

**YUKON**  
**EXPLORATION**  
**& GEOLOGY**  
**2007**

Edited by  
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and L.H. Weston

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## PHOTOGRAPHS

FRONT COVER: Southward view up-valley, near the terminus of the Klutlan Glacier, St. Elias Mountains. The characteristic compression observed in the medial moraine is typical of surging-type glaciers. According to Clarke and Holdsworth<sup>1</sup>, the Klutlan glacier is one of 136 surging glaciers in the St. Elias Mountains. Photo provided by Jeff Bond.

BACK COVER: Lori Walton looking at the drillcore through a handlens on the Sonora property, Yukon. Lori was the Yukon Prospector Association's 2007 Prospector of the Year. Photo provided by Lori Walton.

<sup>1</sup>Clarke, G.K.C. and Holdsworth, G., 2002. *Glaciers of the St. Elias Mountains*. In: *Glaciers of North America*, U.S. Geological Survey Professional Paper 1386-I-1, p. J301-J328.

## PREFACE

Yukon Exploration and Geology (YEG) continues to be the main publication of the Yukon Geological Survey (Energy, Mines and Resources, Yukon government). This is the 30th volume of the series.

YEG 2007 contains up-to-date information on mining and mineral exploration activity, studies by industry, and results of recent geological field studies. Information in this volume comes from prospectors, exploration and government geologists, mining companies and students who are willing to contribute to public geoscience for the benefit of the scientific community, general public, and mineral and petroleum industries of the Yukon. Their assistance and patience is sincerely appreciated.

This year our editing team consisted of Leyla Weston, Lauren Blackburn, Rod Hill and I. I thank my co-editors for their thoroughness and efficiency. We also thank the Translation Bureau, Public Works and Government Services Canada for translating the French abstracts. Appreciation is also extended to Maurice Colpron of the Yukon Geological Survey (YGS) for his able assistance in the review of French translations of abstracts. We also thank all the geologists who contributed by critically reviewing YEG manuscripts: T. Allen, M. Burke, K. Kennedy, D. Murphy, M. Colpron, G. Lowey, L. Pigage, R. Sumanik, D. Turner and G. Zazula.

Wynne Krangle and Peter Long of K-L Services continue to provide excellent service in putting this production together, including editing suggestions, design of diagrams, volume layout, and working under the pressure of a tight deadline. Sherry Tyrner of the Queen's Printer once again ensured that the printing process went smoothly.

The 2007 volume has three parts. The first – Mineral and Petroleum Industries – includes overviews of hardrock and placer mining, development and exploration and a summary of oil and gas activities in the Territory, as well as a summary of the Yukon Mining Incentives Program. The second part – Government – outlines the activities and organization of the Yukon Geological Survey, and includes announcements of the eighth Mining Land Use Reclamation Awards, the Robert E. Leckie Awards, as well as work of Oil and Gas Resources. The last part – Geological Fieldwork – contains reports describing regional mapping, and more detailed geoscience studies. This year there are no Property Descriptions – submissions from the mineral industry on mineral occurrences and deposits - these papers are usually in short supply when the mining industry is busy which has been the case in the past few years.

This year's report is dedicated to Bruce Patnode and Grant Abbott. Bruce tragically passed away earlier this year; he is widely known for his great contributions to the prospecting and arts community in the Yukon. Grant is retiring from YGS this year. Over the years, he has been instrumental in enhancing and modernizing the geological data base of the Yukon – his strong leadership will be greatly missed by staff.

We welcome any input or suggestions that you may have to improve future YEG publications. Please contact me at (867) 667-3203 or by e-mail at [diane.emond@gov.yk.ca](mailto:diane.emond@gov.yk.ca).

Diane Emond

## PRÉFACE

Yukon Exploration and Geology (YEG) continue d'être la publication principale de la Commission géologique du Yukon (Énergie, Mines et Ressources, gouvernement du Yukon). Ce volume est le 30<sup>e</sup> de la série.

YEG 2007 contient une mise à jour sur l'exploitation et l'exploration minières, les études réalisées par l'industrie et les résultats des travaux géologiques exécutés récemment sur le terrain. L'information est fournie par des prospecteurs, des géologues d'explorations et du gouvernement, des sociétés minières et des étudiants qui souhaitent en faire bénéficier la communauté scientifique, le grand public, ainsi que les industries minières et pétrolières du Yukon. Nous apprécions leur aide et leur dévouement.

Cette année les co-rédacteurs du YEG sont Leyla Weston, Lauren Blackburn, Rod Hill et moi. Nous remercions le Bureau de la traduction, Travaux publics et Services gouvernementaux du Canada, pour la traduction française des résumés. Nous remercions également Maurice Colpron de la Commission géologique du Yukon pour son aide avec la révision des traductions françaises. Il faut aussi souligner la contribution de plusieurs géologues à la lecture critique des manuscrits, au cours de cette année; il s'agit notamment de T. Allen, M. Burke, K. Kennedy, D. Murphy, M. Colpron, G. Lowey, L. Pigage, R. Sumanik, D. Turner et G. Zazula.

Wynne Krangle et Peter Long de K-L Services ont une fois de plus fourni un excellent service de production, incluant des suggestions de révision, la conception de diagrammes, la mise en page et le respect d'échéances serrées. Sherry Tyrner de l'Imprimeur de la Reine a, pour sa part, veillé au bon déroulement de l'impression.

Le volume de 2007 comprend trois parties. La première – Industries minérales et pétrolières – renferme des survols sur l'exploitation, le développement et l'exploration minières des roches dures et des placers dans le territoire, de même qu'un résumé sur le Programme d'encouragement des activités minières du Yukon. Cette année il y a aussi un survol sur les activités pétrolières. La deuxième partie – Gouvernement – décrit dans les grandes lignes les activités et l'organisation de la Commission géologique du Yukon, et présente la huitième édition des prix Robert E. Leckie, récompensant les meilleurs travaux de remise en état des sites miniers. La dernière partie – Travaux géologiques sur le terrain – contient des rapports décrivant la cartographie régionale et des études géoscientifiques plus détaillées. Cette année il n'y a pas d'articles présentant des descriptions de propriétés minières - présentations des sociétés minières concernant des indices et des gîtes minéraux - le recrutement de ces articles est typiquement difficile en temps de forte activité dans l'industrie minière, tel que l'on connaît depuis quelques années.

Ce rapport est dédié à Bruce Patnode et Grant Abbott. Bruce est décédé tragiquement plutôt cette année ; il est bien connu pour ses contributions à la prospection et à la communauté artistique du Yukon. Grant prendra sa retraite de la CGY cette année ; au cours des ans, il a contribué grandement au développement et à la modernisation des bases de données géologiques du Yukon – on manquera beaucoup sa direction exemplaire.

Pour tout commentaires ou suggestions afin d'améliorer les futures publications du YEG, vous être priés de communiquer avec moi par téléphone au (867) 667-3203 ou par courriel à l'adresse suivante : [diane.emond@gov.yk.ca](mailto:diane.emond@gov.yk.ca).

# Bruce Patnode

## IN MEMORIUM

*On September 13, 2007, the Yukon lost a significant member of its prospecting and arts fraternities. Bruce Patnode lived in Whitehorse for nearly 40 years and, more recently, in Parksville, BC. He was only 60 years old when he passed away on Vancouver Island from a brain aneurysm.*

Bruce prospected as a young man with his father, Larry, another prominent Yukon prospector. Upon his father's death, Bruce inherited several Yukon mineral properties and further explored many of them. He also worked in exploration and mining at Macmillan Pass, Keno Hill, Faro, Wellgreen and Cassiar, in addition to working abroad. He operated radios and heavy equipment, surveyed mineral claims, drove ore trucks, worked on diamond-drill rigs, and supervised geochemical and geophysical field programs. Eventually, he started his own mineral exploration company. Bruce also played a role in exploring the geothermal potential of the Wheaton River area.

In the mid-1980s, Bruce returned to college and finished his business administration degree; he then took a job with the Yukon government's Department of Economic Development. Bruce was an active and long-term executive member of both the Yukon Prospectors' Association and the Yukon Chamber of Mines.

Bruce was also a talented artist. He designed and promoted the large bronze prospector statue in the courtyard of the Elijah Smith Building on Main Street in Whitehorse. He created the wooden scroll housed in the main Government of Yukon Administration Building, with brass plaques

for names of those who were inducted into the Hall of Fame and Honour Roll.

He helped produce the commemorative mural for the RCMP Whitehorse detachment, and he designed the large mural on the exterior wall of the Transportation Museum. The backgrounds of the dioramas in the Klane Museum of Natural History at Burwash Landing is another example of Bruce's fine work.

Bruce Patnode's name was inscribed on the Yukon Prospectors' Association's Honour Roll on November 26 at the 2007 Yukon Geoscience Forum. Former Yukoner Dutch Van Tassel, an Alberta-based geological

consultant and former exploration superintendent for United Keno Hill Mines, spoke recently of Bruce:

***"For every area that has its past history steeped in mining, there are individuals who stand out in so many ways for their energies and contributions. Such is the story of Bruce Patnode whose roots were planted and nurtured by his prospector dad. I***

***remember Bruce for his friendly, positive attitude. Bruce will be remembered for his contribution to the Yukon Prospectors' Association and the Yukon Chamber of Mines and, as importantly, for his creative artistry."***

*Contributions from Jane Gaffin,  
Jim McFaul and Larry Carlyle*







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# YUKON EXPLORATION AND GEOLOGY 2007

## GEOLOGICAL FIELDWORK

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