

# GEOSCIENCE CANADA

JOURNAL OF THE GEOLOGICAL ASSOCIATION OF CANADA  
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# EDITORIAL

It is hard for me to believe that I have now completed one year as Editor of Geoscience Canada. I thank those that have sent complimentary comments and notes about the issues published in 2002 and I can say that I have not received a single complaint. So there, that's your invitation to provide me with constructive criticism.

After this first year I still have some of the same concerns as I did when I started out on this adventure. Principal among these is that there are not enough spontaneous submissions of manuscripts to the journal. Too few people consider Geoscience Canada as a top-of-the-mind choice for publication of their articles. I have tried to open up the pages a bit, having suggested a new category of shorter article on fast-breaking scientific developments, called Earth Express (see the editorial for the March 2002 issue and another announcement in *Geolog*, v. 31, part 2, p. 20). So far, response has been modest. I encourage you to review the description of this new style of paper and consider submitting an article. Please get in touch with me if you have any questions.

## ONGOING SERIES

This, the staple part of our content, is moving along well. In this issue you will be able to enjoy two fine articles: one on the subject of geology and wine in Washington (sixth in the series) and the other on the building stones of the Alberta Legislature. The paper on the Alberta Legislative Buildings by Burwash, *et al.* is the second paper in the series on the Geology of the Parliament Buildings of Canada. The first, entitled "Building Stones of Canada's Federal Parliament Buildings"

was written by D.E. Lawrence, and appeared in the March 2001 issue of Geoscience Canada. Doug VanDine, editor of the series, reports that at the present time papers are being prepared for the legislative buildings of British Columbia, Ontario, Quebec, Nova Scotia and New Brunswick. However, he is still looking for contributions from Saskatchewan, Manitoba, Prince Edward Island, Newfoundland, Yukon, Northwest Territories and Nunavut. If you are interested in contributing a paper, refer to the guidelines for the series, published in the March 2001 issue of Geoscience Canada and contact Doug VanDine at 267 Wildwood Avenue, Victoria, BC, V8S 3W2, phone (250) 598-1028, fax (250) 592-1459 or e-mail vandine@islandnet.com.

## NEW SERIES

Two new series are under development. The first embraces Igneous Rock Associations and is being edited by Georgia Pe-Piper of St. Mary's University. This series will include about a dozen papers on igneous rocks, particularly from a Canadian perspective. The papers will deal with a large variety of topics including many aspects of volcanism, mantle plumes, ocean crust and ophiolites, rift-related igneous provinces, Precambrian iron formations and anorthosites. Anyone interested in contributing to this series is encouraged to contact Georgia Pe-Piper (gpiper@stmmarys.ca).

The second new series deals with Resource Estimation and will be edited by Keith Dewing of the Geological Survey of Canada in Calgary, and Ben Whiting, a consulting economic geologist based in Kingston, Ontario. This series will include about ten articles

designed for practicing exploration geologists with little or no knowledge of resource estimation. The goal is to present the concepts in a non-mathematical way and to bring out the importance of geological considerations in resource estimation. The main emphasis will be on the mining sector, but at least one article for oil and gas is envisaged. Anyone who is interested in contributing to this new series is encouraged to contact either Keith Dewing (kdewing@NRCan.gc.ca) or Ben Whiting (whiting@kingston.net).

These two new series will debut in 2003.

## GREAT LOSS

It was with great sadness that I learned in September that Leslie King was leaving as Managing Editor of Geoscience Canada. Leslie has been working with the journal for more than ten years. She started out when Mike Cherry was Editor and has continued with editors Phil Thurston, Roger Macqueen and me. She has been the solid rock of knowledge on whom each editor has relied. She is a highly knowledgeable technical editor and layout person and will be greatly missed by the Geological Association of Canada. Her careful work has greatly improved countless issues of the journal and I am sure that all the editors join with me in thanking Leslie for her tremendous contribution. Leslie also worked on GAC Special Paper 42, that wonderful exposition of the urban geology in Canadian cities and has helped the Association with a variety of other publishing projects.

I am pleased to report that the reason for Leslie's departure is a happy one. She has been successful in getting a

full time job as a communications coordinator with the Communications Services Branch of the ministry of Northern Development and Mines. We wish her all the very best in her new position.

#### **NEW PRODUCTION TEAM**

The production of this December issue, was contracted to the Geological Survey of Canada in Calgary: Joanna Monro Gray for the technical editing and Claudia Thompson for the layout.

Godfrey S. Nowlan

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## **GEOLOGICAL ASSOCIATION OF CANADA (2001-2002)**

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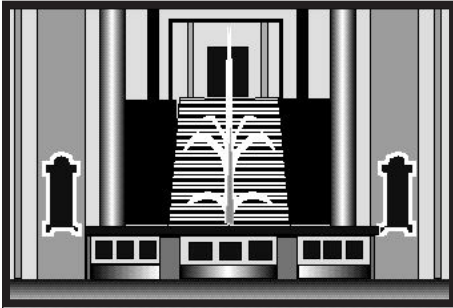
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# SERIES



## The Geology of Parliament Buildings 2. The Geology of the Alberta Legislative Building

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### SUMMARY

Alberta's Legislative Building was constructed in Beaux Arts style on the crest of the north bank of the North Saskatchewan River in Edmonton. Excavation for the foundations began in 1907; the interior marble and plaster work was completed by 1913. The exterior walls of the basement and first storey were built with grey granodiorite quarried from islands in the mouth of

Jervis Inlet, British Columbia. The upper stories consist of Paleocene sandstone from the Bow River valley of southern Alberta. The splendid Corinthian pillars of the main portico required Ohio sandstone to support the Provincial Coat of Arms on the pediment. Marbles from Phillipsburg, Quebec panel the walls of the Rotunda and form the Grand Staircase up to the Legislative Assembly. The Chamber is decorated with spectacular green serpentine marble from Pennsylvania.

### RÉSUMÉ

L'édifice de la législature de l'Alberta de style Beaux-arts, a été construit sur le promontoire de la rive nord de la rivière Saskatchewan nord à Edmonton. L'excavation du site a débuté en 1907 et les travaux de plâtrage se sont terminés en 1913. Le revêtement des murs du sous-sol et du rez-de-chaussée provient d'une granodiorite grise extraite d'une carrière d'une île de l'anse Jervis en Colombie-Britannique. Le revêtement des étages supérieurs provient d'un grès paléocène de la vallée de la rivière Bow dans le sud de l'Alberta. Les magnifiques piliers corinthiens du portique principal en grès de l'Ohio soutiennent les armoiries de la province en marbre du fronton. Des plaques de marbre de Phillipsburg au Québec lambrissent les murs de la rotonde et forment le grand escalier menant à l'enceinte de l'Assemblée législative. L'enceinte de l'Assemblée législative est décorée d'un magnifique marbre serpentinitisé de Pennsylvanie.

# SERIES



## Geology and Wine 6. Terroir of the Red Mountain Appellation, Central Washington State, U.S.A.

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### SUMMARY

Red Mountain is the newest of five appellations in Washington State and like the majority of Washington vineyards its terroir is influenced by 1) the rain shadow effect and volcanic tephra of the Cascade Mountain Range, 2) soils derived from Quaternary glacial sediments and wind-blown loess overlying Miocene basalt, and 3) a warm, dry climate with abundant sunshine and cool nights due to high latitude (N 46°) and topography. Variations of rooting depth, textures, calcium carbonate content, and other properties of vineyard soils are directly influenced by Quaternary glacial flood deposits in the back-eddy of Red Mountain and by the variable nature of the loess and dune cover on the flood deposits. This is the first demonstration of the effect of

paleohydrology on vineyard site characteristics. In the past two years, wines made from Red Mountain grapes have received nine scores of  $\geq 94$  out of 100 in independent blind tastings and merlot wine made from Red Mountain grapes has been ranked as the best in the United States for each of the past two years by two different national wine magazines.

Red Mountain is one of the warmest and driest viticultural sites in Washington State, having heat summation (growing degree days) and total sunshine similar to Napa Valley, California which is 1000 km farther south. Other wine regions that have been influenced by the worldwide glacial processes that were so important in the development of Washington vineyards include the gravel mounds that underlie most of the first growth vineyards of Graves-Médoc, Bordeaux, France and some of the outwash gravel plains of New Zealand.

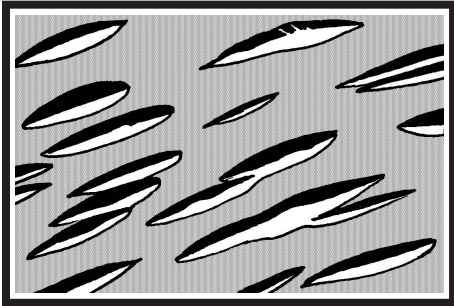
### RÉSUMÉ

L'appellation Red Mountain est la plus récente des cinq appellations de l'État de Washington et, comme c'est le cas pour la plupart des vignobles de l'État de Washington, son terroir dépend 1) de l'effet parapluie de la chaîne des monts Cascade et de ses cendres volcaniques, 2) des sols dérivés des sédiments glaciaires quaternaires et des loess éoliens recouvrant le basalte miocène et, 3) d'un climat chaud et sec avec un fort ensoleillement, avec des nuits fraîches dues à la latitude (N 46°) et à la topographie. Les variations de la profondeur d'enracinement, de texture, de contenu en carbonate de calcium et d'autres propriétés pédologiques des vignobles varient selon le patron de dépôt des alluvions glaciaires quaternaires par écoulement tourbillonnaire de Red Mountain et de la variation de composition du loess et de la couverture des dunes des dépôts alluvionnaires. Cela constitue la première démonstration des effets paléohydrologiques sur les propriétés des sites viticoles. Au cours des deux dernières années, les vins des raisins de Red Mountain

ont reçu neuf cotes de plus de 94% lors de dégustation anonyme, et les vins merlots provenant de raisins de Red Mountain ont été jugés les meilleurs aux USA pour chacune des deux dernières années, par deux revues spécialisées d'envergure nationale.

La région de Red Mountain constitue l'un des sites viticoles les plus chauds et les plus secs de l'État de Washington, possédant un bilan thermique (degré-jour de croissance) et un ensoleillement comparable à ceux de la vallée de Napa en Californie, laquelle est située à 1 000 km plus au sud. Parmi d'autres régions ayant subi l'influence de processus glaciairemondiaux et qui se sont avérés si déterminant dans le développement des vignobles de l'État de Washington, on retrouve celle des collines graveleuses constituant le lieux de croissance de la plupart des vignobles de première génération de Graves-Médoc de la région de Bordeaux en France, et d'autres sur des plaines d'alluvions en Nouvelle-Zélande.

# ARTICLE



## GM Dawson and the Glaciation of Western Canada

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### SUMMARY

This paper examines the contributions of G.M. Dawson (1849–1901) to our understanding of the glaciation of the Interior Plains and Cordillera of Western Canada. Dawson is highly esteemed in the history of Canadian geology for his extensive explorations beginning in 1873, which contributed greatly to our knowledge of geography and the geology of Western Canada. The distances travelled and the areas described by Dawson were truly astonishing – hard to comprehend as the accomplishment of a man who was stunted in growth and deformed in stature by a childhood spinal disease, which was indirectly responsible for his early death. Dawson is most widely recognized for his conception of a “Cordilleran glacier” over British Columbia, which has proved correct, and continues to be refined rather than revised. This should have placed him squarely within the group of later

nineteenth century Canadian geologists who switched their allegiance from the Drift Theory to the Glacier Theory, or who matured wholly with the latter. However, from this first detailed examination of Dawson’s works on glaciation, it emerges that, except for the “Cordilleran glacier” hypothesis, in a majority of cases he argued not even the most obvious objections or the plainest of alternatives to his ‘Drift’ explanations, although he cannot have been unaware of them. No explanation of this rigidity readily presents itself, other than possible filial respect for the reputation of his scientifically conservative father, J.W. Dawson. Dawson’s later contemporaries, including Bell, Low and Tyrrell, ignored rather than challenged his interpretations, developing ‘Glacial’ theory along paths it has followed to the present day.

### RÉSUMÉ

Le présent article porte sur l’apport de G.M. Dawson (1849–1901) à la compréhension du glaciaire des plaines intérieures et des cordillères de l’Ouest canadien. Dawson est une figure emblématique de l’histoire de la géologie canadienne de par l’importance des travaux d’exploration qu’il a débuté en 1873 et qui ont tant contribué à notre connaissance de la géographie et de la géologie de l’Ouest canadien. Les distances qu’il a parcourues et l’étendue des régions qu’il a décrites étonnent vraiment, d’autant qu’ils ont été réalisés par un homme dont le développement avait été entravé par une maladie spinale d’enfance responsable d’un handicap morphologique et indirectement responsable de mort prématurée. On le reconnaît surtout pour son concept de “glacier cordillérien” recouvrant la Colombie-Britannique, dont la réalité

s’est avérée et qui fait l’objet de raffinement plutôt que de correction. Par ses idées, il aurait dû faire partie intégrante du groupe des géologues canadiens de la fin du dix-neuvième siècle dont l’allégeance est passée de la “théorie marine” à la “théorie glaciaire” ou dont la carrière s’est dans le cadre de cette dernière. Cependant, des résultats de cette première étude détaillée des travaux de Dawson sur le glaciaire, il ressort qu’hormis l’hypothèse du “glacier cordillérien”, dans la majorité des cas, il n’a par discuté des objections les plus patentes ou des possibilités les plus évidentes à ses explications “allochtones”, et cela malgré qu’il soit inconcevable qu’il n’en n’ait pas été au courant. On ne voit pas d’explication de cette rigidité intellectuelle, autre que celle possible du respect filial pour la réputation de son père, J.W. Dawson, scientifique conservateur. Les contemporains de fin de carrière de Dawson, dont Bell, Low et Tyrrell, ont tout simplement ignoré ses interprétations au lieu de les contester, en développant la théorie autochtone selon des voies suivies jusqu’à nos jours.