

soundings been taken during the location, and the time and money lost in this one instance would have been much more than required for adequate sounding of the entire line.

In railway construction over muskeg swamps, the methods in general use are: (1) To follow out the usual form of construction, laying the track directly on the surface and afterwards ballasting up to grade. (2) To corduroy or crossway the surface, using long timbers, laying them in alternative layers parallel and transverse to the line, afterward bringing the track to grade with ballast. (3) By excavating ditches along the side of the line, using the material excavated to form embankment. (4) The use of sawdust, cinders, or other light material, floating the line over and depending on the buoyancy of the muskeg for support. (5) Fill to the bottom with logs and timber (6) Fill with excavated material. (7) By bridging. (8) Where considerable embankment is to be carried over the swamp, piles have been driven on about 4 ft. centres capped with grillage and the fill constructed on the same.

Drainage is often resorted to with very beneficial results. However, in many instances, where deep muskeg is encountered, it is not practical to drain, due to large lakes in the vicinity and excep-

Birthdays of Transportation Men in November.

Many happy returns of the day to—

F. W. Alexander, A.M.Can.Soc.C.E., Division Engineer, Alberta Division, C.P.R., Calgary, born at Fredericton Jct., N.B., Nov. 22, 1878.

J. O. Apps, General Baggage Agent, C.P.R., Montreal, born at Tara, Ont. Nov. 9, 1877.

A. B. Atwater, Assistant to President, lines west of Detroit and St. Clair Rivers, G.T.R., Detroit, Mich., born at Sheffield, Ohio, Nov., 1845.

H. E. Beasley, General Superintendent, Esquimalt and Nanaimo Ry., Victoria, B.C., born at Hamilton, Ont., Nov. 10, 1862.

O. H. Becker, District Freight Agent, C.P.R., Portland, Ore., born in Norfolk County, Ont., Nov. 19, 1873.

C. C. Bonter, General Baggage Agent, Canada Steamship Lines, Ltd., Montreal, born at Toronto, Nov. 13, 1884.

G. B. Burchell, General Manager, Colonial Coal Co., North Sydney, N.S., born at Sydney, N.S., Nov. 1, 1877.

J. R. Cameron, Assistant General Manager, Canadian Northern Ry., Winnipeg, born at Truro, N.S., Nov. 5, 1865.

F. H. Clendenning, Division Freight

Agent, District 1, National Transcontinental Ry., Quebec, Que., born at St. Jerome, Terrebonne County, Que., Nov. 16, 1887.

H. E. Haanel, Trainmaster, District 1, Saskatchewan Division, C.P.R., Regina, born at Cobourg, Ont., Nov. 2, 1880.

Grant Hall, Vice President and General Manager, Western Lines, C.P.R., Winnipeg, born at Montreal, Nov. 27, 1863.

John L. Hodgson, General Car Foreman, National Transcontinental Ry., Transcona, Man., born at Simcoe, Ont., Nov. 15, 1858.

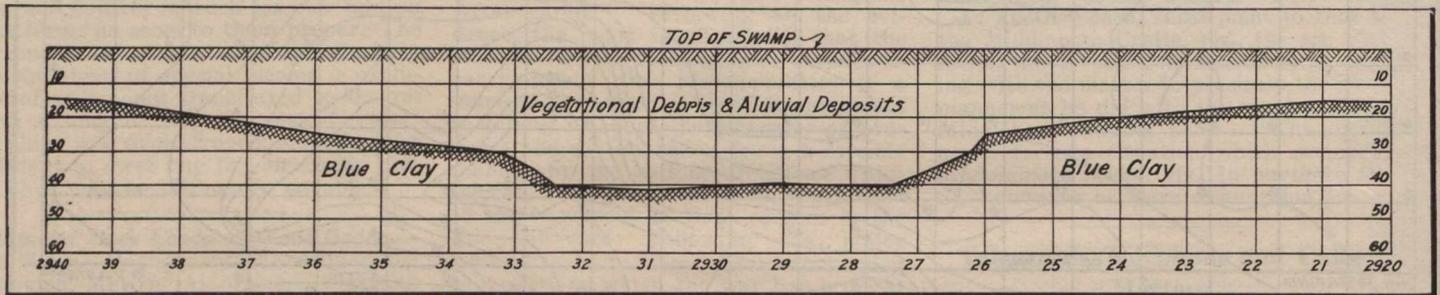
W. M. Hood, Travelling Passenger Agent, Canadian Northern Ry., Toronto, born at Harrow, Ont., Nov. 25, 1872.

N. B. Jones, Car Foreman, C.P.R., Kenora, Ont., born at St. John, N.B., Nov. 9, 1869.

W. E. Ladley, Superintendent of Motive Power, Reid Newfoundland Co., St. John's, Nfld., born at Leeds, Eng., Nov. 1875.

J. McGillivray, Receiver and Manager, Inverness Ry. and Coal Co., Inverness, N.S., born at Nairn, Scotland, Nov. 13, 1867.

J. McMillan, Manager of Telegraphs,



Miller Trunk Swamp, Feb. 1913; Profile of hard bottom.

tionally heavy expense required due to great length of ditches which it would be necessary to construct. Ditches cut in muskeg are prone to close and it is a source of expense to keep them open. And then again it will usually be found that there is no place to stop the ditch without carrying it to an unreasonable distance. While such ditches are always more benefit to the surrounding country than to the roads constructing them, they invariably bring on a system of suits in which the company is usually the loser. It is for this reason alone that many of the swamps in the northern part of Minnesota are not drained.

Whatever the construction decided upon, it must be borne in mind that a good foundation must be obtained, otherwise there will be a constant source of expense and trouble from rail running, causing broken rails, derailments, and a constant settlement, which will result in very heavy maintenance charges.

In locations over this country, it is well to always keep the grade as near the surface as good drainage will permit, in order not to overload the surface by the weight of heavy embankments, which are apt to break through the surface and sometimes will cause rupture through the underlying stratum into the substratum, which is of an older formation but not yet solidified sufficiently to carry the increased load.

Swamps are like wrecks—there are no two of them alike, and they are very good things to avoid if at all possible.

Agent, B.C. Coast Service and Ocean Steamship Lines, C.P.R., Vancouver, B.C. born at Montreal, Nov. 9, 1881.

F. Conway, City Freight and Passenger Agent, C.P.R., Kingston, Ont., born at Ernestown, Ont., Nov. 19, 1850.

W. L. Crighton, Advertising Agent, Canadian Government Railways, Moncton, N.B., born at Derby, Eng., Nov. 9, 1871.

W. R. Devenish, A.M.Can.Soc.C.E., Superintendent, District 3, Intercolonial Ry., Moncton, N.B., born in County Tipperary, Ireland, Nov. 21, 1882.

A. C. Douglas, acting Assistant General Purchasing Agent, C.P.R., Montreal, born at Montreal, Nov. 10, 1881.

W. Downie, ex-General Superintendent, Atlantic Division, C.P.R., now of Whitby, Ont., born at Rock Currie, Ireland, Nov. 12, 1850.

Jos. Dubrule, jr., Manager, Canadian Pacific Car and Passenger Transfer Co., and President, Prescott and Ogdensburg Ferry Co., Ltd., Prescott, Ont., born at Spencerville, Ont., Nov. 14, 1872.

R. L. Fairbairn, General Passenger Agent, Canadian Northern Ry., Toronto, born at Stillwater, Minn., Nov. 24, 1880.

W. A. Fitch, Assistant Superintendent, District 3, Intercolonial Ry., Moncton, N.B., born at Kentville, N.S., Nov. 25, 1867.

P. J. Flynn, Superintendent, Districts 2 and 3, Central Division, Canadian Northern Ry., Winnipeg, born at Fishers, N.Y., Nov. 22, 1872.

J. E. Gibault, A.M.Can.Soc.C.E., Resi-

C.P.R., Montreal, born at Liverpool, Eng., Nov. 2, 1866.

A. B. McNaughton, General Yardmaster, Ottawa Terminals, G.T.R., Ottawa, Ont., born at Arnprior, Ont., Nov. 10, 1877.

A. S. Munro, Commercial Agent, G.T.R. London, Ont., born at Hamilton, Ont., Nov. 10, 1880.

C. Murphy, General Superintendent, Manitoba Division, C.P.R., Winnipeg, born at Prescott, Ont., Nov. 20, 1865.

G. H. Nowell, District Master Mechanic, District 3, British Columbia Division, C.P.R., Nelson, born at Montreal, Nov. 13, 1885.

A. C. O'Neil, Travelling Freight Agent, G.T.R., London, Ont., born at Point Edward, Ont., Nov. 30, 1866.

W. J. Quinlan, District Passenger Agent, Grand Trunk Pacific Ry., Winnipeg, born at Montreal, Nov. 21, 1883.

G. H. Shaw, General Traffic Manager, Canadian Northern Ry., Toronto, born at Smiths Falls, Ont., Nov. 25, 1859.

J. G. Sutherland, Car Service Agent, Alberta Division, C.P.R., Calgary, born at Aulac, N.B., Nov. 24, 1882.

P. D. Sutherland, General Agent, Passenger Department, Canadian Pacific Ocean Services, Ltd., Hong Kong, China, born at Toronto, Nov. 2, 1879.

L. C. Thomson, General Storekeeper, Eastern Lines, Canadian Northern Ry., Toronto, born at Kingston, Ont., Nov. 25, 1882.

H. P. Timmerman, Industrial Commissioner, Eastern Lines, C.P.R., Montreal,