

Edited by D.S. Emond and L.H. Weston

Exploration and Geological Services Division, Yukon Indian and Northern Affairs Canada

Published under the authority of the Minister of Indian Affairs and Northern Development, Ottawa, 2001.

http://www.inac.gc.ca

Printed in Whitehorse, Yukon, 2001.

© Minister of Public Works and Government Services Canada

QS-Y150-000-EE-A1

Catalogue no. R71-41/2000E

ISBN 0-662-29814-4

This, and other Yukon Geology Program publications, may be obtained from:

Geoscience and Information Sales c/o Whitehorse Mining Recorder 102-302 Main Street Whitehorse, Yukon, Canada Y1A 2B5 phone (867) 667-3266, fax (867) 667-3267

Visit the Yukon Geology Program web site at www.geology.gov.yk.ca.

In referring to this publication, please use the following citation:

Yukon Exploration and Geology 2000. D.S. Emond and L.H. Weston (eds.), 2001. Exploration and Geological Services Division, Yukon, Indian and Northern Affairs Canada, 353 p.

Production by K-L Services, Whitehorse, Yukon.

Front cover photo

Reid Kennedy examines a folded sequence of quartz sandstone and dolostone in the upper part of the Little Salmon succession, Glenlyon map area, central Yukon. Photo by Maurice Colpron.

Front cover photo, background of title tab

Banded sphalerite-galena mineralization showing de-watering structures from Hole A-67 drilled in the Don Valley area at the Howards Pass project. Photo by Mike Burke.

Back cover photo

Bill Wengzynowski, 2000 Yukon Prospector of the Year, at his emerald discovery — the Crown emerald showing — on the Goal-Net property of Expatriate Resources. Bill is also credited with discovery of the Ice deposit (drill-indicated resources are 4.56 Mt grading 1.5% Cu), in the Finlayson Lake volcanogenic massive sulphide district. These are two of many discoveries that Bill has made during his illustrious career with Archer, Cathro and Associates (1981) Ltd. Photo by Mike Burke.

PREFACE

Yukon Exploration and Geology (YEG) is the main publication of Exploration and Geological Services Division of Indian Affairs Canada (DIAND). This is the 23rd volume of the YEG series. It 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 collectively benefit the Yukon's mineral industry. Their assistance and patience is sincerely appreciated.

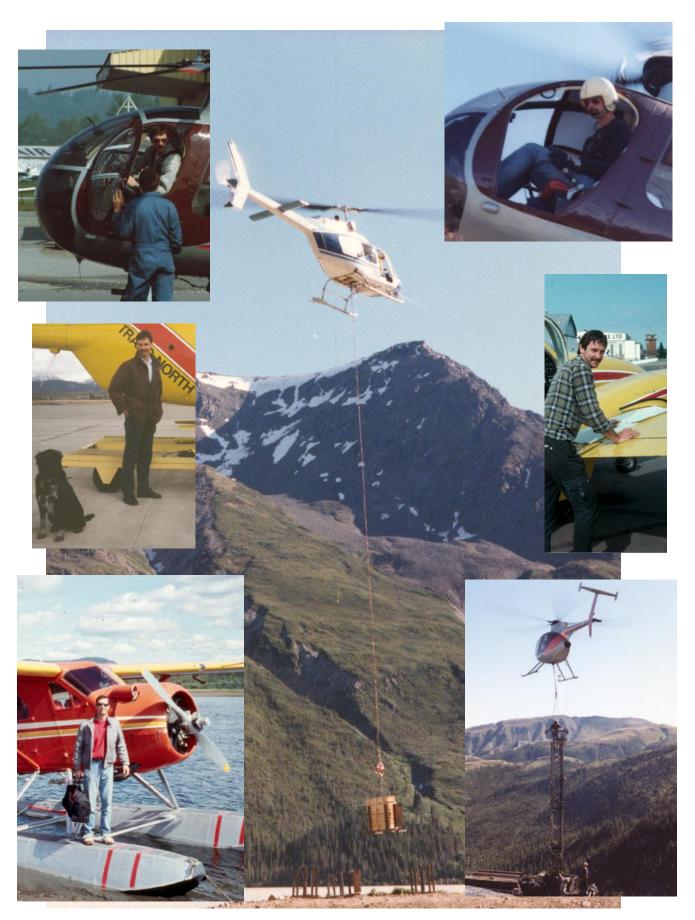
Maurice Colpron of the Yukon Geology Program ably assisted in the translation and review of French abstracts. Danièle Héon also reviewed some French abstracts. Maurice Colpron, Julie Hunt and Charlie Roots critically reviewed several manuscripts. Julie Hunt coordinated the dedication at the beginning of this volume. Sincere appreciation is extended to Leyla Weston for her diligence and enthusiasm in co-editing this volume. Wynne Krangle and Peter Long of K-L Services also 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.

The 2000 volume has four parts. The first – **Mineral Industry** – includes overview of **Mining and Exploration** in the Territory. The second part – **Government** – outlines the activities and organization of the Yukon Geology Program. This section also includes an update on the Yukon Mining Incentives Program, and announcements of the second Mining Land Use Reclamation Awards, the Robert E. Leckie Awards. The third part – **Geological Fieldwork** – contains reports describing regional mapping, and more detailed geological, geochemical, geophysical, geochronological, paleontological, paleomagnetic and placer deposit studies. The last part – **Property Descriptions** – is a collection of geological reports of mineral occurrences with recent exploration advances and is authored by industry and government geologists, as well as university students.

This volume is dedicated to Chris Guichon, a well known, well loved and highly respected helicopter pilot who served many people in the mining and exploration community.

We welcome any input or suggestions that you may have to improve future YEG publications. Please contact me at (867) 667-3203 or by email at emondd@inac.gc.ca.

Diane Emond



Thanks to Trans North Helicopters, Nancy Guichon, Harmen Keyser, Al Doherty, and Roger Hulstein for providing photographs.

Dedication

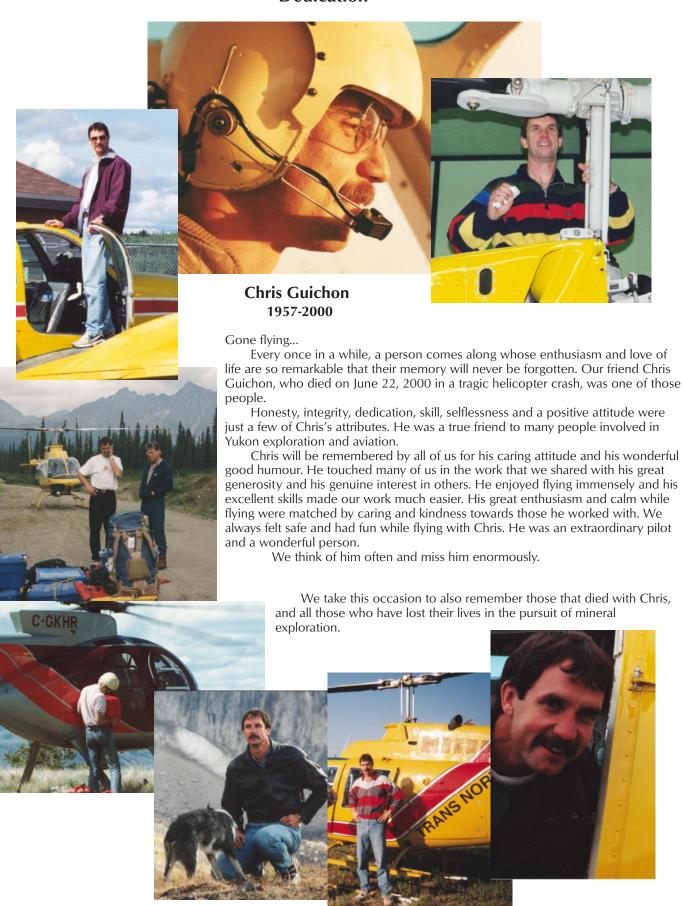




TABLE OF CONTENTS

MINERAL INDUSTRY

Yukon mining and exploration overview, 2000	7
Mike Burke	25
	27
Placer mining overview, 2000	
William LeBarge	29
GOVERNMENT	
Yukon Geology Program	
	33 40
	40
Yukon Mining Incentives Program overview, 2000 Ken Galambos	47
The Robert E. Leckie Award for Outstanding Reclamation Practices Karen Pelletier	49
GEOLOGICAL FIELDWORK	
Preliminary geology of the Pool Creek map area (95C/5), southeastern Yukon T.L. Allen, L.C. Pigage and R.B. MacNaughton	53
Surficial geology and till geochemistry of Weasel Lake map area (105G/13), east-central Yukon J.D. Bond	73
Ancient Pacific Margin - An update on stratigraphic comparison of potential volcanogenic massive sulphide-hosting successions of Yukon-Tanana Terrane, northern British Columbia and Yukon M. Colpron and Yukon-Tanana Working Group	97
Geochemical characterization of Carboniferous volcanic successions from Yukon-Tanana Terrane, Glenlyon map area (105L), central Yukon M. Colpron	111
An alpine peridotite in the Dawson Range, Yukon-Tanana Terrane: Preliminary results and interpretations K.G. Evers, S.T. Johnston and D. Canil	137
Preliminary geology of the southeastern part of Ddhaw Ghro Special Management Area A. Fonseca	147
Regional mineral resource assessment of Cassiar Terrane and eastern Yukon-Tanana Terrane A. Fonseca	155
Placer depositional settings and their ages along Dominion Creek, Klondike area, Yukon D.G. Froese, R.J. Enkin and D.G. Smith	159
Tectonic significance of plutonism in the Thirtymile Range, southern Yukon T. Liverton, M.F. Thirlwall and K.R. McClay1	71

Age and setting of dinosaur trackways, Ross River area, Yukon Territory (105F/15) D.G.F. Long, G.W. Lowey and A.R. Sweet	. 181
The Stewart River placer project, west-central Yukon G.W. Lowey	. 199
Paleomagnetic study of the Late Cretaceous Seymour Creek stock, Yukon: Minimal geotectonic motion of the Yukon-Tanana Terrane P.J.A. McCausland, D.T.A. Symons, C.J.R. Hart and W.H. Blackburn	. 207
Yukon-Tanana Terrane in southwestern Frances Lake area (105H/3, 4 and 5), southeastern Yukon D.C. Murphy	. 217
Distribution of Miles Canyon basalt in the Whitehorse area and implications for groundwater resources F.K. Pearson, C.J.R. Hart and M. Power	. 235
Glass-fission-track ages of Late Cenozoic distal tephra beds in the Klondike district, Yukon Territory. A.S. Sandhu, J.A. Westgate, S.J. Preece and D.G. Froese	. 247
Geology and alteration signature of a Middle Proterozoic Bear River dyke in the Slats Creek map area, Wernecke Mountains, Yukon (106D/16) D.L. Schwab and D.J. Thorkelson	. 257
PROPERTY DESCRIPTIONS	
Geology of the Wolverine polymetallic volcanic-hosted massive sulphide deposit, Finlayson Lake district, Yukon Territory, Canada G.D. Bradshaw, T.L. Tucker, J.M. Peter, S. Paradis and S.M. Rowins	. 269
A structural analysis of the upper Swift River area (105B/3), Yukon, Part I: Dan Zn occurrence and implications for sulphide mineralization L.J.H. D'el-Rey Silva, T. Liverton, S. Paradis and C. Roots	. 289
A structural analysis of the upper Swift River area, southeast Yukon (105B/3), Part II: The TBMB claims and implications for the regional geology L.J.H. D'el-Rey Silva, T. Liverton, C. Roots and S. Paradis	. 301
Felsic metavolcanic rocks at Matt Berry: A new deposit model A. Fonseca	. 311
Structure and stratigraphy of the Marg volcanogenic massive sulphide deposit, north-central Yukon P.M. Holbek, D.A. Copeland and R.G. Wilson	. 319
Geological characteristics of high-level subvolcanic porphyritic intrusions associated with the Wolverine Zn-Pb-Cu volcanic-hosted massive sulphide deposit, Finlayson Lake District, Yukon, Canada S.J. Piercey, J.M. Peter, G.D. Bradshaw, T. Tucker and S. Paradis	. 335
Intrusive-breccia-hosted gold mineralization associated with ca. 92 Ma Tombstone Plutonic Suite magmatism: An example from the Bear Paw breccia zone, Clear Creek, Tintina gold belt, Yukon J.R. Stephens and S. Weekes	. 347

