delighted to have the Toronto engineers with him to inspect it.