

head crane, and the other end frame is lifted to place by a jib crane. In the third position the carlines and the riveting up on top of the car is completed on an overhead scaffolding which allows the men to work conveniently. There is also an upper floor and special racks for the accommodation of the carlines and other material. The roof being all steel with outside carlines, it is necessary to apply the roof sheets before the carlines, and therefore the roof is assembled and erected complete on the cars in the steel car shops in two positions, except for the application of the wooden running boards. Room for a fifth erecting position is allowed but this is not required with the present output of the shop. The cars are moved outside by a motor-driven car pull situated in the lower end of the shop, are sent over to the wood shop for lining, roofing and painting, and are then reported for service.

In the case of the steel passenger cars, in the first position the posts, end frame and complete frame work of the car are erected and side roof sheets and hood sheets are applied. As the car leaves the first position it is run on by the second position outside the shop where it is sand blasted and then returned to the second position for finishing. In the second position the centre roof sheets and flooring, including vestibule trimmings, etc., are applied. The car is then sent over to the wood passenger shop for inside trimming and finishing.

These steel car shops were fully described in a paper by Mr. L. C. Ord, read before the mechanical section of the Canadian Society of Civil Engineers on April 30th, 1914. Much of the foregoing information is from Mr. Ord's paper.

**Steel Passenger Car Frame Construction.**—At the shops, four distinct types of car framing are employed. These are:—

- (1) Heavy centre sill construction,
- (2) Side carrying construction.
- (3) Underframe construction.
- (4) Combination construction.

These types, with the exception of the first, were described and compared by Mr. C. Brady, in his paper presented on December 3rd, 1914, and abstracted in our issue of December 10th, to which the reader is referred.

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### L. & P. S. RAILWAY COMMISSION.

The personnel of the London & Port Stanley Railway Commission is as follows:—Sir Adam Beck, chairman; Philip Pocock, M. D. Fraser, K.C., and Major William Spittal.

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### GOOD ROADS CONVENTION.

The Second Canadian and International Good Roads Convention will be held in Toronto, March 22 to 26. The sessions will be presided over by Mr. W. A. McLean, M. Can. Soc. C. E., Provincial Highway Engineer of Ontario.

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### FAREWELL DINNER TO ENGINEERS.

On January 14th, the Ottawa branch of the Engineering Alumni Association of the University of Toronto gave a farewell dinner to twenty members who are leaving shortly with the corps of Canadian Engineers. There was an exceedingly large attendance. Letters and telegrams were received from friends in various parts of the country.

### PERSONAL.

R. D. JOHNSON, formerly hydraulic engineer for the Ontario Power Company at Niagara Falls, has opened a consulting engineering office at 60 Wall Street, New York City.

M. S. WOOLLARD has been appointed to take charge of the installation and operation of the electrical plant of the Ontario Stone Corporation, in the company's quarries at Uthoff, Ont., (near Orillia).

F. H. PETERS, C.E., Commissioner of Irrigation, Department of the Interior, with office at Calgary, attended the recent annual meeting of the Oregon Irrigation Congress in Portland, and gave an address on "Canadian Irrigation Laws."

EUGENE W. STERN, Consulting Engineer, New York City, and secretary of the American Institute of Consulting Engineers, has been appointed chief engineer of the Bureau of Highways, Borough of Manhattan, New York City. Mr. Stern graduated from the School of Practical Science, Toronto, in 1884.

LIEUT. G. L. RIDOUT, a graduate of the Royal Military College, Kingston, 1907, and for some time in the employ of the Hydro-Electric Power Commission of Ontario, in charge of the erection of steel towers, has been granted a commission in the department of railways of the Royal Engineers of Lord Kitchener's Army.

W. A. McLEAN, provincial highway engineer of Ontario, addressed the members of the University of Toronto Engineering Society last week, on the subject of highway improvement in Ontario. In the course of his remarks he dealt with the work the Department of Highways is doing in the way of county road construction, and referred to the comprehensive recommendations of the Highways Commission.

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### ANNUAL MEETING, TORONTO BRANCH CANADIAN SOCIETY OF CIVIL ENGINEERS.

The annual meeting of the Toronto branch is being held at 8 p.m., on Thursday, January 21st, in the Engineers' Club, 90 King Street West. The reports of the committees for the past year will be read and the election of officers for this year's committees will take place. Mr. A. F. Stewart is chairman, and Mr. John S. Galbraith, secretary-treasurer.

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### VANCOUVER BRANCH, CANADIAN SOCIETY OF CIVIL ENGINEERS.

The regular meeting of the Vancouver Branch, Canadian Society of Civil Engineers, was held on Thursday, January 7th, 1915. An illustrated paper on Vancouver Joint Sewerage Scheme was presented by A. D. Creer, M. Can. Soc. C. E. Mr. G. R. G. Conway presided.

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### MINING SECTION, CANADIAN SOCIETY OF CIVIL ENGINEERS.

On January 14th, a meeting of the Mining Section was addressed by Mr. C. A. Macaulay, his subject being, "Evolution of Stopping Methods in Mining during the last Decade." A paper was also presented by Mr. J. R. McLean on the "Top Slicing System of Mining as practised at the Mines of the Detroit Copper Company, Morenci, Arizona." Both papers were illustrated by lantern slides. Following the reading and discussion of these papers there was an illustrated address by Lieut. S. L. Brunton on "Modern Artillery in the Field."