

SOVIET UNION. Symposium in Golden, Colorado, USA. Sponsored by SEG - Student Chapter, Colorado School of Mines. For information contact: Poul Emsbo, Symposium Chairman, Tel: (303) 273-3859, or c/o Colorado School of Mines, Golden, Colorado 80401, USA.

18 - 21 MODERN STRUCTURAL GEOLOGY IN MINERAL EXPLORATION. Short Course #7 - Mineral Deposit Research Unit. Presented by Dr. Ken McClay, Dr. Tom Calon & Dr. Alasdair Pope. For further information or registration contact: Dr. John Thompson, Director, MDRU, Dept. of Geological Sciences, UBC, 6339 Stores Road, Vancouver, B.C., V6T 1Z4. Tel: (604) 822-5149 FAX (604) 822-6088.

26th CANADIAN MINERAL OUTLOOK CONFERENCE. Westin Hotel, Ottawa, Ont., Canada. Details: Sharon Tipper, Mineral & Metal Commodities Br., EMR Canada, Rm 629, 460 O'Connor Street, Ottawa, Ontario, K1A 0E4. Tel: (613) 992-5199 FAX (613) 992-5893.

#### DECEMBER 1991

6 - 9 NORTH WEST MINING ASSOCIATION ANNUAL MEETING. Spokane, Washington, U.S.A. One of the year's highpoints! Details: NWMA, 414 Peyton Bldg., Spokane, WA 99201. Tel: (509) 624-1158.

9 - 11 14th ANNUAL, ONTARIO GEOLOGICAL SURVEY GEOSCIENCE RESEARCH SEMINAR. Toronto, Ontario. Contact: T. Chin, OGS, 11th Floor, 77 Grenville Street, Toronto, Ont. M7A 1W4. Tel: (416) 965-1546.

11 - 13 ORE DEPOSITS WORKSHOP '91. University of Toronto, Toronto, Ontario. Contact: Dr. A.J. Naldrett, Dept. of Geology, Earth Sciences Centre, U of T, Tel: (416) 978-3030 FAX (416) 978-3938.

## The Gangue

### New Address!

Please note the following new addresses for submitting information to *The Gangue* newsletter.

#### MAIL:

c/o Brian Grant - Editor  
*The Gangue*  
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Victoria, British Columbia, V8W 3R7

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Telephone: (604) 356-1693  
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#### MAY 1992

25 - 27 GAC/MAC ANNUAL MEETING, WOLFVILLE '92. Contact: A. Fricker, Atlantic Geoscience Centre, Bedford Institute of Oceanography, P.O. Box 1006, Dartmouth, N.S. Tel: (902) 426-6759.

#### JANUARY 1992

28 - 31 1992 CORDILLERAN ROUNDUP. Hotel Vancouver, Vancouver, B.C. Major annual meeting of industry, government and the B.C. & Yukon Chamber of mines. For further information contact: Jack Paterson, BC & Yukon Chamber of Mines, 840 West Hastings St., Vancouver, BC, V8C 1C8. Tel: (604) 681-5328 FAX (604) 681-2363.

#### MARCH 1992

29 - April 1 PDAC Annual Convention. Royal York Hotel, Toronto, Ontario. For further information contact the Prospectors and Developers Association, 74 Victoria Street, Suite 1002, Toronto, Ontario, M5C 2A5.

#### MAY 1992

25 - 27 1992 GAC/MAC ANNUAL MEETING. Wolfville, Nova Scotia. For information contact: Aubrey Fricker, Atlantic Geoscience Centre, Bedford Institute of Oceanography, Box 1006, Dartmouth, Nova Scotia, B2Y 4A2. Tel: (902) 426-6759.

#### APRIL 1993

17 - 20 INTEGRATED METHODS IN EXPLORATION & DISCOVERY. 1993 conference in Denver, Colorado. sponsored by Society of Economic Geologists, Society of Exploration Geophysicists, Assoc. of Exploration Geochemists and the U.S. Geological Survey. For information contact: Richard L. Nielsen, 13741 Braun Drive, Golden, Colorado 80401, USA. Tel: (303) 279-3118, FAX (303) 674-3885.

#### MAY 1993

17 - 19 EDMONTON 1993. GAC/MAC Annual Meeting. Edmonton, Alberta. Scheduled for the University of Alberta.

## GEOLOGY OF AUSTRALIA 1:2 500 000-scale Digital Map

The National Resource Information Centre (NRIC) and BMR have produced a digital version of the 1:2 500 000-scale map 'Geology of Australia' (published in 1976) suitable for inclusion in your spatial information system. The creation of this dataset was facilitated by the Australian National Parks and Wildlife Service.

675307  
Calpine  
104B/9W

The dataset comprises five layers scanned directly off the printing layers used in printing the original map. These are:

- bedrock geology, stratigraphic letter symbols, coastline (topographically structured)
- Cainozoic cover (arcs only)
- faults (arc only)
- structures (arcs only)
- lakes (topologically structured)

The 9 Megabyte dataset is available in ARC/INFO format, and is made available to promote the wide and cost effective use of digital data in the analysis and presentation of natural resource information. Enquiries about other formats are welcomed.

The cost for the dataset is A\$200 plus postage & handling charges of A\$20 (over-seas) or A\$15. Further information may be obtained from:

Ian McNaught  
National Resource Information Centre  
PO Box 858, Canberra  
Australia 2601  
Tel: (06) 272-4688 FAX (06) 272-4687

## ESKAY CREEK, B.C. GEOCHEMISTRY & ALTERATION

By Art Ealinger & Tina Roth - MDRU/UBC  
Abstract reprinted from GSA Meeting '91

The Eskay Creek massive sulphide deposit contains a published geologic reserve of 3.95 million tonnes grading 26.40 grams per tonne gold and 998 grams per tonne silver. This resource is divided between the 21A and 21B ore zones which are contained by similar host lithologies but have differing ore mineralogies, gold grades and trace element content. The bulk of reserves are contained within the 21B zone which is being evaluated for production.

The 21A zone is hosted by bimodal volcanic and sedimentary rocks of the Lower Jurassic Hazelton Group. Intercalated andesitic to basaltic flows, hyaloclastite breccia and argillite form the hangingwall to the deposit. At the base of this formation gold-bearing semi-massive sulphide mineralization is contained in a sequence of black argillites, up to 40 metres thick. Footwall rocks are intensely altered and are host to stockwork and disseminated sulphide and gold mineralization. However, abundant devitrification features, high SiO<sub>2</sub> contents (76.8-84.4 wt%), Nb:Y versus Zr:TiO<sub>2</sub> trace element patterns, and the presence of rare quartz eyes, suggest these rocks were originally rhyolites.

Volcanic rocks in the immediate hangingwall exhibit weak propylitic alter-

## CALL FOR PAPERS P&D Association of Canada

The Prospectors and Developers Association of Canada invites Papers for presentation at a special open session to be held during its 1992 Annual PDAC Convention, which will take place from Sunday, March 29 to Wednesday, April 1, at the Royal York Hotel, Toronto.

Abstracts of no more than 200 words on any aspect of mineral exploration or development should be submitted for adjudication by January 10, 1992.

Authors whose abstracts are accepted by the adjudicating committee will be required to submit an extended six-page abstract for publication by February 28, 1992. They will also be asked to make a 20-minute presentation at a session to be held on Tuesday, March 31, 1992. This session is designed to provide an opportunity for individuals in the mineral industry to report on technical matters and will run parallel to the main convention technical session.

Papers should be submitted in triplicate to:

Dr. W.E. Urquhart, Chairman,  
Convention 92 Technical Program  
Prospectors and Developers  
Association of Canada  
74 Victoria Street, Suite 1002  
Toronto, Ontario, M5C 2A5

ation. Argillite units are locally overprinted by euhedral prehnite and calcite crystals which may exhibit a spatial relationship to underlying massive sulphide mineralization. Footwall alteration is characterized by quartz + sericite (illite + muscovite) + pyrite flooding of the rhyolite. Clinocllore is also present underlying stockwork sulphide zones. Pyrobitumen is locally abundant in the 21A zone. In the hangingwall it occurs in interflow argillites and in the matrix to volcanic flow breccia. In the footwall rhyolite, pyrobitumen commonly coats sericite folia. A wide range of reflectance values ( $R_o = 0.81 - 13.98$ ) indicates a variety of hydrocarbon maturity levels.

Gold is associated with a sulphide mineral suite enriched in silver, zinc, arsenic, antimony and mercury; elements usually associated with epithermal gold deposits. Sulphides in the 21A zone exhibit a vertical zonation: cinnabar is present only in the upper portion of the sulphide zone; within and immediately below the semi-massive sulphides, stibnite, realgar and orpiment are most com-

mon. Continuing with depth in the footwall the following assemblages are observed: stibnite (realgar + orpiment absent), pyrite + sphalerite + galena, sphalerite + tetrahedrite + pyrite, and pyrite. Gold has a positive correlation with arsenic and antimony.

Origin of mineralization in the Eskay Creek 21A zone is controversial. Stratiform base metal massive sulphides, an underlying stockwork sulphide zone, and the bimodal volcanic hostrock succession suggest a volcanogenic origin. Epithermal and/or structural processes in the formation of this gold deposit are also being considered.

## Mineral Deposits in Toronto

*Contributed by Ed Freeman*

Mineral deposits emanating and worn from the earth occur in infinite variety. The products of mineral deposits bring us pleasure in such forms as amusement rides and shelter from the stormy vicissitudes of weather and life. To most of us the metals used to cook, eat and shave with, or ride within are the observable products of mineral deposits.

But, what of the slow entrapment of carbon dioxide by sea water and consequent precipitation of calcium carbonate, or the movement of grains of sand by the vagaries of wind and water to form truly immense mineral

deposits? Few people take note of the products of these deposits.

It is true that Monument Valley may remind some of sandstone and a few may connect the lime and cement industries to deposits of limestone. But very few note on their passage through the portals of government and commerce, the natural-stone building materials flanking the entrances.

A small group at the GAC/MAC/SEG meeting in Toronto has endeavoured to raise public awareness of the form, function and beauty of stone deposits. A guidebook and two tours of downtown Toronto buildings were provided during the meeting. Subsequently tours were given to the Toronto Field Naturalists and to a small but dedicated group from the Council on Monuments and Sites (the latter focusing on sandstones). The success of these tours was evident in the tribute paid to the tour leader on asking if there were any questions by those participating - he was presented with stony silence.

You may acquire one of these tour guidebooks, *Building Stone and Historic Structures in Downtown Toronto*, 63 pages plus 22 figures, in a rust-proof spiral-bound booklet. Cost is C\$18, or for international orders US\$18. Cheques should be payable to TORONTO '91.

For copies or information contact:

M. Easton  
Ontario Geological Survey  
Advance Office  
6th Floor, 200 Brady Street  
Sudbury, Ontario, P3A 5W2

## GSC - Vancouver Brown Bag Ore Deposits

*The Geological Survey of Canada in Vancouver sponsors a Brown Bag series of presentations on ore deposits held in the Boardroom, at the back of the Library on the 5th floor of the GSC building, 100 West Pender. Talks are held on Tuesdays, 12 noon, except as noted:*

Oct. 22/91 Environmental Geology at Windy Craggy, by Bruce Downing, *Geddes Resources, Vancouver.*

Nov 5/91 New Discoveries at Buttle Lake, B.C.; by Steve Juras, *Westmin Resources, Campbell River.*

Nov 19/91 Opal - Gem of the Never-Never; by Ron Stokes, *SEMCO, Vancouver.*

Dec 3/91 Working Visit to the USSR Far East on the joint USA-Canada-USSR Terrane Mapping Project.

Jan 14/92 The Thermal, Tectonic and Hydrologic Setting of Mid-ocean Ridge Mineral Deposits; by Earl Davis, *Pacific Geoscience Centre, Victoria.*

Feb 11/92 Hydrothermal Mounds/Altered Sediments, Middle Valley Sedimented Rift, Northern Juan de Fuca Ridge, from ALVIN push cores; by Bob Turner, *GSC, Vancouver.*