

THE MAIN THRUST

NEWSLETTER OF THE STRUCTURAL GEOLOGY AND TECTONICS DIVISION OF THE GEOLOGICAL ASSOCIATION OF CANADA

<http://craton.geol.brocku.ca/ctg.html>

WINTER 2002/03

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The Leading Thrust - A Message from the Chair

It is with the usual trepidation of “what have I got myself into now”, combined with a genuine sense of privilege that I address you as the new SGTD Chair. The changeover, coming as it did mid-year and combined with my wanderings on sabbatical have left me scrambling to get up to speed, and all the recent activities, including this newsletter, owe their success to the outgoing executive and Jürgen Kraus, our new Secretary.

Over the quarter century in which I have been involved with the SGTD, there have been many positive changes, particularly the growth in the breadth of our community to encompass the range of contemporary endeavours associated with structural geology, tectonics and earth deformation. Nevertheless, there are numerous less welcome issues facing the earth science community – demographics, research funding, sense of direction – to which we can make a contribution by maintaining a robust, active division that is seen to be so by the GAC. At the Autumn Meeting at Tyax, we discussed improving and increasing membership services i.e. what one gets from the SGTD, in the form of student support, awards, conference/meeting sponsorship and special projects. The basis for success with these activities is the financial strength to carry them through – leveraging activities *requires* financing *requires* membership.

We already have several activities on which we can build the divisional profile within GAC and the structure community, and it is my aim to enlist as many members as possible in contributing with these. The executive and some councilors have informally discussed a few ideas, and plan to have some of these forthcoming in the near future. For now, I would remind everyone to check the Special and Technical Sessions that SGTD is sponsoring at Vancouver'93. The Spring issue of **The Main Thrust** is scheduled for March.

Executive and Council Members

The October 2002 SGTD meeting (held as is traditional at the CTG Workshop) undertook to fill empty Executive and Councilor positions. Joe White (University of New Brunswick) was elected Chair and, likewise, Jürgen Kraus (Shell Canada, Calgary) Secretary. Andrew Okulitch (GSC Vancouver) agreed to continue as, and was acclaimed, Treasurer. Executive members stepping down after a year-long extension of their terms are Larry Lane (GSC Calgary), Chair and Dennis Johnston (Devon Canada, Calgary) Secretary. We thank them for their efforts on behalf of the Division and their willingness to step up when needed.

Jim Ryan (GSC Vancouver) was elected as a new Council member. A full listing of Executive and Council Members will be provided on the Web site.

2002 Financial Report

Balance, 31 Dec 2001:	\$ 6863.79
Bank charges:	- 2.40
Meeting catering:	- 72.23
Address list revisions:	- 300.00
Final 2001 dues:	+ 165.00
2002 Dues to come from GAC	<u>+ 795.00</u>
Balance, 31 Dec 2002:	\$ 7449.16

SGTD 2002 Prizes

David Elliott Best Paper Prize

Ioannis Koukouvelas, Georgia Pe-Piper, David J.W. Piper, "The role of dextral transpressional faulting in the evolution of an early Carboniferous mafic-felsic plutonic and volcanic complex: Cobequid Highlands, Nova Scotia, Canada", Tectonophysics, Volume 348, pp.219-246, April 29th 2002.

Koukouvelas et al. present a rigorous examination of the relationship between deformation and magmatism along the Cobequid Shear Zone. This is an important paper conceptually: the intuitive relationship between deformation and magmatism is notoriously hard to nail down scientifically. Specifically, they detail good field relationships to show coeval deformation and magmatic activity; often it is hard to prove that the deformation did not occur later. This paper also presents good supporting geochronological, geochemical, stratigraphic, and structural evidence with arguments that cogently strengthen their case. Congratulations to Ioannis Koukouvelas, Georgia Pe-Piper and David J.W. Piper for a job well done!

We would also like to acknowledge Culshaw and Bhatnagar's paper, The interplay of regional

structure and emplacement mechanisms at the contact of the South Mountain Batholith, Nova Scotia: floor-down or wall-up? CJES, 38: 1285-1299, as a very strong runner-up for the award.

Jury: D. Johnston/A. Okulitch

2002 Best Paper Short List:

Nick Culshaw, P. Bhatnagar 2001. The interplay of regional structure and emplacement mechanisms at the contact of the South Mountain Batholith, Nova Scotia: floor-down or wall-up? CJES, 38: 1285-1299.

Ross, G.M. 2002. Evolution of Precambrian continental lithosphere in Western Canada: results from Lithoprobe studies in Alberta and beyond. CJES, 39: 413-437.

Tremblay, A. and Castonguay, S. 2002. Structural evolution of the Laurentian margin revisited (southern Quebec Appalachians): Implications for the Salinian orogeny and successor basins. Geology, 30: 79-82.

Huismans, R.S. and Beaumont, C. 2002. Asymmetric lithospheric extension: The role of frictional plastic strain softening inferred from numerical experiments. Geology 30, 211-214.

Knoop, S. R., Kennedy, L. A. Dipple, G. M. 2002. New evidence for syntectonic fluid migration across the hinterland-foreland transition of the Canadian Cordillera; Journal of Geophysical Research, 10.1029/2001JB000217 (17 April 2002).

Richard Horne, Nicholas Culshaw 2001. Flexural-slip folding in the Meguma Group, Nova Scotia, Canada. Journal of Structural Geology, v. 23 (10), p. 1631-1652

Laurent Godin, R.R. Parrish, R.L. Brown, K.V. Hodges 2001. Crustal thickening leading to exhumation of the Himalayan Metamorphic core of central Nepal: Insight from U-Pb geochronology and ⁴⁰Ar/³⁹Ar thermochronology. Tectonics, v. 20 (5), p. 729-747.

Ioannis Koukouvelas, Georgia Pe-Piper, David J.W. Piper 2002. The role of dextral transpressional faulting in the evolution of an early Carboniferous mafic-felsic plutonic and volcanic complex: Cobequid Highlands, Nova Scotia, Canada, Tectonophysics, v. 348, p.219-246.

Shaocheng Ji, Zichao Wang, Richard Wirth 2001. Bulk flow strength of forsterite-enstatite composites as a function of forsterite content. Tectonophysics, v. 341, p.69-93.

Jack Henderson Prizes for Best M.Sc. and Ph.D. Theses

Five M.Sc. theses and one Ph.D. theses were submitted for the award categories best Ph.D. and M.Sc. thesis, respectively. We decided (again) not to give out the award for the best Ph.D. thesis this year because of lack of competition, but we will consider the thesis by Hai Tran (University of Regina; Kathy Bethune) next year. The five M.Sc. thesis contenders were:

- Colin Card (University of Regina; Kathy Bethune)
- Ryan Fraser (University of Calgary; Deborah Spratt)

- Michelle Haskin (Simon Fraser University; Peter Mustard)
- Steven Hinds (University of Calgary; Deborah Spratt)
- Andrew Parmenter (University of Waterloo; Shoufa Lin)

Two theses stood out and it took the jury (D. Johnston/J. Kraus) some effort to arrive at a decision. The winner is Michelle Haskin, with the title

Stratigraphic affinity and tectono-stratigraphic significance of the Late Albian volcanic rocks in the Empire Valley - Churn Creek area, south-central British Columbia.

Michelle L. Haskin, Simon Fraser University, November 2000

Supervisor: Dr. Peter S. Mustard

This courageous thesis merits recognition for tackling the Baja B.C. controversy head on! An array of structural, stratigraphic, geochronological, geochemical and paleomagnetic data present a strong, solid challenge to the assertions of paleomagnetic studies indicating ~2000 km of northward displacement of the Insular Superterrane relative to the western Intermontane Superterrane. The strongest element of this thesis is that it challenges the Baja B.C. hypothesis on its own turf, in an area that might be considered the "type location" in south-central B.C. (along the Fraser Fault). Michelle presents similar stratigraphic relationships and correlations across the Fraser Fault which indicate <500 km of displacement. This Baja B.C. "type location" has become a geological flashpoint because resolution of the Baja B.C. controversy here will have ramifications for the study of other orogens where large strike-slip movements have been proposed largely on the basis of paleomagnetic data. Michelle presents an excellent outline of the salient issues of the controversy and with good illustrations and a well-structured thesis she nicely dovetails her data and interpretations into the ongoing controversy. Congratulations Michelle.

Runner up in this photo finish is Andrew Parmenter, who investigated "The structural evolution of the Pipestone Lake area in the Cross Lake Belt, Northwestern Superior Province". The area has extremely complex structural and metamorphic histories and Andrew did a terrific job in unravelling these. It should also be mentioned that many of the drafted figures in both theses are of textbook quality. Well done!

Report on the 22nd Annual Canadian Tectonics Group Workshop Tyax Lodge, Goldbridge, BC 18-20 October 2002

The 22nd annual meeting of the Canadian Tectonic Group (CTG) was held October 18-20th, 2002 in the Goldbridge area, in the eastern side of the Coast Mountains of southern British Columbia. The meeting and field trip was attended by a small but enthusiastic group of 16 people. All were treated to a series of excellent talks and posters, superb geology, and truly spectacular autumn weather and scenery. The meeting was organized by Dr. Lori Kennedy (University of British Columbia), with help from graduate students at the beautiful Tyax

Mountain Lake Resort. The abstract volume for the meeting is available online, at the SGTD/CTG Website (<http://craton.geol.BrockU.CA/ctg/html/>). The field trip, led by Paul Schiarizza and Lori Kennedy, focused on the Bridge River subduction/accretion complex. The field trip, scenery and accommodation are well illustrated in series of marvelous photographs by Bob Stesky and Jennifer Pell, posted on the CTG Website. The first day of the field trip involved everyone, while a smaller group stayed on in Lillooet for an additional day. Sincere compliments are due Lori and Paul for mounting a great meeting and field trip.

Vancouver 2003

Retirement Celebration for R.L. Brown Wednesday May 28th, 9:00-11:00 pm

Special Sessions sponsored by SGTD

SS7 Beaufort-Mackenzie Region: Niger of the North? – L.S. Lane, D.H. Johnston

SS8 Reactivation Tectonics in the Cordilleran Foothills – L.S. Lane, G.S. Stockmal

SS24 Orogenic Hinterlands: Windows into Mid-Crustal Tectonic Processes. A Special Session to Honour the Career of Richard Brown – D. Murphy, L. Lane, S. Carr

Upcoming Meetings of Interest

International Conference on "Deformation Mechanisms, Rheology and Tectonics " St. Malo France 14-16 May 2003 <http://www.geosciences.univ-rennes1.fr/DRT2003/>

EGS-AGU-EUG Joint Assembly Nice, France 06 - 11 April 2003 <http://www.copernicus.org/egsagueug/>

GAC/MAC Vancouver BC 25-28 May 2003 <http://www.vancouver2003.com>

CSPG/CSEG Convention Calgary, AB 02-06 June 2003 <http://www.cspg.org>

Canadian Tectonics Group Fall 2003 Organizer: Shoufa Lin, University of Waterloo

GSA Annual Meeting Seattle, WA 02-05 November 2003 <http://www.geosociety.org/meetings/>