

32nd Actuarial Research Conference

August 6 - 8 , 1997

The University of Calgary

Calgary, Alberta , Canada

Hosts :

*The Education & Research Section of the Society of Actuaries and
The University of Calgary*

Sponsoring Organizations :

*Actuarial Education and Research Fund
American Academy of Actuaries
American Society of Pension Actuaries
Canadian Institute of Actuaries
Casualty Actuarial Society
Colegio Nacional de Actuarios
Conference of Consulting Actuaries
Society of Actuaries*

Local Contributing Sponsors :

*Actuarial Club of Alberta
Aon Consulting Inc.
Crown Life Insurance Company
William M. Mercer Limited*

*Department of Mathematics and Statistics, University of Calgary
Faculty of Science, University of Calgary
The Actuarial Science Program, University of Alberta*

Pacific Institute for the Mathematical Sciences

Conference Coordinator :

*David P.M. Scollnik
Associate Professor, University of Calgary*

Acknowledgements

The organizers of the 32nd Actuarial Research Conference gratefully acknowledge :

- The financial support received from the local actuarial community through the :

Actuarial Club of Alberta

- Additional financial support received from these members of the local industry :

Aon Consulting Inc. (Calgary, Alberta)

Crown Life Insurance Company (Regina, Saskatchewan)

William M. Mercer Limited (Calgary, Alberta)

- The financial support received from these academic bodies :

The University of Calgary

The Department of Mathematics and Statistics

The Faculty of Science

The University Research Grants Committee

The University of Alberta

The Actuarial Science Program

Pacific Institute for the Mathematical Sciences

- The assistance of campus Conference Management Services staff :

Susan Austen, Shirley Bierkos, Margaret-Anne Stroh

Conference Coordinator

David P.M. Scollnik, Associate Professor, University of Calgary

Program for the 32nd Actuarial Research Conference

All conference sessions will be in the Professional Faculties Building, room 164, unless otherwise indicated.

A "*" denotes a presenting author.

Wednesday, August 6, 1997

REGISTRATION : 8:00 a.m. to 1:00 p.m., in the Professional Faculties Building, outside room 162.

Opening : Wednesday, 1:00 - 1:15 p.m.

David P.M. Scollnik, *The University of Calgary*

"Welcome to the 32nd Actuarial Research Conference"

Robert E. Woodrow, *Associate Dean (Research) of Science, The University of Calgary*

"Welcome to The University of Calgary"

Session I : Wednesday, 1:15 - 2:55 p.m.

Moderator : David P.M. Scollnik

ACTUARIAL MODELLING

1:15 p.m. **Bruce Jones**, *University of Western Ontario*

"A Model for Analyzing the Impact of Selective Lapsation on Mortality"

1:40 p.m. **Margie Rosenberg ***, and **Jenny Young**, *University of Wisconsin - Madison*

"A Flexible Model for Time-Dependent Data"

2:05 p.m. **Emiliano A. Valdez ***, and **Edward W. (Jed) Frees**, *University of Wisconsin - Madison*

"Understanding Relationships Using Copulas"

2:30 p.m. **Arnold F. Shapiro ***, **Thomas A. Defilippo**, **Katharine J. Phinney**, and **Jing Zhang**,
Penn State University

"Technologies Used in Modelling"

Refreshment Break : Wednesday, 2:55 - 3:15 p.m.

Session II : Wednesday, 3:15 - 5:00 p.m.

Moderator : Warren R. Luckner

DEMOGRAPHY . . .

3:15 p.m. **Robert L. Brown**, *University of Waterloo*

"Is Social Security Regressive ?"

3:40 p.m. **Anna Rappaport**, *William M. Mercer Incorporated*

"Challenges of an Aging Society"

4:05 p.m. **Esther Portnoy**, *University of Illinois at Urbana-Champaign*

"Recent Trends in Race-Specific Mortality Rates"

& ECONOMICS / FINANCE

4:30 p.m. **Virginia R. Young**, and **Mark J. Browne**, *University of Wisconsin - Madison*

"Equilibrium in Competitive Insurance Markets Under Adverse Selection and Yaari's Dual Theory of Risk"

Reception : Wednesday, 6:30 - 8:30 p.m.

University Club, MacEwan Student Centre, 4th Floor

LATE REGISTRATION : Outside the University Club

Thursday, August 7, 1997

REGISTRATION : 7:30 a.m. to 1:00 p.m., in the Professional Faculties Building, outside room 162.

Session III : Thursday, 8:15 - 9:55 a.m.

Moderator : Arnold F. Shapiro

PENSIONS . . .

8:15 a.m. **Claire Bilodeau**, *University of Waterloo*

"The Ownership of the Pension Plan Surplus Using Cooperative Game Theory"

8:40 a.m. **Jacques F. Carriere**, *University of Alberta*

"New Salary Functions for Pension Valuations"

9:05 a.m. **Zaki Khorasanev ***, *City University*

Ho Kuen Ng, *San Jose State University*

"A Retirement Plan Based on Fixed Accumulation and Variable Accrual"

& ANNUITIES

9:30 a.m. **Matt Hassett**, *Arizona State University*

"Data Analysis for the Society of Actuaries' 'Safest Annuity Rule' Research Project :
Implications for the Education of Actuarial Students"

Refreshment Break : Thursday, 9:55 - 10:15 a.m.

Session IV : Thursday, 10:15 - 11:55 a.m.

Moderator : Richard W. Gorvett

ECONOMICS / FINANCE

10:15 a.m. **Mary Kelly**, *University of Calgary*

"Multiple Period 'Rothschild-Stiglitz' Insurance Contracts"

10:40 a.m. **Julia Lynn Wirch**, *University of Waterloo*

"Value-at-Risk for Risk Portfolios"

11:05 a.m. **Steve Craighead**, *Nationwide Life Ins. Co.*

Mark Tenney *, *President, Mathematical Finance Company*

"Economic Scenario Generator for Insurance and Pension Rational Decision Making Under Uncertainty"

11:30 a.m. **Sarah L.M. Christiansen ***, and **Kelley Buchacker**, *The Principal Financial Group*

"Stability of Representative Pricing Scenarios"

Lunch : Thursday, 12:00 noon - 1:20 p.m.

Blue Room, Dining Services

*This lunch is sponsored by representatives of the local actuarial industry :
Actuarial Club of Alberta, Aon Consulting Inc., Crown Life Insurance Co., & William M. Mercer Limited.*

Luncheon Address by **Anna M. Rappaport**, President-Elect of the Society of Actuaries :
"Issues and Challenges Facing the Society of Actuaries"

Session V : Thursday, 1:30 - 3:10 p.m.

Moderator : Virginia R. Young

A POTPOURRI OF ACTUARIAL TALKS

- 1:30 p.m. **Robert W. Butcher**, *posthumously*
Cecil J. Nesbitt *, *Professor Emeritus, University of Michigan*
Marjorie V. Butcher, *Trinity College and University of Michigan*
"An Unfinished Thesis from the 1950's"
- 1:55 p.m. **Geoffrey Crofts**, *Bloomfield, Connecticut*
"Karup-King Formula with Unequal Intervals"
- 2:20 p.m. **Edward W. (Jed) Frees** *, and **Robert B. Miller**, *University of Wisconsin - Madison*
"Designing Effective Graphs"
- 2:45 p.m. **Elias Shiu**, *University of Iowa*
"Annuity Coefficients Explained"
-

Refreshment Break : Thursday, 3:10 - 3:30 p.m.

Session VI : Thursday, 3:30 - 4:30 p.m.

Warren Luckner, *Director of Research, Society of Actuaries*

"Work of the SoA Research Effectiveness Task Force (and Your Input)"

Bar and Banquet : Thursday, 6:00 p.m. - dawn (?)

Heritage Park Historical Village

Dress is casual, wear your cowboy boots if you've got them.

We will be outside for part of the time, so bring along a light jacket in case the evening turns cool.

Buses leave promptly at **5:30 p.m.** from in front of the Professional Faculties Building !

Friday, August 8, 1997

Session VII : Friday, 8:30 - 9:55 a.m.

Moderator : Jacques F. Carriere

DISTRIBUTION AND RISK THEORY . . .

8:30 a.m. **Louis Doray**, *University of Montreal*

"Estimators of the Regression Parameters of the Zeta Distribution"

8:50 a.m. **Hoque Sharif**^{*}, *Drake University*

H. H. Panjer, *University of Waterloo*

"Stepwise Recursions for a Class of Compound Lagrangian Distributions"

9:10 a.m. **X. Sheldon Lin**^{*}, *University of Iowa*

Gordon E. Willmot, *University of Waterloo*

"A Solution of Defective Renewal Equations with Applications to Ruin Theory"

9:30 a.m. **Vladimir Kalashnikov**, *Institute of Systems Analysis, Russian Academy of Science*

"Bounding and Asymptotic Behaviour of Ruin Probabilities in Collective Risk Theory"

Refreshment Break : Friday, 9:55 - 10:15 a.m.

Session VIII : Friday, 10:15 - 11:55 a.m.

Moderator : Curtis Huntington

ECONOMICS / FINANCE

10:15 a.m. **B. John Manistre**, *Crown Life Insurance Co.*

"A Geometric Approach to Exact Solutions in Finance and Actuarial Science"

10:40 a.m. **Richard W. Gorvett**, *University of Illinois at Urbana-Champaign*

"The Dynamic Financial Analysis of Property-Liability Insurance Companies"

11:05 a.m. **Lijia Guo**, *Ball State University*

"The Mollification Analysis of Stochastic Volatilities"

11:30 a.m. **Sam Cox**^{*}, and **Hal Pederson**, *Georgia State University*

"Catastrophe Risk Bonds"

Lunch : Friday, 12:00 noon - 1:20 p.m.

Blue Room, Dining Services

*This lunch is partially sponsored by members of the actuarial academic community at :
The University of Calgary and The University of Alberta.*

Discussion led by **Robert L. Brown**, University of Waterloo :

"The New SoA Examination process"

Session IX : Friday, 1:30 - 2:30 p.m.

Nancy Behrens, *Chairperson, Continuing Education Coordinating Committee of the SoA*

"Continuing Education and the Academic Community"
