



brick • building • bulkhead • bungalow • caisson • causeway • ceiling • cellar • cement • ceramic • chimney • clay • concrete  
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gauge • gutter • gypsum • hardwood • heating • heating element • hushing • installation • interior • joint • knot • laminate  
lath • lining • louvre • lumber • masonry • miter • modular • moisture • mortar • moulting • mullion • nail • orientation • paint • panel  
parapet • partition • pediment • pier • pigment • pitch • plan • plaster • plumbing • plywood • prefabricated • quoins • rafters  
reinforced • reveal • roof • sand • sheathing • specification • stress • vermiculite • wallboard • weathering • window • wire • wood

## A BIBLIOGRAPHY ON SNOW AND ICE

compiled by

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with the assistance of

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## A BIBLIOGRAPHY ON SNOW AND ICE

This bibliography is composed of references to articles on snow and ice, and related topics which have appeared in a group of Canadian journals from their beginning until December, 1950.

- 1) CANADIAN ENGINEER. In 1946 it became two journals, ROADS AND BRIDGES, and WATER AND SEWAGE.

ROADS AND BRIDGES. It became ROADS AND CONSTRUCTION, January, 1950, and ROADS AND ENGINEERING CONSTRUCTION, June, 1950.

WATER AND SEWAGE. It became WATER AND SANITATION, January, 1950, and MUNICIPAL UTILITIES, September, 1950.

- 2) CANADIAN SOCIETY OF CIVIL ENGINEERS. TRANSACTIONS. It became JOURNAL OF THE ENGINEERING INSTITUTE OF CANADA, v.1-4 in 1918 and ENGINEERING JOURNAL, v.5 in 1922.

- 3) ROYAL SOCIETY OF CANADA. TRANSACTIONS. Section III.

### References are listed as follows:

1. Broad subject groups - pages 1 to 34
2. Chronologically by journal - pages 35 to 61
3. Author index - pages 62 to 69  
Refers only to subject listing.

### Index to Abbreviations

Can. Engr. - Canadian Engineer.

Roy. Soc. Can. Trans. - Royal Society of Canada. Transactions.

Can. Soc. Civ. Engr. Trans. - Canadian Society of Civil Engineers.  
Transactions.

Eng. J. - Engineering Journal.

n. - number

p. - page

pt. - part

sec. - section

ser. - series

v. - volume

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### ANONYMOUS

Ice control at airports. Roads and Bridges. v.82, n.2, Feb. 1944, p.81.  
Lessons from past experience in combating snow on airports. Roads and Bridges. v.79, n.9, Sept. 1941, p.69-72, p.104.  
Snow handling methods on Canadian airports. Roads and Bridges. v.78, n.10, Oct. 1940, p.30-32.  
Snow handling on airports. Results of R.C.A.F. experience. Roads and Bridges. v.83, n.12, Dec. 1945, p.64-66, p.97-99.  
Snow problems at Canada's airports. Can. Engr. v.75, n.16, Oct. 18, 1938, p.24-28.  
Snow removal at Canada's airports. Can. Engr. v.77, n.16, Oct. 17, 1939, p.15-18.  
Thirty roto wings and offset plows for R.C.A.F. airports. Roads and Bridges. v.80, n.9, Sept. 1942, p.38, p.86.  
Winter maintenance methods for R.C.A.F. airfields. Roads and Bridges. v.80, n.10, Oct. 1942, p.33-35, p.100-104.

### KEATING, C.E.

An airport manager's diary. Report on snow removal operations at Moncton, N.B., airport during the winter 1940-41. Roads and Bridges. v.79, n.9, Sept. 1941, p.74, p.114-118.

### McLEAN, A.D.

Maintaining snow covered airdromes. Can. Engr. v.77, n.16, Oct. 17, 1939, p.42.

### ROBERTS, T.

Wartime experience in runway clearance. Winter maintenance of airports. Roads and Bridges. v.80, n.10, Oct. 1942, p.29-32, p.66-70.

### SHANNON, J.R.

New method of removing snow from airports. Roads and Bridges. v.85, n.4, Apr. 1947, p.95-96, p.120-124.

ANCHOR ICE  
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AVALANCHES  
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COLD WEATHER CONSTRUCTION  
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COSTS, Snow Removal  
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CURLING STONES

HARRINGTON, E.L.  
Experimental study of the motion of curling stones. Roy.  
Soc. Can. Trans. Ser. 2, v.18, 1924, sec. 3, p.247-259.

DAMS, Ice Pressure  
see HYDRO-ELECTRIC DEVELOPMENTS, Ice Problems.

DRIFT CONTROL

See DRIFT PREVENTION.

DRIFT PREVENTION, Snow Fences, Hedges, etc.

ANONYMOUS

- Location of snow fence. A brief article in the monthly feature, "Questions and Answers." Roads and Bridges. v.78, n.10, Oct. 1940, p. 48.
- Snow drift control by highway design methods. Roads and Bridges. v.78, n.9, Sept. 1940, p.70.
- Snowfences for drift control. Roads and Bridges. v.81, n.10, Oct. 1943, p.110-112.
- Wood-lath snow fence. A brief entry in the monthly feature, "Questions and Answers." Roads and Bridges. v.78, n.12, Dec. 1940, p.42.

FINNEY, E.A.

- Snow drift control on highways. Can. Engr. v.72, n.10, Mar. 9, 1937, p.7-9.

FRASER, C.

- Experiments with elevated, inclined snow fence on Ontario roads. Roads and Construction. v.88, n.4, Apr. 1950, p.88-90, p.115-117.

HARVIE, W.H.

- Snow, in relation to highway location and design. Roads and Bridges. v.80, n.10, Oct. 1942, p.123, p.127, p.130-131.

HAY, A.K.

- Drift control of roads in winter. Can. Engr. v.69, n.19, Nov. 5, 1935, p.9-10.

JONES, E.W.

- Snow hedges in Simcoe county. Roads and Bridges. v.83, n.5, May, 1945, p.132-133.

LYONS, M.A.

- Snowfence and permanent hedges. Roads and Bridges. v.81, n.10, Oct. 1943, p.43, p.82.

MARRITT, I.C.

- Planting of snow hedges. Roads and Bridges. v.83, n.5, May, 1945, p.66-67, p.142.

MOORE, H.J.

- Hedges reduce snow-plowing costs. Roads and Bridges. v.83, n.5, May, 1945, p.64-66.

ROBBINS, C.A.

Theory and practice in snow fence erection. Can. Engr. v.75, n.16, Oct. 18, 1938, p.16-18.

ROBBINS, C.A.

Winter road maintenance and drift prevention in Ontario. Can. Engr. v.67, n.20, Nov. 13, 1934, p.17-19.

#### ECONOMICS OF SNOW REMOVAL

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#### EQUIPMENT

see SNOW REMOVAL EQUIPMENT.

#### FOUNDATIONS, Frozen Ground

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#### FRAZIL ICE

##### ANONYMOUS

Frazil. Can. Engr. v.17, n.24, Dec. 17, 1909, p.666, 674.

Frazil ice. Discussion at Engineer's club meeting. Toronto.

Dec. 8, 1904. Can. Engr. v.12, n.1, Jan. 1905, p.3.

Frazil ice in Lachine rapids. Can. Engr. v.6, n.10, Feb. 1899, p.273.

A remedy for frazil ice. Reference to R.W. Leonard's paper read at Can. Soc., Civ. Engr. autumn meeting. Can. Engr. v.11, n.11, Nov. 1904, p.348.

BARNES, H.T.

Formation and agglomeration of frazil and anchor ice. Can. Engr. v.5, n.1, May 1897, p.6-10.

BARNES, H.T.

Formation of anchor ice and precise temperature measurements. Can. Engr. v.12, n.6, June 1905, p.167-168.

BARNES, H.T.

Frazil ice. Can. Engr. v.12, n.2, Feb. 1905, p.46-47.

BARNES, H.T.

The ice question as it affects Canadian water power, with special reference to frazil and anchor ice. Roy. Soc. Can. Trans. Ser. 3, v.3, 1909, sec. 3, p.143-178.

BARNES, H.T.

Note on frazil and anchor ice with considerations as to freezing point of water. Roy. Soc. Can. Trans. Ser. 3, v.5, 1899, sec. 3, p.17-22.

COX, J.

Note on an apparently accidental formation of frazil ice in a cryophorus. Roy. Soc. Can. Trans. Ser. 2, v.10, 1904, sec. 3, p.3-4.

DORION, R.

Frazil ice problems in pumping stations. Can. Engr. v.72, n.19, May 11, 1937, p.11-14.

FIELDING, J.S.

Formation of frazil ice. Can. Engr. v.58, n.6, Feb. 11, 1930, p.217.

FIELDING, J.S.

Frazil ice. A letter by J.S. Fielding. Can. Engr. v.12, n.3, Mar. 1905, p.93-94.

HENSHAW, G.H.

Frazil ice: on its nature and the prevention of its action in causing floods. Can. Soc. Civ. Engr. Trans. v.1, pt.1, Jan.-June, 1887, p.1-23.

MURPHY, J.

Frazil and anchor ice. Can. Engr. v.14, n.10, Oct. 4, 1907, p.369-372.

see also ICE, PROPERTIES.

FROST ACTION, Roads

see ROADS, FROST ACTION.

FROST DAMAGE, Water Systems

see WATER SYSTEMS, FROST DAMAGE.

FROZEN GROUND

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## GLACIERS

CHAPMAN, L.J. and PUTNAM, D.F.

The recession of the Wisconsin glacier in southern Ontario.  
Roy. Soc. Can. Trans. Ser. 3, v.43, June 1949, sec. 3,  
p.23-52.

PUTNAM, D.F. and CHAPMAN, L.J.

The recession of the Wisconsin glacier in southern Ontario.  
Roy. Soc. Can. Trans. Ser. 3, v.43, June 1949, sec. 3,  
p.23-52.

## HAIL

LLOYD, F.E.

Structure of hailstones of exceptional form and size. Roy.  
Soc. Can. Trans. Ser. 3, v.10, 1916, sec. 3, p.47-50.

## HAILSTONES

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## HEDGES

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## HIGHWAYS, Frost Action

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## HYDRAULIC POWER WORK, Ice Problems

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HYDRO-ELECTRIC DEVELOPMENTS, Ice Problems.

ANONYMOUS

- An ice cofferdam. Can. Engr. v.26, n.23, June 4, 1914, p.817.  
Ice problems at Hydro-electric plants. Can. Engr. v.61, n.18,  
Nov. 3, 1931, p.15-16.  
Ice trouble at Hull electric power house. Can. Engr. v.18,  
n.3, Jan. 21, 1910, p.64.  
Ice troubles in Hydro-electric plants. Can. Engr. v.27, n.21,  
Nov. 26, 1914, p.693.  
Uplift and ice pressure on dams. Letter to the editor. Can.  
Engr. v.54, n.21, May 22, 1928, p.551.

BARNES, H.T.

- The ice question as it affects Canadian water power with  
special reference to frazil and anchor ice. Roy. Soc. Can.  
Trans. Ser. 3, v.3, 1909, sec. 3, p.143-178.

BARNES, H.T.

- The influence of ice on water power development. Can. Engr.  
v.22, n.26, June 27, 1912, p.862-864.

BARNES, H.T.

- Shutdowns due to ice troubles. Can. Engr. v.22, n.3, Jan. 18,  
1912, p.186-187.

BROWN, E. and CLARKE, G.C.

- Ice thrust in connection with Hydro-electric plant develop-  
ment with special reference to the plant at Island Falls on  
the Churchill river. Eng. J. v.15, n.1, Jan. 1932, p.18-25.

CLARKE, G.C. and BROWN, E.

- Ice thrust in connection with Hydro-electric plant develop-  
ment with special reference to the plant at Island Falls on  
the Churchill river. Eng. J. v.15, n.1, Jan. 1932, p.18-25.

ECKENFELDER, G.V. and RUSSELL, B.E.

- Snare River power project. Eng. J. v.33, n.3, Mar. 1950,  
p.165-171.

FENKELL, G.H.

- Intakes of the Great Lakes region. Can. Engr. v.51, n.4,  
July 27, 1926, p.163-168.

GRANT, B.F.

- Ice diversion, hydraulic models and hydraulic similarity.  
Can. Engr. v.34, n.3, Jan. 17, 1918, p.55-58. Discussion.  
v.34, n.15, Apr. 11, 1918, p.323-327.

GROAT, B.F.

- Ice diversion for St. Lawrence River power company. Can. Engr.  
v.39, n.21, Nov. 25, 1920, p.545-552.

HARRISON, C.L.

Provision for uplift and ice pressure in designing masonry dams. Can. Engr. v.21, n.26, Dec. 28, 1911, p.736.

HOGG, T.G.

Ice problems at Hydro-electric plants. Can. Engr. v.47, n.20, Nov. 11, 1924, p.498-500.

LYON, H.L.

Ice troubles at Buffalo. Can. Engr. v.23, n.1, July 4, 1912, p.126.

McCRARY, J.A.

Guniting steel penstocks to eliminate trouble due to ice formation. Can. Engr. v.44, n.2, Jan. 9, 1923, p.125-126.

MORNINGTON, S.

Protecting Hydro plants from ice. Can. Engr. v.58, n.4, Jan. 28, 1930, p.169-170.

MURPHY, J.

Ice formation and its prevention. Can. Engr. v.40, n.10, Mar. 10, 1921, p.291-292.

MURPHY, J.

Ice problems in power development. Can. Engr. v.58, n.21, May 27, 1930, p.612.

MURPHY, J.

Ice trouble in hydraulic power work. A reference. Can. Engr. v.17, n.24, Dec. 17, 1909, p.674.

MURPHY, J.

Ice troubles in hydraulic power work, and methods of overcoming them. Address presented to Applied Science Undergrad Society of McGill. Feb. 26, 1908. Can. Engr. v.15, n.18, May 1, 1908, p.318-322.

RIED, C.R.

Electric heating of rock bars in Hydro-electric plants. Eng. J. v.11, n.11, Nov. 1928, p.263-265.

RUSSELL, B.E. and ECKENFELDER, G.V.

Snare River power project. Eng. J. v.33, n.3, Mar. 1950, p.165-171.

SAMSOE, A.F.

Ice troubles in Swedish power plants. Can. Engr. v.49, n.7, Aug. 18, 1925, p.231-232.

SKERRET, R.G.

Reducing ice pressure with compressed air. Can. Engr. v.45, n.5, July 31, 1923, p.181-185.

WILSON, R.M.

Design of Hydro-electric plants for combating ice troubles.  
Can. Engr. v.36, n.8, Feb.20, 1919, p.237-242, and Eng. J.  
v.2, n.5, May 1919, p.383-395. Discussion. v.2, n.11, Nov.  
1919, p.507.

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HYDROLOGY

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ICE-BREAKING

ANONYMOUS

The Canadian government ice-breaker, "Lady Grey". Can. Engr.  
v.14, n.4, Apr. 5, 1907, p.150.

Ice breaking. Can. Engr. v.7, n.6, Oct. 1899, p.163-164.

A vessel for north polar navigation and study. Can. Engr.  
v.10, n.2, Feb. 1903, p.40.

Propulsion and auxiliary machinery in "wind" class ice-breakers.  
Eng. J. v.33, n.4, Apr. 1950, p.271-275.

KENNEDY, J.

Ice-breaking steamers on the St. Lawrence. Can. Engr. v.8,  
n.13, May 1901, p.299-300.

LAMBERT, W.

Train ferry. Charlottetown. Eng. J. v.15, n.2, Feb. 1932,  
p.73-85.

RUNEBERG, R.

Steamers for winter navigation and ice-breaking. An abstract.  
Can. Soc. Civ. Engr. Trans. v.15, pt. 1, Jan.-June, 1901,  
p.95. and Inst. Civ. Eng. Proc. v.140, p.109.

ICE COFFERDAMS

TAUNTON, A.J.

Ice cofferdams for repair of bridge piers. Eng. J. v.33, n.7,  
July, 1950, p.598-601.

## ICE CONTROL, AIRPORTS

see AIRPORTS, Winter Maintenance.

## ICE CONTROL. ROADS AND SIDEWALKS

### ANONYMOUS

- Ice control from a grain elevator. Roads and Bridges. v.86, n.1, Jan. 1948, p.57-60, p.96.
- Ice control on Ontario highways. Can. Engr. v.77, n.16, Oct. 17, 1939, p.14.
- Mechanized warfare against snow and ice. A brief editorial comment. Roads and Bridges. v.78, n.12, Dec. 1940, p.13.
- Method of treating icy pavements. Can. Engr. v.70, n.24, June 16, 1936, p.19.
- Methods of skid-proofing icy pavements. Roads and Bridges. v.79, n.9, Sept. 1941, p.82-84.
- New experiments in ice control. A brief editorial comment. Roads and Bridges. v.82, n.11, Nov. 1944, p.51.
- Skid-proofing highways with chemically-treated sand. A summary of practice in Ontario. Roads and Bridges. v.81, n.10, Oct. 1943, p.112-114.
- Skid tests show desirability of chemically-treated abrasives. Can. Engr. v.77, n.16, Oct. 17, 1939, p.13-14.
- What policy is followed in your municipality with regard to snow and ice removal from sidewalks? Answers to question in the monthly feature, "Round-table conference." Roads and Bridges. v.79, n.2, Feb. 1941, p.27.

### BARNES, H.T.

- Scientific methods of ice control. Can. Engr. v.53, n.18, Nov. 1, 1927, p.493-494.

### BLAMGREN, E.E.

- Methods of heating ice on highways. (Michigan) Can. Engr. v.72, n.1, Jan. 5, 1937, p.11-12.

### CHALMERS, A.E.

- Snow removal and control of icy conditions. Can. Engr. v.72, n.9, Mar. 2, 1937, p.126-130.

### COLLINS, J.R.

- Snow control and treatment of icy surfaces. Can. Engr. v.67, n.20, Nov. 13, 1934, p.25-26.

### COURCHESNE, A.

- Snow control and treatment of icy surfaces. Can. Engr. v.67, n.12, Sept. 18, 1934, p.73-75.

### CRIM, R.W.

- Treatment of icy roads alleviates driving hazard. Can. Engr. v.70, n.2, Jan. 14, 1936, p.14.

ETTINGER, L.J.

Ice control without abrasives. Roads and Bridges. v.82, n.11,  
Nov. 1944, p.58-59, p.86-88.

HIGHWAY RESEARCH BOARD

Treatment of icy pavements. Issued by Highway Research Board.  
Committee on treatment of icy pavements. Roads and Bridges.  
v.82, n.10, Oct. 1944, p.67-69, p.109-112.

HIGHWAY RESEARCH BOARD

Treatment of icy pavements. Revision of a bulletin issued by  
the Highway Research Board, entitled "Recommended practice  
for treatment of icy pavements". Roads and Bridges. v.86, n.2,  
Feb. 1948, p.81-84, p.120.

KNIGHT, J.A.

Ice control on streets and highways. Can. Engr. v.69, n.19,  
Nov. 5, 1935, p.12.

McNEILL, T.A.

Winter problems on divided highways, Snow removal and ice  
control on Queen Elizabeth way. Roads and Bridges. v.78, n.10,  
Oct. 1940, p.36, p.102.

RACICOT, J.A.

Winter maintenance and ice control. Can. Engr. v.77, n.25,  
Dec. 19, 1939, p.8.

REID, R.H.

Ice control on highways. Can. Engr. v.71, n.18, Nov. 3, 1936,  
p.18.

TREMOYNE, J.E.

Calcium chloride treatment of abrasives used in ice control.  
Can. Engr. v.75, n.20, Nov. 15, 1938, p.8-10.

VAUGHN, E.J.

Winter maintenance and ice control on highways. Can. Engr.  
v.66, n.6, Feb. 6, 1934, p.10-11.

WIER, F.E.

Snow removal and control of icy conditions. Can. Engr. v.72,  
n.9, Mar. 2, 1937, p.116-118.

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ICE PROBLEMS, Navigation  
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ICE PROPERTIES, THEORETICAL PAPERS

ANONYMOUS

Crushing strength of ice. Can. Engr. v.27, n.23, Dec. 10, 1914,  
p.743.

Theories of the formation of ice. Can. Engr. v.3, n.4, Aug.  
1895, p.89-90.

BARNES, H.T.

Anchor ice formation from the standpoint of the radiation  
theory. Roy. Soc. Can. Trans. Ser. 2, v.12, 1906, sec. 3,  
p.65-109.

BARNES, H.T.

Buoyancy of frazil crystals in water. Roy. Soc. Can. Trans.  
Ser. 3, v.11, 1917, sec. 3, p.61-62.

BARNES, H.T.

Crushing strength of ice. Roy. Soc. Can. Trans. Ser. 3, v.8,  
1914, sec. 3, p.19-22.

BARNES, H.T.

Equilibrium between ice and water. Roy. Soc. Can. Trans. Ser. 3,  
v.1, 1907, sec. 3, p.29-30.

BARNES, H.T.

Formation and adhesion of ice. Eng. J. v.12, n.11, Nov. 1929,  
p.549-551.

BARNES, H.T.

A note on the structure of ice. Roy. Soc. Can. Trans. Ser. 3,  
v.29, 1935, sec. 3, p.53-59.

BARNES, H.T.

On the artificial production of frazil ice together with  
measurements of temperature conditions in the water. Roy.  
Soc. Can. Trans. Ser. 2, v.10, 1904, sec. 3, p.29-32.

BARNES, H.T.

On the density of ice. Roy. Soc. Can. Trans. Ser. 2, v.8, 1902,  
sec. 3, p.143-153.

BARNES, H.T.

Physical constants of ice. Roy. Soc. Can. Trans. Ser. 3, v.3,  
1909, sec. 3, p.3-28.

BARNES, H.T. and LUCAS, H.S.B.

The growth of ice crystals in a Bunsen ice calorimeter. Roy. Soc. Can. Trans. Ser. 2, v.10, 1904, sec. 3, p.33-39.

BARNES, H.T. and MACKAY, H.M.

Crushing strength of ice. Roy. Soc. Can. Trans. Ser. 3, v.9, 1915, sec. 3, p.87-92.

BARNES, H.T., HAYWARD, J.W. and McLEOD, N.M.

Expansive force of ice. Roy. Soc. Can. Trans. Ser. 3, v.8, 1914, sec. 3, p.29-49.

BELL, R.

On some points in reference to ice phenomena. Roy. Soc. Can. Trans. Ser. 1, v.4, 1886, sec. 3, p.85-92.

CLARKE, A.L. and KATZ, L.

Thermodynamic surfaces of water. Roy. Soc. Can. Trans. Ser. 3, v.33, 1939, sec. 3, p.59-71.

COOKE, H.P.

The variation in density of ice. Roy. Soc. Can. Trans. Ser. 2, v.8, 1902, sec. 3, p.122-134.

FINLAYSON, J.F.

Tests on shearing strength of ice. Can. Engr. v.53, n.1, July 5, 1927, p.101-103.

HAYWARD, J.W., BARNES, H.T. and McLEOD, N.M.

Expansive force of ice. Roy. Soc. Can. Trans. Ser. 3, v.8, 1914, sec. 3, p.29-49.

KATZ, L. and CLARKE, A.L.

Thermodynamic surfaces of water. Roy. Soc. Can. Trans. Ser. 3, v.33, 1939, sec. 3, p.59-71.

KING, L.V.

On the penetration of frost in concrete structures. Roy. Soc. Can. Trans. Ser. 3, v.12, 1918 sec. 3, p.115-119.

LUCAS, H.S.B. and BARNES, H.T.

The growth of ice crystals in a Bunsen ice calorimeter. Roy. Soc. Can. Trans. Ser. 2, v.10, 1904, sec. 3, p.33-39.

MACKAY, H.M. and BARNES, H.T.

Crushing strength of ice. Roy. Soc. Can. Trans. Ser. 3, v.9, 1915, sec. 3, p.87-92.

McLEOD, N.M., BARNES, H.T. and HAYWARD, J.W.

Expansive force of ice. Roy. Soc. Can. Trans. Ser. 3, v.8, 1914, sec. 3, p.29-49.

## ICEBERGS

### ANONYMOUS

Iceberg detection. Can. Engr. v.22, n.16, Apr. 18, 1912, p.545.

### BARNES, H.T.

Iceberg detection in navigation. Can. Soc. Civ. Engr. Trans. v.26, pt. 1, Jan.-June, 1912, p.156-163.

### BARNES, H.T.

The rise of temperature associated with melting of icebergs. Can. Engr. v.23, n.25, Dec. 19, 1912, p.887-888.

## ICING

### ANONYMOUS

The weight of ice laden telegraph and other wires. Can. Engr. v.10, n.4, Apr. 1903, p.100.

Weight of ice laden trees. Can. Engr. v.10, n.2, Feb. 1903, p.44.

Weight of ice on wires. Can. Engr. v.10, n.5, May, 1903, p.147.

## MECHANICAL SNOW CLEARING

see SNOW REMOVAL.

## NAVIGATION, ICE PROBLEMS

### ANONYMOUS

Ice conditions in Hudson Bay and Strait. Can. Engr. v.30, n.8, Feb. 24, 1916, p.289.

### BARNES, H.T.

Engineering features in breaking Allegheny ice gorge. Eng. J. v.9, n.11, Nov. 1926, p.453-461.

### BARNES, H.T.

Ice conditions in the St. Lawrence river. Can. Engr. v.50, n.6, Feb. 9, 1926, p.207-208.

### BARNES, H.T.

Ice formation in Canadian waters and physical laws governing its formation. Can. Soc. Civ. Engr. Trans. v.15, pt. 1, Jan.-June, 1901, p.78-86.



BARNES, H.T.

Ice formation on the St. Lawrence. Effect of the sun on general ice conditions. Absorption of sun's heat in the winter. Can. Engr. v.20, n.23, June 8, 1911, p.789-792.

BARNES, H.T.

On some measurements of the temperature of the Lachine rapids during the winter 1896-97. Roy. Soc. Can. Trans. Ser. 2, v.3, 1897, sec. 3, p.17-30.

BARNES, H.T.

On some measurements of the temperature of the river water opposite Montreal. Roy. Soc. Can. Trans. Ser. 2, v.2, 1896, sec. 3, p.37-44.

BARNES, H.T.

St. Lawrence and its ice problems. Can. Engr. v.57, n.21, Nov. 19, 1929, p.738-739.

DUMBLE, J.H.

Some observations on the expansion and contraction of ice in Canadian waters. Can. Soc. Civ. Engr. Trans. v.5, pt. 2, Oct.-Dec. 1891, p.270-308.

EWENS, W.E.

Control of ice jams in large rivers. Can. Engr. v.74, n.5, Feb. 1938, p.11-13.

KEEFER, T.C.

Ice floods and winter navigation of lower St. Lawrence. Roy. Soc. Can. Trans. Ser. 2, v.4, 1898, sec. 3, p.3-30.

KEEFER, T.C.

Ice floods and winter navigation of lower St. Lawrence. An abstract. Can. Soc. Civ. Engr. Trans. v.15, pt. 1, Jan.-June, 1901, p.94-95.

KERRY, J.G.G.

Winter temperature cycle of the St. Lawrence waters. Eng. J. v.29, n.1, Jan. 1946, p.26-34. Discussion. v.29, n.9, Sept. 1946, p.521-535.

LEA, R.S.

St. Lawrence power and navigation development. Can. Engr. v.47, n.9, Aug. 26, 1924, p.277-283.

McLACHLAN, D.W.

Ice problems in the St. Lawrence. Can. Engr. v.46, n.11, Mar. 11, 1924, p.320.

RUSSELL, S.R.

Menace of the ice gorge. Can. Engr. v.36 n.12, Mar. 20, 1919, p.321.

PAVEMENTS, Ice Control  
see ICE CONTROL, ROADS AND SIDEWALKS.

#### PERMAFROST

BATEMAN, J.D.  
Permafrost at Giant Yellowknife. Roy. Soc. Can. Trans. Ser. 3,  
v.43, 1949, sec. 3, p.7-11.

D'APPOLONIA, E. and HARDY, R.M.  
Permanently frozen ground and foundation design. Eng. J. v.29,  
n.1, Jan. 1946, p.4-13.

ECKENFELDER, G.V. and RUSSELL, B.E.  
Snare River power project. Eng. J. v.33, n.3, Mar. 1950,  
p.165-171.

HARDY, R.M. and D'APPOLONIA, E.  
Permanently frozen ground and foundation design. Eng. J. v.29,  
n.1, Jan. 1946, p.4-13.

RUSSELL, B.E. and ECKENFELDER, G.L.  
Snare River power project. Eng. J. v.33, n.3, Mar. 1950,  
p.165-171.

#### PIERS AND BRIDGES

TAUNTON, A.J.  
Ice cofferdams for repair of bridge piers. Eng. J. v.33, n.7,  
July, 1950, p.598-601.

#### PIERS AND BRIDGES, ICE DAMAGE

##### ANONYMOUS

Ice pressure on Bow River damages bridge. A brief item in the  
monthly feature "News of the month." Roads and Bridges. v.83,  
n.4, Apr. 1945, p.86.

LEONARD, R.W.  
Masonry pier moved by ice and replaced. Can. Engr. v.6, n.8,  
Dec. 1898, p.211-212 and Can. Soc. Civ. Engr. Trans. v.12,  
pt. 2, Oct.-Dec., 1898, p.131-133.

PRATLEY, P.L.  
Collapse of Falls View bridge. Eng. J. v.21, n.8, Aug. 1938,  
p.375-381.

PIPES, Frost Damage  
see WATER SYSTEMS, FROST DAMAGE.

PLOWS  
see SNOW REMOVAL EQUIPMENT.

POWER HOUSES, Ice problems  
see HYDRO-ELECTRIC DEVELOPMENTS, Ice Problems.

POWER PLANTS, Ice Problems  
see HYDRO-ELECTRIC DEVELOPMENTS, Ice Problems.

#### RAILROADS, WINTER MAINTENANCE

##### ANONYMOUS

Snow plow for electric line. Can. Engr. v.20, n.7, Feb. 16, 1911,  
p.304.

##### ALEXANDER, F.W.

Operation and maintenance of railway tracks in regions of heavy  
snowfall. Eng. J. v.12, n.11, Nov. 1929, p.581-588.

##### BROWN, C.B.

Operation and maintenance of railway tracks in districts of  
heavy snowfall. Eng. J. v.12, n.11, Nov. 1929, p.588-591.

##### JONES, C.J.

Winter troubles in electric railways. Can. Engr. v.23, n.18,  
Oct. 31, 1912, p.681.

##### LANG, J.S.

Methods of melting snow around switches. Can. Engr. v.15, n.42,  
Oct. 16, 1908, p.740-741.

ROAD CONSTRUCTION, Winter  
see WINTER CONSTRUCTION.

ROAD MAINTENANCE  
see SNOW REMOVAL.

## ROADS, FROST ACTION

### ANONYMOUS

- Effect of freezing and thawing on concrete pavements. Roads and Bridges. v.84, n.1, Jan. 1946, p.65-68, p.90-100.
- Frost boils and heaves. A brief article in the monthly feature "Questions and answers". Roads and Bridges. v.78, n.2, Feb. 1940, p.38, p.72.
- How can frost boils be prevented? Roads and Bridges. v.80, n.11, Nov. 1942, p.26, p.46.
- Lessons from frost damage to roads. Roads and Bridges. v.80, n.2, Feb. 1942, p.100.
- Mechanics of frost heaving. Roads and Bridges. v.81, n.5, May, 1943, p.84-85.
- Soil freezing and frost heaving on roads. Can. Engr. v.71, n.2, July 14, 1936, p.16.
- What steps are suggested to prevent "bumps" in pavement during the late winter and spring? A reference to frost heaving. Answers to question in the monthly feature, "Round-table conference". Roads and Bridges. v.79, n.3, Mar. 1941, p.37.

### BUETEAU, W.C.

- Effect of frost action on highways. Can. Engr. v.58, n.16, Apr. 22, 1930, p.511-512.

### HARDY, R.M.

- Research on frost action in soils. Roads and Bridges. v.84, n.9, Sept. 1946, p.74-76, p.102.

### HIGHWAY RESEARCH BOARD

- Preventing damage by frost. Short reference to an outline of procedure for practical field tests issued by the Committee on the treatment of subgrade soils with calcium chloride to prevent detrimental frost action of the Highway Research Board. Roads and Bridges. v.82, n.9, Sept. 1944, p.123.

### JOHNSON, A.W.

- Frost action in subgrades and bases. Roads and Bridges. v.85, n.9, Sept. 1947, p.104-110, p.146-150.

### SMITH, H.R.

- Controlling frost effects on roads with calcium chloride. Roads and Construction. v.88, n.12, Dec. 1950, p.85-86, p.106-108.

### SMITH, H.W.

- Frost damage to sealed surfaces. Paper in New Zealand Institution of Engineers. Proceedings. 1946. Roads and Bridges. v.85, n.5, Aug. 1947, p.110-112.

ROADS, ICE CONTROL  
see ICE CONTROL, ROADS AND SIDEWALKS.

ROTARY SNOW PLOWS  
see SNOW REMOVAL EQUIPMENT.

#### RUNOFF

FARROW, R.C.  
Snow surveys. Eng. J. v.21, n.10, Oct. 1938, p.451-455.

HOYT, W.C.  
Methods of estimating stream flow when streams are frozen.  
Can. Engr. v.24, n.18, May 1, 1913, p.656.

TAYLOR, J.C.D.  
Spring runoff - its cause and intensity. Can. Engr. v.47,  
n.4, July 22, 1924, p.169-174.

RUNWAYS, Winter Maintenance  
see AIRPORTS, Winter Maintenance.

SCRAPERS  
see SNOW REMOVAL EQUIPMENT.

SEWERAGE SYSTEMS, Cold Weather Operation  
see WATER SYSTEMS, FROST DAMAGE.

SIDEWALKS, Ice Control  
see ICE CONTROL, ROADS AND SIDEWALKS.

SKATING RINKS, Snow Loads  
see SNOW LOAD MEASUREMENT.

SNOW BLOWERS  
see SNOW REMOVAL EQUIPMENT.

SNOW CLEARING

see SNOW REMOVAL, Winter Road Maintenance.

SNOW DRIFTS

see SNOW REMOVAL, Winter Road Maintenance.  
DRIFT PREVENTION.

SNOW FENCES

see DRIFT PREVENTION.

SNOW, FERTILIZING VALUE

see SNOW, PROPERTIES.

SNOW HEDGES

see DRIFT PREVENTION.

SNOW LOAD, MEASUREMENT

ANONYMOUS

Snow loads on skating rinks. Can. Engr. v.28, n.6, Feb. 11, 1915, p.249.

HORTON, R.E.

Measurement of snow. Can. Engr. v.36, n.18, May 1, 1919, p.426-427.

LEARNED, C.E.

Calculating weight of drifted snow in the Rockies. Can. Engr. v.72, n.12, Mar. 23, 1937, p.12.

SNOW PROPERTIES

MIDDLETON, W.E.K.

Colours of snow-fields in sunlight. Roy. Soc. Can. Trans. Ser. 3, v.37, 1943, sec. 3, p.39-43.

SHUTT, F.T.

Fertilizing value of snow. Roy. Soc. Can. Trans. Ser. 3, v.1, 1907, sec. 3, p.35-38.

SHUTT, F.T.

Nitrogen compounds in rain and snow. Roy. Soc. Can. Trans. Ser. 3, v.2, 1908, sec. 3, p.181-186.

SHUTT, F.T.  
Nitrogen compounds in rain and snow. Roy. Soc. Can. Trans.  
Ser. 3, v.4, 1910, sec. 3, p.55-59.

SHUTT, F.T.  
Nitrogen compounds in rain and snow. Roy. Soc. Can. Trans.  
Ser. 3, v.8, 1914, sec. 3, p.83-87.

SHUTT, F.T.  
Nitrogen compounds in rain and snow. Roy. Soc. Can. Trans.  
Ser. 3, v.11, 1917, sec. 3, p.63-71.

SHUTT, F.T.  
Nitrogen compounds in rain and snow. Roy. Soc. Can. Trans.  
Ser. 3, v.19, 1925, sec. 3, p.1-9.

#### SNOW REMOVAL

see SNOW REMOVAL, ECONOMICS.  
SNOW REMOVAL EQUIPMENT.  
SNOW REMOVAL, URBAN.  
SNOW REMOVAL, Winter Road Maintenance.

#### SNOW REMOVAL, ECONOMICS

##### ANONYMOUS

Cost of snow removal. A brief article in the monthly feature, "Questions and answers". Roads and Bridges. v.78, n.1, Jan. 1940, p.40.  
Economics of snow removal. Roads and Bridges. v.83, n.16, Oct. 1945, p.63, p.112.  
Montreal snow-removal appropriation approved. A brief entry in the monthly feature, "News of the month". Roads and Bridges. v.83, n.4, Apr. 1945, p.86.  
The practical benefits of snow clearing and ice control. Articles by officials of a number of municipalities. Roads and Bridges. v.79, n.9, Sept. 1941, p.86, p.97.  
Snow removal is profitable. Can. Engr. v.75, n.16, Oct. 18, 1938, p.18-24.  
\$3,100,000 profit from plowing. Can. Engr. v.77, n.16, Oct. 18, 1939, p.12.

##### ANDERSON, C.S.

Street-cleaning costs in winter. Water and Sewage. v.82, n.11, Nov. 1944, p.84-85.

##### BURTON, V.R.

Cost of snow removal in Michigan. Can. Engr. v.52, n.12, Mar. 22, 1927, p.371-375.

- FLYNN, A. and McDONALD, D.  
Maintenance of winter roads and costs. Can. Engr. v.72, n.9,  
Mar. 2, 1937, p.47-49.
- GROFF, C.G.  
Alberta has winter road programme at low cost. Can. Engr. v.70,  
n.2, Jan. 14, 1936, p.11.
- McDONALD, D. and FLYNN, A.  
Maintenance of winter roads and costs. Can. Engr. v.72, n.9,  
Mar.2, 1937, p.47-49.
- MOORE, H.J.  
Hedges reduce snow-plowing costs. Roads and Bridges. v.83, n.5,  
May, 1945, p.64-66.
- RICHARDS, H.F.  
Methods and cost of snow removal. Can. Engr. v.34, n.15, Apr.  
11, 1918, p.323-327.

## SNOW REMOVAL EQUIPMENT

### ANONYMOUS

- Army and airforce test Canadian snow blowers. Roads and Bridges.  
v.80, n.3, Mar. 1942, p.36-38, p.58-60.
- Importance of equipment maintenance in the work of keeping  
roads open continuously during the winter. Roads and  
Bridges. v.79, n.9, Sept. 1941, p.89.
- Increasing snowploughing efficiency. Roads and Bridges. v.82,  
n.1, Jan. 1944, p.54, p.72.
- Keep up-to-date on modern snow removal mechanized equipment  
for 1941-42. Group of articles by representatives of  
manufacturing firms. Roads and Bridges. v.79, n.9, Sept.  
1941, p.55-59, p.92-96.
- New snow removal equipment. Can. Engr. v.77, n.16, Oct. 17,  
1939, p.19-32.
- A new type of snow plow. Can. Engr. v.15, n.18, May 1, 1908,  
p.307-308.
- Organization and proper equipment are requisites of efficient  
winter maintenance. Roads and Bridges. v.78, n.10, Oct.  
1940, p.28.
- Propulsion and auxiliary machinery "wind" class ice-breakers.  
Eng. J. v.33, n.4, Apr. 1950, p.271-275.
- Rotary snow plow. Can. Engr. v.34, n.23, June 6, 1918, p.505-  
507.
- Should municipalities own or rent snow removal equipment?  
Answers to question in the monthly feature, "Round-table  
conference". Roads and Bridges. v.78, n.2, Feb. 1940,  
p.27-28, p.70.
- Snow plow for electric line. Can. Engr. v.20, n.7, Feb. 16,  
1911, p.304.



ANONYMOUS

Snow-removal equipment in the R.C.A.F. Roads and Bridges. v.81, n.10, Oct. 1943, p.40-41, p.116-118.

Symposium on equipment for winter road maintenance. Eighteen county engineers give their views on the best way to remove snow. Roads and Bridges. v.81, n.10, Oct. 1943, p.48-50, p.98-105.

Thirty roto wings and offset plows for R.C.A.F. airports. Roads and Bridges. v.80, n.9, Sept. 1942, p.38, p.86.

BARBOUR, A.W.

Standardized equipment for summer and winter in New Brunswick's maintenance policy. Roads and Bridges. v.81, n.10, Oct. 1943, p.44.

BERGERON, A.

Snow- lowers extensively used in the province of Quebec. Roads and Bridges. v.81, n.10, Oct. 1943, p.39, p.120-121.

BURRIDGE, A.L.

Michigan counties use underbody scrapers for secondary road maintenance. Roads and Bridges. v.84, n.5, May 1946, p.86-88.

CLARKE, W.A.

Pooling snow-clearing equipment. Roads and Bridges. v.83, n.3, Mar. 1945, p.119, p.146-148.

HARISON, W.M.

Snow removal equipment tested during the summer months. Can. Engr. v.63, n.19, Nov. 8, 1932, p.24.

KER, M.F.

What constitutes "adequate" snow-cleaning equipment? Roads and Bridges. v.83, n.3, Mar. 1945, p.162-163.

MOTL, C.L.

Selection of equipment for snow removal and ice control. Roads and Bridges. v.80, n.10, Oct. 1942, p.41-42, p.86-90.

PATTERSON, T.R.

Equipment for snow removal. Roads and Bridges. v.83, n.3, Mar. 1945, p.160-161.

VAUGHAN, H.H.

Rotary snow plows. Can. Soc. Civ. Engr. Trans. v.26, pt. 2, Oct.-Dec., 1912, p.348-357.

SNOW REMOVAL, URBAN

ANONYMOUS

Snow handling policy and practice in Canadian towns and cities. A supplement to the article in the September issue entitled "Winter maintenance of urban streets". Roads and Bridges. v.79, n.11, Nov. 1941, p.27-28, p.62-68.

ANONYMOUS

Snow removal from city streets - methods and costs of winter maintenance in typical Canadian municipalities. Roads and Bridges. v.80, n.2, Feb. 1942, p.103.

Snow removal methods in Stratford. Letter to the editor.

Roads and Bridges. v.80, n.4, Apr. 1942, p.70.

Symposium on sidewalk snow clearing. Roads and Bridges. v.86, n.2, Feb. 1948, p.70-71, p.129-136.

Winter maintenance of urban streets in Canadian municipalities.

Articles by representatives of various towns and cities.

Roads and Bridges. v.79, n.9, Sept. 1941, p.64-65, p.76, p.108-109, p.112-113.

ANDERSON, C.S.

Street-cleaning costs in winter. Roads and Bridges. v.83, n.1, Jan. 1945, p.122-123, p.126-127.

ASKWITH, F.C.

How Ottawa handles snow problem. Can. Engr. v.77, n.16, Oct. 17, 1939, p.40.

BRADLEY, H.D.

Municipal and street railway authorities co-operate in snow-clearing. Roads and Bridges. v.85, n.12, Dec. 1947, p.62-65.

BRADLEY, H.D.

Street cleaning and snow removal in the city of Toronto. Roads and Bridges. v.87, n.8, Aug. 1949, p.53-56, p.108-110.

BRADLEY, H.D.

Toronto's organization for snow-clearing. Roads and Bridges. v.79, n.9, Sept. 1941, p.60-62, p.118.

BROSSEAU, J.

Mechanized snow removal in the city of Montreal. Roads and Bridges. v.79, n.9, Sept. 1941, p.42-43, p.118.

DAWSON, H.D.

Winter street maintenance in Nelson. Letter to the editor. Roads and Bridges. v.80, n.4, Apr. 1942, p.70.

GIBEAU, H.A.

Montreal's snow removal method. Roads and Bridges. v.84, n.4, Apr. 1946, p.90-91, p.159-165.

GREENE, H.S.

Removing snow in cities by machinery. Can. Engr. v.55, n.25, Dec. 18, 1928, p.791-793.

HAY, A.K.

A short paragraph on snow-clearing difficulties in an article on "Improvements to Ottawa roads". Roads and Bridges. v.79, n.4, Apr. 1941, p.24, p.81.

HUNTER, L.M.

Snow clearing and removal in Ottawa. Can. Engr. v.34, n.7, Feb. 14, 1918, p.137-138.

INGLIS, J.G.

Transportation commission's responsibilities. Snow-clearing by T.T.C. Roads and Bridges. v.85, n.12, Dec. 1947, p.65-66, p.109-112.

LeBLANC, C.J.

Snow removal problem in Montreal. Can. Engr. v.52, n.11, Mar. 15, 1927, p.355-356.

MERCIER, P.E.

Snow removal in Montreal. Can. Engr. v.31, n.4, July 27, 1916, p.71-72.

NORTON, G.H.

Street cleaning, refuse disposal and snow removal. Can. Engr. v.38, n.5, Jan. 29, 1920, p.177.

SHEARER, J.L.

Snow-plowing an art, not a science, in the Ottawa district. Roads and Bridges. v.85, n.2, Feb. 1947, p.68, p.105-106.

WARNER, C.P.

Detroit's "Loop" always kept clean. Can. Engr. v.77, n.16, Oct. 17, 1939, p.34.

## SNOW REMOVAL, Winter Road Maintenance

### ANONYMOUS

Concentrated attack on snowbound roads. Roads and Bridges. v.86, n.1, Jan. 1948, p.69, p.97-99.

County organization for winter road maintenance. Roads and Bridges. v.78, n.10, Oct. 1940, p.33, p.120.

Highway department's new winter service. A brief editorial comment. Roads and Bridges. v.86, n.1, Jan. 1948, p.51, p.88.

Increasing demand for winter roads. A brief editorial comment. Roads and Bridges. v.78, n.10, Oct. 1940, p.17.

Laval University now studying snow removal. Roads and Bridges. v.86, n.2, Feb. 1948, p.58.

Lessons of the "Big Storm". Adequate organization and ample equipment are essential to keep roads open. Roads and Bridges. v.83, n.2, Feb. 1945, p.57-59.

New method of snow removal. Can. Engr. v.38, n.19, May 6, 1920, p.437-438.

ANONYMOUS

- Nova Scotia snow removal. A brief entry in the monthly feature "News of the month". Roads and Bridges. v.78, n.3, Mar. 1940. p.34.
- Principles of winter road maintenance. Roads and Bridges. v.80, n.10, Oct. 1942, p.36-38, p.82.
- Recommendations for winter road maintenance and types of equipment. Can. Engr. v.63, n.19, Nov. 8, 1932, p.19-20.
- Snow, an all year round problem. Can. Engr. v.77, n.16, Oct. 17, 1939, p.13.
- Snow can silence our guns. A brief editorial comment dealing with snow removal and winter maintenance of roads. Roads and Bridges. v.79, n.9, Sept. 1941, p.23.
- Snow drifts 20 ft. deep isolate Ontario towns for week. Roads and Bridges. v.85, n.3, Mar. 1947, p.84-88, p.134-138.
- Snow removal and winter road maintenance in British Columbia. Can. Engr. v.69, n.23, Dec. 3, 1935, p.5-6.
- Snow removal policies and methods of the provincial highways departments. Roads and Bridges. v.79, n.9, Sept. 1941, p.78-79.
- When should snow removal work be started - as soon as storm commences or after it has subsided? Answers to question in the monthly feature "Round-table conference". Roads and Bridges. v.78, n.1, Jan. 1940, p.29-30.
- Winter maintenance by snow-plowing associations. Experience of three counties in Ontario. Roads and Bridges. v.81, n.10, Oct. 1943, p.47, p.94.
- Winter maintenance practice on Ontario highways. Roads and Bridges. v.84, n.11, Nov. 1946, p.70-72, p.120-122.
- Winter road maintenance as related to Canada's war effort. Roads and Bridges. v.79, n.9, Sept. 1941, p.38, p.96.
- Winter road maintenance improved by telephone service. Roads and Bridges. v.86, n.2, Feb. 1948, p.65-69, p.123-124.
- Winter road maintenances in Ontario counties. Can. Engr. v.71, n.18, Nov. 3, 1936, p.13-16.

ASKWITH, F.C.

When should snow removal work be started - as soon as the storm commences or after it has subsided? Reference to the question selected for "Round-table conference" in January issue of Roads and Bridges. Roads and Bridges. v.78, n.2, Feb. 1940, p.37, p.56, p.72.

BERGERON, A.

Snow removal in the province of Quebec. Can. Engr. v.69, n.19, Nov. 5, 1935, p.6.

BERGERON, A.

Winter maintenance of roads in province of Quebec. Can. Engr. v.63, n.19, Nov. 8, 1932, p.13-16.

BLANCHARD, A.B.

Maintenance of highways in winter (Nova Scotia). Can. Engr. v.73, n.16, Oct. 19, 1937, p.11-12.

BOUCHARD, J.

When should snow removal work be started - as soon as the storm commences or after it has subsided? Reference to the question selected for "Round-table conference" in January issue of Roads and Bridges. Roads and Bridges. v.78, n.2, Feb. 1940, p.37, p.56, p.72.

BURTON, V.R.

Maintenance of highways in winter. Can. Engr. v.57, n.14, Oct. 1, 1929, p.155-159.

BURTON, V.R.

Snow removal problems in Michigan. Can. Engr. v.54, n.17, Apr. 24, 1928, p.476-478.

CARREL, F.

Keeping highways open in winter. Can. Engr. v.36, n.22, May 29, 1919, p.496-497.

CUMMINGS, A.

Plows keep open Crow's Nest Pass highway. Can. Engr. v.66, n.18, May 1934, p.17-18.

DIXON, A.

Variation of climate adds to snow removal problems. Roads and Bridges. v.81, n.10, Oct. 1943, p.42, p.122.

DOWNEY, B.R.

Operating an information service on winter road conditions. Roads and Bridges. v.80, n.10, Oct. 1942, p.118, p.122-123.

FLINT, H.R.

The second winter's experience on the Alaska highway. Organization for combating snow and ice. Roads and Bridges. v.82, n.7, July 1944, p.41-44, p.79.

FRAZER, A.

Maintaining winter roads in Quebec. Can. Engr. v.59, n.5, July 15, 1930, p.150-151.

GRATTAN, A.

Maintenance of winter roads in Quebec. Can. Engr. v.73, n.12, Sept. 21, 1937, p.108-110.

GREIG, G.G.

Winter road maintenance in Ontario. Can. Engr. v.59, n.13, Sept. 23, 1930, p.134-135.

GRIMMER, S.K.

Winter operating problems. Can. Engr. v.77, n.13, Sept. 26, 1939, p.2-3.

- HAY, A.K.  
Keeping roads open for winter. Can. Engr. v.68, n.9, Feb. 26, 1935, p.80-82.
- HAY, A.K.  
Methods of snow removal from highways. Can. Engr. v.62, n.14, Apr. 5, 1932, p.11.
- HAY, A.K.  
Personnel problems in winter road maintenance. Roads and Bridges. v.79, n.9, Sept. 1941, p.40, p.110.
- HAY, A.K.  
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Frost damage to water meters. A brief article in the monthly feature "Questions and answers". Water and Sewage. v.80, n.1, Jan. 1942, p.3-31.

Protection water mains from frost. Can. Engr. v.54, n.20, May 15, 1928, p.531-532.

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