

left hand side. As each order is received by the production department, a ticket is made out for every operation, equal in length to the time allowed for each operation. The tickets are made on 20 to the inch profile paper, each division representing one hour. The board is black, and white lined vertically at weekly intervals. In the top slot is located the date strip, showing days of the month covering the period covered on the board. All the work for the shop is represented on the board, each operation being located in the proper slot. When material is available, each operation, from the first to the last, is located in the respective slots at the date, so that time between operations is at a minimum, taking into account also the continuity of work in each machine. Simultaneously with the making of the control board tickets, a job card is made for the shop foreman's office board. This board contains a compartment for each man, and the cards are arranged to correspond with the master control board with the "next job" card always in front. As each man nears completion of his work in hand, his gang boss goes to the board, and takes the next job ticket, and gets the material to the machine, together with the necessary tooling equipment. The card stays with the work, and then goes to the inspector, who, after inspection, passes it to the cost department. This system plans the work in great detail for the foremen. It shows when machines are overloaded, when idle due to breakdown, man absent, or out of work, all points of vital interest where costs and delivery are of prime importance. The scope of this paper does not allow of going into the detail of this system more elaborately, but it is a point to be noted particularly, that the most successful commercial concerns of today find that it pays to plan this detail by means of a specialist production department.

In conclusion I want to point out one fundamental principle which you may have noticed in all these methods. In every case a standard or task is set as the object to be attained, and that standard is set at the beginning of the job. All the methods provide a means of knowing whether the standard is maintained at all points in the progress up to the completion of each particular task. You will also note that I have preceded each example with a clear statement as to the object to be attained by each method. This is very important, on account of the multiplicity of detail which has to be dealt with, and which will often lead one off the track unless steadfastly maintained. Last, I ask you to note that while all this looks like so much statistical, clerical and accounting, it is an entirely different thing. The viewpoint is not that of an accountant, nor could it be handled by an accountant, it is distinctly a management engineering proposition for an engineer.

The principles outlined in this paper have been adopted by the C.P.R. management in the creation of a special department, called the production department, attached to the chief executive of Angus shops to develop this work. It is a distinctly new department for railway shops and credit must be given to W. H. Winterrowd, Chief Mechanical Engineer, for recognizing that there was no logical reason why methods of successful business institutions should not be incorporated into railway shops. To the best of my knowledge the Angus

shops are the only railway shops on the continent that have such a department that is operating as a separate department with full confidence and co-operation of the supervising staff, all working for one result. All foremen, general foremen, and other supervisors, realize that one department, acting as a sort of clearing house for all material, can render better service than was possible when they each had to chase their own material from shop to shop. They recognize that when a certain output is required, that the special department can

advise what operations are to be done each day, can advise on all items late, and state what must be done daily, so that the final result is what is required, because it has more complete information than any one department could possibly have or get. In all cases the basic schedules are developed by or with the departmental head concerned so that he feels that it is his schedule and he consequently realizes that he is being helped and actively assisted by the management.

The foregoing was read before the Canadian Railway Club, in Montreal, recently.

Birthdays of Transportation Men in February.

Many happy returns of the day to:—

T. Britt, General Fuel Agent, C.P.R., Montreal, born there, Feb. 3, 1871.

J. S. Byrom, General Superintendent, Sleeping, Dining and Parlor Cars, and News Service, Eastern Lines, C.P.R., Montreal, born at Jersey City, N.J., Feb. 10, 1872.

H. R. Charlton, General Advertising Agent, G.T.R. and G.T.P.R., Montreal, born at St. Johns, Que., Feb. 9, 1866.

R. Colclough, Superintendent, St. Maurice Division, Quebec District, Canadian National Rys., Quebec, Que., born at Bic, Que., Feb. 24, 1871.

R. Crawford, Northwest Agent, Northern Navigation Co., Winnipeg, Man., born at Kingston, Ont., Feb. 21, 1870.

V. A. G. Dey, Engineer, Toronto Terminals Division, Ontario District, C.P.R., Toronto, born at Aberdeen, Scotland, Feb. 4, 1883.

A. J. Donegan, ex-Superintendent, Algoma Eastern Ry., Sault Ste. Marie, Ont., born at Perth, Ont., Feb. 17, 1872.

R. W. Drew, Division Freight Agent, Saskatchewan District, C.P.R., Regina, born at Kingston, Ont., Feb. 17, 1874.

E. A. Evans, Consulting Engineer, ex-General Manager and Chief Engineer, Quebec Ry., Light & Power Co., Quebec, born at Kensington, Eng., Feb. 26, 1855.

Goodwin Ford, General Superintendent Western Lines, Dominion Express Co., Winnipeg, born at Bordentown, N.J., Feb. 23, 1859.

U. E. Gillen, General Manager, Toronto Terminal Ry. Co., Toronto, born at Brooklyn, Mo., Feb. 27, 1867.

L. L. Grabill, General Baggage Agent, G.T.R., Toronto, born at Walkerton, Ont., Feb. 6, 1878.

A. J. Hills, Assistant to President, Canadian National Railways, Toronto, born there, Feb. 15, 1879.

T. C. Hudson, General Master Mechanic, Eastern Lines, Canadian National Railways, Montreal, born at Brockville, Ont., Feb. 20, 1873.

H. Hulatt, Manager of Telegraphs, G.T.R. and G.T.P.R., Montreal, born at London, England, Feb. 15, 1883.

C. Gardner Johnson, Lloyd's Agent for British Columbia, Vancouver, B.C., born at Dunblane, Scotland, Feb. 8, 1857.

A. H. Jones, Assistant Engineer, Canadian Government Railways, Moncton, N.B., born at Liverpool, Eng., Feb. 16, 1884.

John McCraw, ex-General Agent, Central Vermont Ry., New London, Conn., born at Craigvale, Ont., Feb. 6, 1868.

G. L. McCrea, Local Freight Agent, C.P.R., Vancouver, B.C., born at Springtown, Ont., Feb. 9, 1876.

T. McNab, ex-Master Mechanic, Alberta Ry. & Irrigation Co., now of Picture Butte, Alta., born in Scotland, Feb. 16, 1849.

J. K. McNeillie, Superintendent, Susquehanna Division, Delaware & Hudson Rd. (U.S.R.A.), Oneonta, N.Y., born at Toronto, Feb. 23, 1874.

J. D. McNutt, Inspector of Train Dispatching, Canadian Government Rys., Moncton, N.B., born at Stewiacke, N.S., Feb. 8, 1873.

D. C. Macdonald, Assistant General Claims Agent, C.P.R., Winnipeg, born at Elmsdale, N.S., Feb. 9, 1874.

C. S. Maharg, Superintendent, Cranbrook Division, British Columbia District, C.P.R., Cranbrook, born in Dufferin County, Ont., Feb. 4, 1867.

V. J. Melsted, ex-Engineer of Water Service, C.P.R., now of Milton Hersey Co., Winnipeg, born at Gardar, N.D., Feb. 20, 1887.

G. A. Montgomery, Vice President and General Manager, Algoma Central & Hudson Bay Ry., Sault Ste. Marie, Ont., born at Bradford, Ont., Feb. 11, 1871.

A. Z. Mullins, Division Freight Agent, G.T.R., Grand Rapids, Mich., born at Appin, Ont., Feb. 14, 1862.

M. G. Murphy, General Agent, Passenger Department, C.P.R., Detroit, Mich., born at Halifax, N.S., Feb. 26, 1878.

J. E. Proctor, District Passenger Agent, C.P.R., Calgary, Alta., born at Sarnia, Ont., Feb. 17, 1878.

C. T. Ridalls, Car Foreman, C.P.R., London, Ont., born at St. Heliers, Jersey, Channel Islands, Feb. 8, 1864.

W. J. Robider, General Master Car Builder, C.P.R., Montreal, born at Savannah, Ga., Feb. 15, 1869.

A. E. Rosevear, General Freight Agent, G.T.P.R., and Grand Trunk Pacific Coast Steamship Co., Winnipeg, born at Montreal, Feb. 20, 1863.

J. G. Scott, ex-General Manager, Quebec & Lake St. John Ry., Quebec, born there, Feb. 13, 1847.

J. J. Scully, General Superintendent, Algoma District, C.P.R., North Bay, Ont., born at Montreal, Feb. 3, 1872.

G. Spencer, Chief Operating Officer, Board of Railway Commissioners, Ottawa, born in London, Eng., Feb. 21, 1865.

H. E. Suckling, Treasurer, C.P.R., Montreal, born at Gibraltar, Feb. 27, 1851.

A. P. Villain, City Ticket Agent, C.P.R., San Francisco, Cal., born there, Feb. 6, 1891.

F. L. Wanklyn, General Executive Assistant, C.P.R., Montreal, born at Buenos Ayres, Feb. 25, 1860.

J. E. Watson, Assistant Superintendent, Sleeping, Dining and Parlor Cars, and News Service, Eastern Lines, C.P.R., Montreal, born at Morpeth, Eng., Feb. 8, 1873.

A. Williams, Superintendent, London Division, Ontario District, C.P.R., London, born at Mono Road, Ont., Feb. 22, 1872.