



Proceedings  
24th Annual Meeting  
**WESTERN SNOW CONFERENCE**

Penticton B. C. Canada

April, 1956

Photo Courtesy Soil Conservation Service - USDA

PROCEEDINGS

of the

WESTERN SNOW CONFERENCE

Penticton, British Columbia, Canada

April 17-19, 1956

TWENTY-FOURTH ANNUAL MEETING

Ashton R. Codd, General Chairman  
Soil Conservation Service  
c/o Montana State College  
Bozeman, Montana

Program Committee

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| A. F. Paget            | W. Raudsepp    |
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| R. T. Davis            | R. T. Beaumont |

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H. J. Stockwell

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## FOREWORD

This publication reports the available papers and formal discussions presented at the Twenty-Fourth Annual Meeting of the Western Snow Conference. On this occasion the Conference convened in Penticton, British Columbia on April 17-18, 1956. It is hoped that the various reports and discussions presented in these Proceedings will be of value to those concerned with snow and water in their several forms and many important uses and will be an inspiration to vigorously continue research, development, and application in this field of science.

Correspondence regarding these Proceedings or other Western Snow Conference matters should be addressed to Ashton R. Codd, General Chairman, Soil Conservation Service, c/o Montana State College, Bozeman, Montana.

The publication of this report is made possible through dues and registration fees from individual members and the following organizations who hold corporate memberships or have purchased copies of former Proceedings.

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General Electric Company, Richland, Washington  
Greater Vancouver Water District, Vancouver, B. C., Canada  
Harvard University, Boston, Massachusetts  
Idaho Power Company, Boise, Idaho  
Kaiser Aluminum and Chemical Corporation, Spokane, Washington  
Los Angeles Dept. of Water and Power, Los Angeles, California  
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State Engineer, Cheyenne, Wyoming  
State Engineer, Santa Fe, New Mexico  
Tucker Sno-Cat Company, Medford, Oregon

United States Bureau of Reclamation, Amarillo, Texas  
United States Bureau of Reclamation, Boise, Idaho  
United States Bureau of Reclamation, Boulder City, Nevada  
United States Bureau of Reclamation, Denver, Colorado  
United States Bureau of Reclamation, Sacramento, California  
United States Bureau of Reclamation, Salt Lake City, Utah  
United States Forest Service, Washington, D. C.  
United States Forest Service, Berkeley, California  
United States Geological Survey, Washington, D. C.  
University of Idaho Experiment Sta., Moscow, Idaho  
University of Idaho Agric. Engrs., Moscow, Idaho  
University of Montana, Missoula, Montana  
Upper Colorado River Commission, Grand Junction, Colorado  
Utah State College, Logan, Utah  
Washington Water Power Company, Spokane, Washington  
Water Resource Development Company, Denver, Colorado  
West Kootenay Power and Light Co., Ltd., Trail, B. C., Canada

## A P P E N D I X

### Minutes of Business Meeting Western Snow Conference April 18, 1956 Penticton, B. C.

The meeting was called to order by General Chairman, Walter Johnson, at 1:40 PM. Mr. Johnson announced the results of the balloting of the Executive Committee for the next two years. They are as follows:

#### North Pacific Area

J. H. Doughty-Davies  
W. E. Johnson  
M. G. Walker  
R. T. Beaumont  
F. C. Murphy

#### South Pacific Area

F. A. Strauss  
W. A. Lang  
F. B. Blanchard  
H. W. Oliver  
J. A. West

#### North Continental Area

C. C. Warnick  
H. D. Hafterson  
K. A. Armstrong  
A. R. Codd  
P. E. Packer

#### South Continental Area

M. T. Wilson  
W. T. Miller  
W. U. Garwika  
B. C. Godell  
G. L. Pearson

Mr. Johnson also announced the election of A. R. Codd as General Chairman of the Western Snow Conference.

The question of reading the minutes of the 1955 Portland meeting was brought up and a motion was made by R. D. Goodrich that the minutes not be read. This was seconded by J. H. Doughty-Davies and passed unanimously.

Mr. W. E. Johnson read the financial report. A motion was made by W. A. Lang to accept the report. This was seconded by G. A. Lewis and passed.

Mr. F. A. Strauss made a statement commending Mr. G. A. Lewis as the only man present that was at the charter meeting of the Western Snow Conference held in Reno, Nevada in 1930.

The reports of the Program Committee were given by M. G. Walker and J. H. Doughty-Davies. Mr. Walker publicly thanked the committee for their assistance. Mr. Doughty-Davies reported on the future plans of the Western Snow Conference; namely, banquet, cocktail party, field trip and KIC dinner. Mr. R. A. Work reported on the awards and the election of members to life membership. Life membership awards were presented at the banquet. There were no reports on the Forum. Mr. G. A. Lewis reported nothing additional in any way of new equipment by the Equipment Committee. Mr. H. A. Kramer gave a report on corporate memberships which is as follows:

#### BENEFITS TO THE GENERAL PUBLIC

It can be said with some degree of truth that the general public derives no benefit whatsoever from the work of the Western Snow Conference for the simple reason that the vast majority of laymen in the Pacific Northwest are not even aware of the existence of such a body.

In the upstream areas of our major rivers the general public's interest lies in freak runoff conditions which may occur, such as floods and droughts. Any valid method which could be developed for forecasting either of these conditions on both short and long term bases could be placed before the general public in such a way that a great deal of interest could be developed. However, it cannot be expected that the majority of the public could be induced to show much enthusiasm for work that is purely academic, such as correlating meteorological conditions with river flows.

If we are trying to capture the imagination and support of the general public I would suggest that our area of influence be divided into suitable districts which have common water problems. If we take for instance the Kootenay River Basin, the upper river, upstream from Wardner from the International Boundary, is concerned largely with freshet floods in the spring which may affect property and communication services in that area. From Wardner through Bonners Ferry and downstream to Kootenay Landing, where the river enters Kootenay Lake, the river runs through reclaimed land whose owners and occupants have several water problems, namely: (1) Damaging floods through the summer which could overtop the river dikes, (2) Summer drought which in some areas could affect irrigation water supplies, (3) Fall and winter freshets which seriously affect the water table in the reclaimed areas. The basin downstream from Kootenay Lake is concerned to a small extent with the crest elevation of the summer flood, but the fall water supplies for power production are of far greater interest to the district than the summer floods.

Other river basins could be subdivided in a similar manner and suitable press releases to serve as guides for predicting any of the circumstances enumerated above could engender a great deal of interest in the work of the Western Snow Conference. However, incomplete or inaccurate coverage of the situation could be the source of poor public relations.

It would appear that the Western Snow Conference is not yet in a position to be launched in a career of runoff forecasting for the general public, but some publicity of an educational nature might be started with the object of laying a foundation for future programs.

This report was prepared by W. W. Wadsson due to Mr. Kramer's recent illness.

A Publications Committee was appointed to prepare the proceedings for the Western Snow Conference. They are as follows:

W. D. Simmons, E. G. Dunford and H. J. Stockwell

The Resolutions Committee, namely, F. A. Strauss and W. T. Frost presented the following resolutions which were passed unanimously by the conference:

1. Whereas, we of the Western Snow Conference have been deeply shocked and grieved to learn of the untimely passing of our friend and colleague, Dr. E. A. "Ted" Colman of Berkeley, California, and

Whereas, we wish to publicly recognize and acclaim his concept of the management of the watersheds as a whole and his untiring efforts, both personal and professional, in furtherance of this enlarged concept and its value to the growth of the west, and

Whereas, we have been advised of the establishment of the Colman Memorial Fund which will provide scholarships to aid and encourage students in the field of watershed management, and

Whereas, the Western Snow Conference, drawing its membership from western provinces and states in two great nations, Canada and the United States of America, is also concerned with watershed management and attendant runoff therefrom, now therefore

Be it Resolved by the Western Snow Conference assembled in its 24th Annual Meeting at Penticton, British Columbia on April 19, 1956 that a contribution of \$500 be, and herewith is, granted to the Colman Memorial Fund in tribute to the stature of our colleague, Dr. E. A. Colman, and

Be it further Resolved that we urge the executor of the Colman Memorial Fund to give due consideration to outstanding students in both Canada and the United States in awarding scholarships with such scholarships not to be limited as to location of the school, and

Be it further Resolved that copies of this resolution be appropriately transmitted to Mrs. E. A. "Babs" Colman of Berkeley, California, to the Chief, U. S. Forest Service and the Secretary of Agriculture, both at Washington, D. C., to the Director Forest and Range Experiment Station at Berkeley, California, and to the executors of the Colman Memorial Fund.

2. Whereas, members of the Western Snow Conference have thoroughly enjoyed the warm welcome and true western hospitality of the Province of British Columbia and the City of Penticton as proffered by His Worship, Mayor Oscar Matson, and The Honorable R. G. Williston, Minister of Lands and Forests and Minister of Education,

Now therefore be it Resolved by the members of the Western Snow Conference assembled in Penticton, British Columbia, on April 19, 1956, at their 24th Annual Session, that a sincere expression of our appreciation be, and hereby is, extended to His Worship, Mayor Oscar Matson, and to The Honorable R. G. Williston.

Be it further Resolved that copies of this resolution be forwarded to the designated recipients by the General Chairman of the Conference.

3. Whereas, members of the Western Snow Conference have enjoyed the opportunity of sharing ideas and methods in the field of ice and snow research, and

Whereas, we appreciate the great efforts that members of the Program and Local Arrangement Committees have given to provide us a stimulating program and comfortable facilities,

Now therefore be it Resolved, by the members of the Western Snow Conference assembled at Penticton, British Columbia, at their 24th Annual Meeting on April 19, 1956, that an expression of thanks be, and hereby is, given to Mr. Murray Walker, Chairman of the Program Committee, assisted by E. G. Dunford, R. T. Davis, R. T. Beaumont, W. D. Simons, W. Raudsepp, S. E. Shumway, and last but not least, to Mr. A. F. Paget, who so ably sponsored the local arrangements with the fine assistance of Mr. J. H. Doughty-Davies.

Be it further Resolved, that suitable copies of this resolution be forwarded to the designated recipients by the General Chairman of the Conference.



4. Whereas, we, the members of the Western Snow Conference, realize the importance and the value of the leadership provided by the outgoing General Chairman of the Western Snow Conference, and

Whereas, the time expended by the outgoing Chairman in producing the quality of leadership as demonstrated at its last two annual meetings, and

Whereas, it is the privilege of the Western Snow Conference to extend to outgoing General Chairmen the honor of life membership in the organization,

Now therefore be it Resolved, that such life membership is awarded to Walter E. Johnson at this 24th meeting of the Western Snow Conference, and

Be it further Resolved, that this award is conveyed with special recognition of the job so well done.

Mr. W. E. Johnson started a discussion in regard to the publication of the Forum. Mr. G. A. Lewis made the suggestion that a new editor be appointed and suggested the name of Tom Henderson. Mr. F. A. Strauss suggested that Mr. H. W. Oliver remain as editor, but that he be given some assistance. Mr. Lewis then made a motion that Mr. Henderson be assistant editor. Mr. M. W. Nelson suggested the idea of having area editors and Tom Henderson as editor-in-chief. Mr. H. A. Kramer suggested Mr. Oliver be the editorial consultant for the Snow Surveyor's Forum. Mr. R. A. Work made the motion that a resolution be prepared to present to Mr. Oliver. This was seconded by Mr. Lewis and the motion carried. (Resolution is attached). Mr. Work made the motion that Mr. Henderson be elected editor of the Forum which was seconded by Mr. Lewis. The question was raised that the editor is appointed only. The motion was then withdrawn. Mr. Henderson was appointed editor of the Snow Surveyor's Forum by Walter Johnson. Mr. Lewis then reiterated the idea of the Forum and purpose for which it would serve; namely, an informal publication for the field snow surveyors - not the office man.

Mr. W. E. Johnson read an invitation for the Western Snow Conference to hold their 1957 meeting in Phoenix. This invitation was extended by the Mayor. It was suggested that the meeting be held in Reno, Nevada in 1960. A motion was made by G. A. Lewis that the Western Snow Conference accept the invitation from Phoenix. This was seconded by C. C. Warrick and passed unanimously.

Mr. F. M. Veatch made a suggestion that the cash that is held by the banks for use of the General Chairman for running Western Snow Conference business be put in some interest bearing account. Mr. W. A. Lang commented on this idea and the fact had been investigated while he was Chairman. There was no action and the idea was left in the hands of the future General Chairman, Mr. Codd.

Mr. A. R. Codd made comments on the future of the Western Snow Conferences, the Forum and was hoping that all members would assist Mr. Henderson in the carrying out of his duties as editor.

Mr. F. A. Strauss recommended that the minutes of the meetings be included in the transactions. Mr. R. A. Work mentioned that other organizations published their minutes in their transactions or publications. A motion was made by G. A. Lewis that this be done. It was seconded by W. A. Lang and passed unanimously.

Mr. G. A. Lewis then made a motion that the meeting be adjourned which was seconded by M. G. Walker. The meeting was adjourned at 2:40 PM by W. E. Johnson.

S/ ROBERT T. DAVIS

Robert T. Davis  
Secretary

#### RESOLUTIONS

passed by the  
Western Snow Conference  
at its 24th Annual Meeting  
April 19, 1956

WHEREAS: We the members of the Western Snow Conference realize the importance and value of the Snow Surveyor's Forum as a publication primarily for the field man, and

WHEREAS: The 1954 Snow Surveyor's Forum was produced by Harry W. Oliver, Editor,

NOW THEREFORE BE IT RESOLVED: That our appreciation to Harry Oliver be expressed in the form of a formal resolution, so that it may be recorded in Western Snow Conference files and that a copy of this resolution be forwarded to him, and

BE IT FURTHER RESOLVED: That the field man, to whom this publication is dedicated, as well as the Executive Committee members, join in expressing their sincere appreciation for the high quality of his workmanship.



## WESTERN SNOW CONFERENCE

### ROSTER OF ATTENDANCE

Angus, W. - Vancouver, B.C. Canada  
Banks, F.A. - Coulee Dam, Wash.  
Barrows, Jack - Missoula, Montana  
Beaumont, R.T. - Portland, Oregon  
Brown, Henry R. - Loveland, Colorado  
Buck, Fred E. - State Engineer, Montana  
Burke, Melvin - Portland, Oregon  
Chard, A.E. - Powell River, B.C. Canada  
Christian, E.L. - Sacramento, Calif.  
Codd, Ashton R. - Bozeman, Montana  
Crosby, Ted - Santa Barbara, Calif.  
Cummings, C.A. - Salem, Oregon  
Dahl, Robert B. - Oakdale, Calif.  
Davis, Robert T. - Spokane, Wash.  
Dittmer, Wm. A. - Spokane, Wash.  
Dobson, W.R. - Vernon, B.C. Canada  
Doughty-Davies, J.H. - Victoria, B.C.  
Dunford, Jerry - Portland, Oregon  
Elliott, Robert D. - Santa Barbara, Calif.  
Ellis, Jess D. - Portland, Oregon  
Frost, W.T. - Portland, Oregon  
Galbraith, W.A. - Olympia, Wash.  
Gibson, Major E.R. - Victoria, B.C. Canada  
Giles, Gordon C. - Tacoma, Wash.  
Goodell, Bert - Ft. Collins, Colorado  
Goodrich, R.D. - Grant Junction  
Hafterson, Harold D. - Boise, Idaho  
Hannaford, Jack F. - Sacramento, Calif.  
Harris, Robert G. - Kelowna, B.C.  
Hastings, Gregory M. - Olympia, Wash.  
Helgeson, Richard E. - Wenatchee, Wash.  
Henderson, Thomas J. - Bishop, California  
Hurd, C.T. - Portland, Oregon  
Jackson, Stanley W. - Nelson, B.C.  
Johnson, Fred A. - Tacoma, Washington  
Johnson, Oliver - Portland, Oregon  
Johnson, Walter E. - Spokane, Wash.  
Kidd, Gordon J.A. - Victoria, B.C.  
Kirkpatrick, G.A. - Portland, Oregon  
Kohler, Max A. - Washington, D.C.  
Kuehl, Don W. - Portland, Oregon  
Kramer, H. A. - Richland, Washington  
Lang, William A. - Los Angeles, Calif.  
Leach, T. - Victoria, B.C.  
Leupold, Norbert - Portland, Oregon  
Lewis, Geo. A. - Independence, Calif.  
Lindgren, Richard - Boise, Idaho  
Madill, Dale - Kitimat, B.C.  
Makela, Don - Seattle, Wash.  
Martinelli, Pete - Fort Collins, Colo.  
McCallum, F. - Kamloops, B.C.  
Mondrillo, George - Portland, Oregon  
Miller, Mearle M. - Spokane, Wash.  
Murphy, Francis C. - Seattle, Wash.  
Nelson, Morlan W. - Boise, Idaho  
Ord, Melvin J. - Walla Walla, Wash.  
Orem, Hollis M. - Portland, Oregon  
Packer, Paul E. - Missoula, Montana  
Paget, A.F. - Victoria, B.C.  
Peak, Geo. W. - Casper, Wyoming  
Peck, Eugene L. - Salt Lake City, Utah  
Pederson, C. - Portland, Oregon  
Pelton, T. - Vancouver, B.C.  
Ramsden, H.T. - Vancouver, B.C.  
Raudsepp, Walter - Victoria, B.C.  
Revell, Russell W. - Portland, Oregon  
Sachs, Milton S. - Portland, Oregon  
Shumway, Stuart E. - Olympia, Wash.  
Simons, W.D. - Tacoma, Wash.  
Smith, Geo. H. - San Francisco, Calif.  
Sommer, K.E. - Kitimat, B.C. Canada  
Stackhouse, J.L. - Olympia, Wash.  
Stanley, Lewis A. - Salem, Oregon  
Steward, J.B. - Vernon, B.C.  
Stone, A.C.R. - Spokane, Wash.  
Strauss, Fred A. - Sacramento, Calif.  
Summersett, John - Portland, Oregon  
Thomas, Donald M. - Tacoma, Wash.  
Van de Erve, Jerry - Sacramento, Calif.  
Veatch, Fred M. - Tacoma, Wash.  
Wadson, W. - Rossland, B.C.  
Walker, M.G. - Olympia, Wash.  
Walker, R.L. - Victoria, B.C.  
Walsh, Kenneth J. - Berkeley, Calif.  
Warnick, Cal - Moscow, Idaho  
Williams, Gaynor - Ottawa, Ontario  
Wilson, J. Alden - Boise, Idaho  
Work, R.A. - Portland, Oregon