Peter Wall Institute for Advanced Studies

Annual Report
2000-2001

The Peter Wall Institute for Advanced Studies supports basic research through interdisciplinary initiatives that have the potential to make important advances in knowledge. The Institute brings together researchers from The University of British Columbia with distinguished scholars from around the world to conduct fundamental research drawing upon and contributing to a wide range of diverse disciplines. The Institute aims to create a community of scholars, composed of outstanding researchers across the whole campus, who will contribute significantly to the intellectual life of The University. Of overriding concern in all Institute activities is excellence in research characterized by being fundamental, interdisciplinary, innovative, and unique.

Peter Wall Institute for Advanced Studies

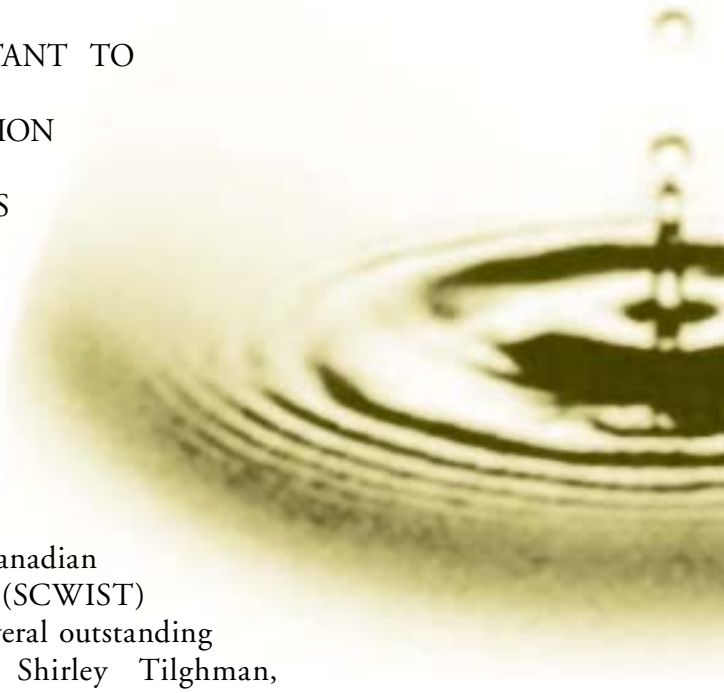
Annual Report 2000 – 2001

(July 1, 2000 – June 30, 2001)

Table of Contents

Director's Message

THE MOST SIGNIFICANT NEWS OF THIS YEAR WAS, UNFORTUNATELY, VERY SAD. IN OCTOBER 2000, MICHAEL SMITH, THE PETER WALL DISTINGUISHED PROFESSOR OF BIOTECHNOLOGY AND 1993 NOBEL LAUREATE IN CHEMISTRY, PASSED AWAY. HE HAD BEEN ACTIVE ON MANY FRONTS, INCLUDING CONTRIBUTING TO THE INSTITUTE, UNTIL THE WEEK OF HIS DEATH. MICHAEL WAS VERY IMPORTANT TO THE INSTITUTE—HIS AFFILIATION HONOURED US AND HIS INVOLVEMENT AS CHAIR OF OUR ADVISORY COMMITTEE PROVIDED INVALUABLE ASSISTANCE. HE IS GREATLY MISSED.



In April 2001 the Society for Canadian Women in Science and Technology (SCWIST) held a conference in his honour. Several outstanding scientists participated including Shirley Tilghman, Princeton University; Geraldine Kenney-Wallace, British Aerospace; Julia Levy, QLT Inc.; Claire Tomlin, Stanford University; and Janet Rossant, Samuel Lunenfeld Institute. Michael had been a strong supporter of encouraging women in science and had allocated a significant portion of his Nobel Prize proceeds to these activities. The Wall

Institute was pleased to be a primary sponsor of the SCWIST conference.

The Peter Wall Distinguished Professors program was the first program of the Institute initiated in 1994. The death of Michael and the resignation, reported last year, of Raffi Amit has caused us to re-assess this program in light of current needs and financing. A decision about continuing this program, and the form it might take, to maximize the benefit to the Institute and to the University will be taken next year.

Over the past year we have strengthened our emphasis on our residential programs, especially the ones involving younger scholars. In summer 2000 we had two cohorts of Visiting Junior Scholars, one in July and one in August. Both groups embodied the excitement of interdisciplinary exchange on which the program was founded. The representation of disciplines and nationalities was even more diverse than it had been in 1999, the first year of the program. The geographical representation included Australia, Austria, Belgium, Canada, Germany, Italy, New Zealand, Russia, and the United States. The disciplinary diversity is shown in the table below. An unanticipated follow-up is that in April 2001, Fabio Rossi, a Molecular Biologist from Italy (by way of Stanford), was appointed at UBC to a Canada Research Chair.

Ken MacCrimmon, Director
Peter Wall Institute
for Advanced Studies

This year also marked the gathering of young researchers at UBC who had been selected for the new Early Career UBC Scholars program. There were two cohorts; ten scholars in the Assistant Professor group and six scholars in the Associate Professor group. Their term started with a two-day weekend retreat for each group in September. At these sessions each participant described his or her research to the others. This introductory session was followed by further meetings of the two cohorts separately as well as combined meetings. At these meetings, participants worked together in developing possible joint research proposals, debated many important scholarly issues, and read and discussed major research pieces. They also met with top level UBC administrators. The accompanying table shows the diverse departmental affiliations of the Visiting Junior Scholars and the UBC Early Career Scholars.

	Visiting Junior Scholars Summer 2000	UBC Early Career Scholars 2000-2001
Humanities and Social Sciences	Cognitive Psychology Economics Geography Law Linguistics Literature Political Science Social Psychology Sociology Women's Studies	Cognitive Psychology Education Geography Journalism Linguistics Nursing Political Science Social Psychology Sociology
Sciences and Engineering	Civil Engineering Computer Science Marine Biology Molecular Biology Oceanography	Botany Computer Science Electrical Engineering Geology Immunology Mathematics/Zoology Medical Genetics

As the prior descriptions and table should make clear, a major change in emphasis at the Institute has been to increase support of outstanding junior researchers. By bringing together scholars from a wide variety of disciplines early in their careers, a basis is being created for a different mind set – one oriented toward reaching out beyond one's own discipline. It should be re-emphasized that there is no overarching theme for (any subset of) these groups; it is up to the participants themselves to develop research connections. For the Visiting Junior Scholars, I hope that not only is a network of (disciplinary and geographical) diverse participants being created but also that they will take a message back to their home institutions that such broad exchanges are productive. Within UBC, my hope is that a sense of a University community is being built that will make this an attractive scholarly environment to keep people working productively here and encourage continued interactions. Furthermore, in looking ahead a number of

years, I hope the University might be a different place after hundreds of its top researchers have had these experiences early in their careers.

Imagination is more important than knowledge. Knowledge is limited. Imagination encircles the world.

Albert Einstein

At the more senior level, the Distinguished UBC Scholar in Residence program was active. The year 2000 Scholars arranged a series of interesting workshops as their contributions to the intellectual life of the Institute. William Hsieh had a series on "Atmosphere and Ocean Modelling", Pat Marchak's topic was "Truth, Justice, Accountability and Reconciliation in Societies Emerging from Crimes Against Humanity", Peter Suedfeld's focus was "Autobiographical Narrative and Memory" and John Willinsky organized "Alternative Models of Scholarly Publishing". In the competition for the next year's positions, we continued to have excellent applicants. For the year 2001 program, after a challenging selection process, four outstanding appointments were made: Anthony Barrett (Classical, Near Eastern & Religious Studies), John Wilson Foster (English), Dale Rolfsen (Mathematics) and Linda Siegel (Educational & Counselling Psychology and Special Education). This group has been particularly active in meeting on a regular basis to share ideas.

Imagination is the beginning of creation. You imagine what you desire, you will what you imagine and at last you create what you will.

George Bernard Shaw

After Michael Smith's death, we initiated a program of using his Institute office on a rotating basis for Faculty Associates of the Institute. Any Associate can apply to use it for a three month period during the year; the selection is made randomly. This policy allows new blood into the group of Scholars in Residence and provides Associates with a chance to have a closer physical connection. The program started in January and so far Patrick Keeling (Botany) and Stephen Ward (Journalism) have been in residence here.

The active program of Associates' gatherings was continued. Every two weeks, alternating lunch and dinner, available Associates came to the Institute for a specially prepared meal from the Sage Bistro, followed by a presentation by an Associate. We had 22 wide-ranging talks during the year with about 60% of them being Arts-oriented and the remainder being more on the Science side. We now have 134 Associates and 75% of them came to at least one talk. In addition to the talk itself, the gatherings provide an opportunity for the Institute to keep in regular contact with

the outstanding researchers on campus and allow for informal discussions across the broad diversity of disciplines. This is the only forum for a regular research exchange across all disciplines on campus.

Things were also very active on the Thematic side. In summer 2000 we selected the Acoustic Ecology proposal initiated by Kathy Pichora-Fuller (IHEAR, Audiology & Speech Sciences) for funding as a Major Thematic Grant (MTG). This will provide the group with $500,000 over the next three years. After a thorough assessment from our own Adjudication Committee, the project was reviewed by ten outstanding experts from five countries and they commented on its innovative nature and quality. The first two Major Thematic Grants (Crisis Points and Electron Motion) came to a successful conclusion. The two MTGs funded last year, "Pathogenomics" and "Narratives of Disease, Disability & Trauma", continued productively.

Four important Exploratory Workshops took place over this period. Two were grounded in political science and two in genetics.

While we had applications for both the Major Thematic Grant program and Catalytic Visitor program in the October 2000 and March 2001 competitions, the Adjudication Committee decided that none of the proposals sufficiently met the stringent criteria for the programs and so none were funded.

A Trustee-based initiative, arranged by the University administration, provided for the transfer of funds to support a year-long position in the Faculty of Law for the retiring Chief Justice of British Columbia, Allan McEachern, as Peter Wall Distinguished Fellow in Law.

The Institute is facing a financial crunch due to the lack of dividends on the donated Wall Financial Corporation shares. Our only source of revenue on the Peter Wall Endowment is from share dividends now that short-term assets have been sold off. In addition to the revenue shortfall, the ten-year loan, set up at the time of the initial endowment to pay off debt on the shares, has come due and $5.5 million needs to be paid to the University. For the first time, the budget from the Peter Wall Endowment had to be prepared contingent on various levels of funding, and

When the great innovation appears, it will almost certainly be in a muddled, incomplete form. To the discoverer himself it will be only half understood; to everyone else it will be a mystery. For any speculation which does not at first glance look crazy, there is no hope.

Freeman Dyson

only the lowest tier budget was approved by the Trustees. The Hampton Endowment, which primarily supports the thematic programs, generates predictable revenues and continues as before.

Programs

THE PROGRAMS OF THE INSTITUTE CAN BE GROUPED INTO TWO BROAD CATEGORIES: THEMATIC AND RESIDENTIAL. THEMATIC PROGRAMS INVOLVE ESTABLISHING AN OVERALL RESEARCH THEME IN WHICH SCHOLARS WITH THE RELEVANT EXPERTISE ARE GATHERED TOGETHER.

The first thematic program is the Major Thematic Grant which provides funding of up to $500,000 over three years to a broadly-based multi-disciplinary team. The program was announced in 1994 but the first award was not made until 1996.

In 1997, an Exploratory Workshop program was developed to lead into the Major Thematic Grant. The Exploratory Workshops provide funding for top UBC researchers to come together with outstanding experts from around the world to explore the possibilities of developing a research agenda in a new field. This allows the UBC participants to draw upon, and perhaps draw in, the most outstanding researchers worldwide.

The Catalytic Visitor program has similar objectives to the Exploratory Workshops, bringing UBC and international experts together, but it has a somewhat different form. Exploratory Workshops generally involve a group of 5-10 international experts being brought in for a workshop of several days' duration whereas the Catalytic Visitor program focuses on bringing in one visitor for one or two academic terms. The underlying rationale is that in some cases the research endeavour is better served by having a single person brought in to provide leadership over an extended period.

The Theme Development Workshops are the fourth thematic program. These sessions involve making our facilities available on an informal basis to groups of UBC

faculty who want a focal point for attracting colleagues to work with them in the initial stages of probing a thematic topic. It should be noted that all of these thematic programs are of a "bottom up" form, in that UBC faculty are encouraged to propose the thematic topic that they want to work on – the themes are not created as fundable topics by the Institute itself.

The difficulty lies, not in the new ideas, but in escaping old ones, which ramify, for those brought up as most of us have been, into every corner of our minds.

John Maynard Keynes

In contrast to the "thematic programs" which use specific topics as focal points for drawing in the researchers who are interested in working together on those topics, we have "residential programs" which bring together outstanding people who may have no direct connections among their research areas. The basic premise underlying the residential programs is that unexpected and exciting things can happen through the interaction of outstanding researchers who are committed to exchanging ideas with each other.

The residential programs are designed to support and encourage outstanding scholars at various stages of their careers and take a variety of forms. The Distinguished Professorships, the first of the residential programs to be established, recognize the most outstanding senior UBC researchers. The award is the most prestigious Professorship at the University. As such, these appointments are given rarely; to date there have been only two. The Distinguished Professorships have been for an indefinite term.

The Distinguished Scholars in Residence program is an annual competition for senior Researchers at UBC. Applications from top UBC faculty are accepted each summer with the appointments being made in the fall for the coming calendar year. Selection is based not only on the excellence of the candidate's research attainments but also on their match with the mandate of the Institute and the commitment they are prepared to make to the intellectual life of the Institute. Those selected are expected to use the Peter Wall Institute as their primary research office for the term of their residency.

The summer of 2000 marked the second year of the Visiting Junior Scholars program. This program brings together outstanding young international scholars at the very start of their careers for an intensive one month summer residency at the Institute. Candidates are nominated by UBC academic units in late fall of the preceeding year. Nominees

can have no previous connection to UBC and must be within three years of having received their PhD. In summer 2000 we had two cohorts, one in July and one in August.

This year was the first for our Early Career UBC Scholars program. Developed from a perceived need to bring together outstanding Assistant Professors and Associate Professors from diverse disciplines at UBC, this program selects top researchers who might otherwise not have the opportunity to connect with each other. Participants are chosen for their outstanding research potential, and for how well they fit the Institute's goals of fostering basic, interdisciplinary research. Nominations for this program are accepted at the beginning of a calendar year and selections are made in the Spring for a one-year term starting in September.

The scope of the programs differs as shown in the following table.

DURATION	THEMATIC PROGRAMS	RESIDENTIAL PROGRAMS
Years	Major Thematic Grant	Distinguished Professors
Months	Catalytic Visitors	Distinguished Scholars in Residence; Early Career UBC Scholars
Days	Exploratory Workshops	Visiting Junior Scholars
Hours	Theme Development Workshops	Associates Gatherings; Weekly Colloquia

Major Thematic Grants

The Major Thematic Grant (MTG) provides funding of $500,000 over a three-year period to an interdisciplinary team of UBC and external scholars pursuing research in a new area. This research must be basic, and have the potential to provide new theoretical knowledge. Applications are accepted from UBC faculty in the spring and fall of each year, and are first appraised by an internal Adjudication Committee drawn from top researchers in all Faculties at UBC and then short-listed proposals are evaluated by at least ten international external experts. It is expected that MTG applicants will have first applied for and received an Exploratory Workshop, or Catalytic Visitor grant, or the equivalent.

Basic research may seem very expensive. I am a well-paid scientist. My hourly wage is equal to that of a plumber, but sometimes my research remains barren of results for weeks, months or years and my conscience begins to bother me for wasting the taxpayer's money. But in reviewing my life's work, I have to think that the expense was not wasted. Basic research, to which we owe everything, is relatively cheap when compared with other outlays of modern society. The other day I made a rough calculation which led me to the conclusion that if one were to add up all the money ever spent by man on basic research, one would find it to be just about equal to the money spent by the Pentagon this past year.

Albert Szent-Györgyi

Project Updates

This year marked the conclusion of the Institute's first two major thematic grants, *"Crisis Points and Models of Decision"* and *"Electron Motion in Matter"*. Two grants awarded in 1999, *"Pathogenomics: An Interdisciplinary Approach for the Study of Infectious Disease"*, and *"Narratives of Disease, Disability and Trauma"* continued and we awarded our fifth major thematic grant in July 2000 to the project *"Acoustic Ecology"*.

The *"Crisis Points"* project, led by Cindy Greenwood (Mathematics, UBC), was the first major thematic award by the Institute. In many ways this project exemplified the two key elements of the Institute's research focus: interdisciplinarity and a focus on basic as opposed to applied research. Crisis Points brought together UBC and international researchers in Mathematics, Geography, Epidemiology, Psychology, Earth & Ocean Sciences, Zoology, Physics, Philosophy, and Atmospheric Sciences. We were very sorry to say goodbye to PI Cindy Greenwood this year as she took up a position in the Mathematics Dept. at Arizona State University. Phil Austin, Geography and Earth & Ocean Sciences, an original member of the Crisis Points core team, took over as PI for the project.

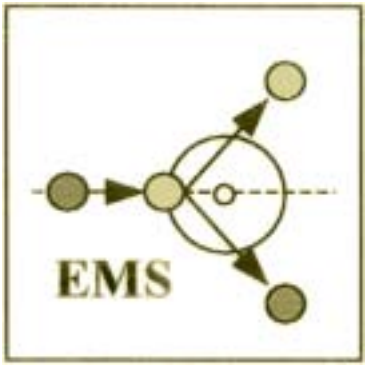
This year the Crisis Points team continued its program of bi-weekly meetings under the auspices of the Complexity Seminar sub-group. In addition, the following sub-groups of the Crisis Points project have continued to meet and explore research and analysis in their respective fields: stochastic resonance; stochastic models in epidemiology, ecology and survival dynamics; stochastic atmospheric dynamics; synchronization in population cycles; and avalanche research.

New this year was the work of the Stochastic Atmospheric Dynamics sub-group on their project "Observations and models of cloud variability". This research is looking at new ways of estimating cloud properties (thickness, droplet size) from satellite images, building on hierarchical Bayesian models of physical processes with noise; following on the work of Doug Nychka's group at the National Center for Atmospheric Research. The group is also analyzing the scaling behaviour of satellite images and atmospheric models, focussing on "anomalous" scaling, which provides

information on the underlying physical processes governing variability (advection/diffusion, precipitation, etc.).

A first draft of a Crisis Points book (untitled) was prepared with contributions from all the core members. A copy of the book draft and of papers and book chapters of Crisis Points group members are available on the project's website at www.geog.ubc.ca/crpoints.

"Understanding Electron Motion In Matter: Orbital Imaging of Biomolecules, Transition Metal Complexes, Chemically Reactive Species and Condensed Matter", with Principal Investigator Chris Brion (Chemistry, UBC), was the Institute's second major thematic award. This year the project published four reports on its research:



#15 – "An investigation of the frontier orbital electron density of the antibacterial agent urotropine by electron momentum spectroscopy";

#16 – "An investigation of the homo frontier orbital electron density distribution of NH_3, the methyl amines and NF_3 using DFT and electron momentum spectroscopy";

#17 – "Imaging of orbital electron densities by electron momentum spectroscopy – a chemical interpretation of the binary (e,2e) reaction"; and

#18 – "Electron densities for the outer valence orbitals of pyridine: Comparison of EMS measurements with near Hartree-Fock limit and density functional theory calculations."

The Electron Motion in Matter project's third annual symposium was held at the Institute on September 25. A list of the presentations can be found in Appendix A.

The ***"Pathogenomics, An Interdisciplinary Approach in the Study of Infectious Disease"*** project, Principal Investigator Ann Rose (Medical Genetics, UBC), is in its second year. The approach of this project is anchored in the fact that, as part of the infection process, many pathogens make use of host cellular processes. The underlying hypothesis here is that some pathogen genes involved in such processes will be more similar to host genes than would be expected (based on phylogeny or motifs). The Pathogenomics researchers are attempting to identify such genes by applying specific

bioinformatic and evolutionary analysis tools to sequenced genome datasets, and further examining such genes in the laboratory (both the pathogen gene and a homologous model host gene). It is anticipated that this approach will reveal new mechanisms of pathogen-host interaction.

Pathogenomics is also investigating other features associated with virulence factors and developing a program to facilitate computational identification of such features in pathogen genomes. The team is building databases of all their information, based on the increasing number of pathogen genomes that have been, or are currently being, sequenced. These databases will be made publicly available. As an aid to this project, the project has developed a new sequence analysis tool, PhyloBLAST, and has made it publicly available. PhyloBLAST enables the users to compare a protein sequence to a SWISSPROT/ TREMBL database using BLAST, and also allows them to perform user-defined phylogenetic analyses based on selected proteins listed in the BLAST output. It also contains other notable features such as the inclusion of organism name and "domain classification" information in the BLAST and phylogenetic outputs.

The project and its website were profiled in a recent issue of *Current Opinion in Microbiology* (Vol. 4, No. 1, February 2001). Among the articles published by Pathogenomics researchers this year were:

- Brinkman, F.S.L., E.L.A. Macfarlane, P. Warrener, and R.E.W. Hancock. 2001. "Evolutionary relationships amongst virulence-associated histidine kinases." *Infection and Immunity.* 69:5207-11. Medline Link.
- Brinkman, F.S.L., I. Wan, R.E.W. Hancock, A.M. Rose and S.J. Jones. 2001. "PhyloBLAST: Facilitating phylogenetic analysis of BLAST results." *Bioinformatics.* 17: 385-387. Medline Link.
- de Koning, A.P., F.S.L. Brinkman, S.J. Jones, and P.J. Keeling. 2000. "Lateral gene transfer and metabolic adaptation in the human parasite Trichomonas vaginalis." *Molecular Biology and Evolution.* 17:1769-1773. Medline Link. (See also a commentary article in *Science* that discusses this further.)

The core researchers for the Pathogenomics project are: Ann Rose (PI, Medical Genetics), Youssef Av-Gay (Infectious Diseases), David Baillie and Fiona Brinkman (Molecular

That is the essence of science: ask an impertinent question, and you are on the way to a pertinent answer.

Jacob Bronowski

Pathogenomics Project research team. Ann Rose, Principal Investigator, third from left.

Biology & Biochemistry, Simon Fraser U.), Robert Brunham (Centre for Disease Control), Artem Cherkasov (Genome Sequence Centre), Julian Davies and Rachael C. Fernandez (Immunology & Microbiology), B. Brett Finlay (Biotechnology), Robert Hancock (Dir., Centre for Microbial Disease Research), Steven J. Jones (Genome Sequence Centre), Patrick Keeling (Botany), Iain Taylor, Don Moerman and Sarah Otto (Zoology), and B. Francis Ouellette (Centre for Molecular Medicine and Therapeutics). A list of presentations and invited talks by Pathogenomics project researchers in 2000-2001 can be found in Appendix A. For further information on the Pathogenomics project visit the web site at www.pathogenomics.bc.ca/.

This was also the second year for the Major Thematic Grant ***"An Interdisciplinary Inquiry into Narratives of Disease, Disability and Trauma",*** Principal Investigator Valerie Raoul (Centre for Research in Women's Studies of Gender Relations, and French, UBC). The program of research in the Narratives project is concerned with individual narratives (in various forms) and the larger cultural narratives of which they are a part. The ways in which health and disease, disability and trauma are constructed and represented are being examined from comparative cross-cultural, trans-historical and interdisciplinary perspectives. The project team includes researchers in literary analysis and narrative theory, social sciences and health sciences.

The research is undertaken through a series of sub-groups: visual narratives, issues of access/ excess, homesickness, caregiver narratives, and Bauby– *The Butterfly and the Diving Bell.* Narratives of diverse origins are being studied, including written and oral, film, dance, photography, art, installations and artifacts. Special attention is being given to the aesthetic dimensions of such representations in relation to the therapeutic and polemic effects of telling and reading such narratives. Personal narratives are juxtaposed with the individual or collective narratives of those who treat people undergoing these experiences, or who live with and care for them.

Not everything that counts can be counted, and not everything that can be counted counts.

Albert Einstein

The Narratives project hopes to contribute to the understanding of experiences of illness, disability and trauma, as well as of their cultural and social significance. It is expected that the results will demonstrate the relations between epistemological, aesthetic, ethical, political, therapeutic and pragmatic aspects of these narratives. The elaboration of a transdisciplinary approach to the study of such narratives will contribute to the theory of narrative, to methodological debates, to discussion of the bioethical and policy issues raised, and in a later stage to more appropriate therapeutic interventions. Also part of the outcomes of this project is the development of a bibliography and videography.

Principal UBC researchers in the Narratives project are Valerie Roaul (PI, Centre for Research in Women's Studies & Gender Relations and French, Hispanic & Italian Studies), Connie Canam (Nursing), Isabel Dyck (Rehabilitation Sciences), Susanna Egan (English), Janice Graham (Anthropology & Sociology), Angela Henderson (Nursing), Gloria Onyeoziri (French, Hispanic & Italian Studies), Susan Penfold (Psychiatry), Judy Segal (English), and Patricia Vertinsky (Educational Studies).

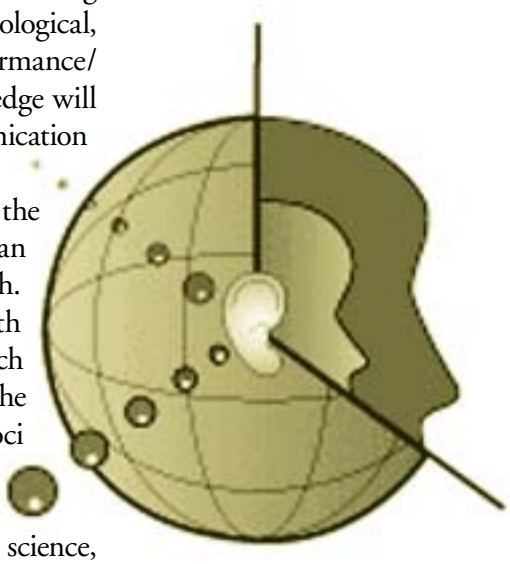
A list of Narratives project lectures and presentations for this year can be found in Appendix A. For further information about the Narratives project visit the website at www.wallnarratives.pwias.ubc.ca/.

New Major Thematic Award

This was the first year for the Major Thematic Grant ***"Acoustic Ecology",*** Principal Investigator Kathy Pichora-Fuller (Director, Institute for Hearing Accessibility Research, and School of Audiology & Speech Sciences). This project developed from a very successful PWIAS Exploratory Workshop held in 1999.

The overall goal of the Acoustic Ecology project is to understand how humans of all ages, who have either normal or impaired hearing, listen in the realistic situations they encounter in everyday life. The research team aims to incorporate new knowledge about how people process auditory information into a more general cognitive science model that accounts for how multi-modal sensory inputs (auditory, visual) are coordinated during perception and production of

sound. To be complete, such a meta-model will also need to take into account how information processing is modulated by the demands or constraints associated with the social and physical context. Understanding how people process information will enable researchers to define and measure 'successful' listening and to design environments in terms of physical, technological, and social features to enhance or facilitate the performance/ experience of the listeners in everyday life. This knowledge will also inform the design of human-computer communication where the computer acts as the listener.



This project is entitled Acoustic Ecology because the term captures the new conceptual approach to human auditory information processing underlying the research. The project builds on traditional disciplinary research with the key novel feature that the interdisciplinary research reinstates the listener to the listening context. Thus the acoustic ecology research approach takes traditional foci (e.g., audiology, linguistics, musicology, neuroscience, psychology, otolaryngology) and adds research focusing on the physical environment (architecture, computer science, engineering) and the social situations (anthropology, sociology, education, gerontology) in which the listening occurs.

Perception researchers study how physical stimuli from sources in the environment are processed (physiologically by organisms or computationally by machines) such that particular experiences (states) or behaviours (actions) result. Two research approaches are the psychophysical and the Gestalt. Psychoacousticians study hearing by determining how listeners respond to artificially simple stimuli in which specific physical dimensions are manipulated independently; indeed many stimuli used in these experiments do not occur naturally. In contrast, Gestalt psychologists study how listeners respond to intact examples of natural sounds. The latter approach has greater ecological validity, but to date it has not yielded quantitative models. A more productive intermediate approach in the study of speech perception has been the analysis-by-synthesis approach in which complex natural sounds have been modified or synthesized to determine which aspects of the sound pattern cue particular responses.

Just as post-war electronics enabled analysis-by-synthesis research, at the present time computer speed and memory are

It is folly to use as one's guide in the selection of fundamental science the criterion of utility. Not because (scientists)… despise utility. But because… useful outcomes are best identified after the making of discoveries, rather than before.

John C Polanyi

now sufficient to enable us to adopt an analysis-by-synthesis type approach to study how listeners respond to a complex array of cues that are present in real acoustic environments. The same computational tools that enable researchers to record and systematically manipulate dimensions of complex stimuli (virtual reality) also enable researchers to create computational models that are closer approximations of biological systems (neural networks). The re-focusing of research in this project from hearing to listening reflects the more general shift in cognitive science from modular to integrated views of the brain and behaviour.

The core UBC researchers in the Acoustic Ecology Project are: Kathy Pichora-Fuller (PI, IHEAR, Audiology & Speech Sciences), Andre-Pierre Benguerel, Barbara Bernhardt, Dan Paccioretti, Rusen Shi and Jeff Small (Audiology & Speech Sciences); Bill McKellin (Anthropology & Sociology); Max Cynader (Brain Research Centre); Kelly Booth and Dinesh Pai (Computer Science); Sid Fels and Charles Laszlo (Electrical & Computer Engineering); Bryan Gick (Linguistics); Murray Hodgson (Mechanical Engineering and Occupational Hygiene); Pierre Zakarauskas (Ophthalmology); Alan Kingstone and Janet Werker (Psychology); and Janet Jamieson (Educational & Counselling Psychology and Special Education).

On March 3, Acoustic Ecology along with the Brain Research Centre and the Vancouver Hospital held a conference on "The Listening Brain". In addition the project has held a number of public talks. Details on these events can be found in Appendix A. Further details on the Acoustic Ecology Project can be found at the project website at www.cs.ubc.ca/%7Ekvdoel/acel/acel.html.

Fall 2000 Major Thematic Competition

At the October Thematic Competition two Major Thematic Grant applications were received. The Adjudication Committee decided not to proceed with either project.

Spring 2001 Major Thematic Competition

No Major Thematic Grant applications were received at the March competition.

- - -

Catalytic Visitor Program

This program brings to UBC a distinguished external scholar who serves as a focal point for gathering a team of UBC faculty and other external scholars to investigate a new research agenda. The program runs for one or two academic terms. The core applicants must commit to working together during the visit and to carry the research forward. The amount of the award is from $50,000 to $75,000. There are two deadlines annually, March 1 and October 1.

At the March 1, 2001 competition, one Catalytic Visitor application was received. After careful consideration the Adjudication Committee decided not to fund it.

Exploratory Workshops

The Exploratory Workshops program supports interdisciplinary teams of outstanding UBC researchers who wish to investigate the potential for developing a research agenda around a new theme. The Institute's workshop grant allows the team to bring to UBC, for what is typically a three or four day period, the top international experts in the field to collaborate on exploring research possibilities. The terms of PWIAS Exploratory Workshops grants require that a majority of the proceedings be open to the University community. At the Fall 2000 Thematic Competition five Exploratory Workshop applications were received. The Adjudication Committee chose two for awards. At the Spring 2001 competition twelve applications were received and seven were selected for awards. The following five Exploratory Workshops were held this year.

"Threats to Democracy in Latin America". **Principal Investigator Maxwell Cameron (Political Science, UBC). November 3 – 4, 2000.**

This workshop analysed five threats to the quality of democracy in Latin America. The first threat to democracy is centralized power in the executive branch of government. Lawless executives,

I'm all in favor of the democratic principle that one idiot is as good as one genius, but I draw the line when someone takes the next step and concludes that two idiots are better than one genius.

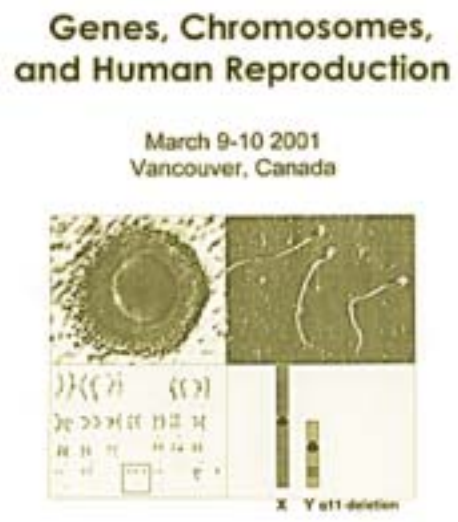
Leo Szilard

especially when they are popular and backed by the military, can destroy democratic institutions. Moreover, when the executive acts illegally it turns the military into a deliberative institution. This is the main source of impunity and the single greatest threat to the rule of law in Latin America. The second threat to democracy is when the rule of law is undermined. Judicial subordination turns judges into pawns in a political chessboard, and weakens the constitutional basis of the democratic state. A vital element of democratic government is the ability of citizens to oversee political authorities. Social movements are beginning to emerge around the issues of police abuse and crime. Third is the threat to basic rights and freedoms. In a number of Latin American countries the state is unable to provide protection for basic rights and freedoms including due process, access to justice, respect for religious freedom and tolerance, or even the minimal educational levels necessary to enjoy these rights and freedoms. Fourth, democracy is threatened when systems of political representation and citizenship are inadequate. There has been an observable weakening of parties, legislatures, and other representative institutions in Latin America. Thus one needs to explore the relationship between party systems and social actors, as well as the historical and gendered nature of citizenship in the region. Last is the threat to democracies when indigenous peoples are excluded. We know little about indigenous community organizations and identities, and the relationship between these communities, the state and other social actors—including, for example, non-governmental organizations. Can indigenous communities achieve representation, political autonomy and recognition within the framework of the liberal rights, identities, and citizenship norms established by new democratic states?

The workshop debates moved the discussion of democratization studies from the narrow topic of transitions to democracy to the broader topic of understanding conditions for democratic consolidation. A central part of the discussion was a critical assessment of Guillermo O'Donnell's thesis that electoral democracy implies two things: fair and institutionalized elections, and a set of broader political rights and freedoms which form the basis for such elections. New Latin American democracies have regular elections but the conditions necessary to ensure that they are fair and institutionalized are only "feebly, partially or intermittently fulfilled."

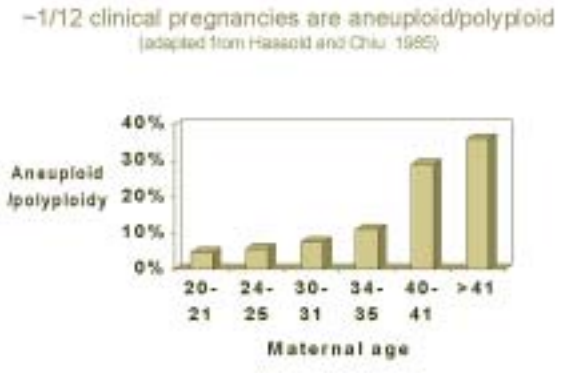
The principal UBC participants in the workshop were: Maxwell Cameron (Political Science); Patricia Marchak and Blanca Muratorio (Anthropology & Sociology); Roderick Barman and Bill French (History); Rita de Grandis and Daniel Scarfo (French, Hispanic & Italian Studies); and Juanita Sundberg (Geography). External participants included Anthony Gill (Political Science, U. of Washington); Jim Handy (History, U. of Saskatchewan); Guillermo O'Donnell (Kellogg Institute, U. of Notre Dame); Jose Fernandez (U. Nacional de Costa Rica); Maria Liar Garcia-Guadilla (U. Simon Bolivar); Lisa North (Political Science, York U.); Kenneth Roberts (Political Science, U. of New Mexico); and Jorge Leon (CEDIME).

"Genes, Chromosomes, and Human Reproduction". **Principal Investigators Wendy Robinson, Carolyn Brown (Medical Genetics, UBC), and Mary Stephenson (Obstetrics & Gynecology, UBC). March 9 – 10, 2001.**



Nearly one in 10 couples has difficulty in either conceiving or maintaining a pregnancy to term. The known causes are heterogeneous and it is often difficult to diagnose a specific cause of infertility or recurrent pregnancy loss in any particular case. This produces an enormous emotional burden for the couple, as well as a financial burden to the health care system. More and more couples are resorting to expensive assisted reproduction technologies without a full understanding of the cause of their infertility and their chance of success. Furthermore, chromosome abnormalities are reportedly increased in pregnancies resulting from in vitro fertilization techniques using intra-cytoplasmic sperm injection (ICSI), a technique developed particularly to overcome male-factor infertility. It is important to determine the source of these abnormalities, as the use of these techniques is rapidly increasing.

The high rate of chromosome abnormalities in humans is a major contributor to low fertility and it is estimated that up to 25% of all human conceptions are chromosomally abnormal. Some individuals may be at increased risk of infertility or recurrent pregnancy loss because of either a genetic or an environmental factor (including maternal age) causing a predisposition to chromosome errors. Identifying such individuals would be



important in assessing the reproductive options (and the associated risks) available to them. Furthermore any predisposition to chromosome segregation errors may also be important in risk for cancer, as such errors are typically a precursor step in tumorigenesis. Genetic factors may also be important in explaining recurrent pregnancy loss which is not associated with aneuploidy.

The goal of this workshop was to bring together researchers from different fields with a common interest in the role of genetic and environmental factors affecting human reproductive success including infertility, recurrent pregnancy loss, and in vitro fertilization techniques. The workshop met its two objectives: to exchange ideas through seminar presentations and informal social gatherings; and to develop collaborative research projects involving the diverse range of expertise present at UBC and externally.

UBC participants in the Genes, Chromosomes and Human Reproduction Workshop included: Carolyn Brown, Wendy Robinson, Jill Furnival, and Laura Abour (Medical Genetics); Sai Ma and Mary Stephenson (Obstetrics & Gynaecology); Peter Lansdorp (Hematology); and Dagmar Kalousek (Pathology). External participants were: Stephanie Sherman (Emory U.); Claudine Torfs (Public Health Institute, Emeryville, CA); Dorothy Warburton (Columbia U.); Scott Hawley (UC Davis); Patricia Hunt and Terry Hassold (Case Western Reserve U.); Renee Martin (U. of Calgary); Carole Ober (U. of Chicago); and Bert Scoccia (U. of Illinois, Chicago).

There is no adequate defense, except stupidity, against the impact of a new idea.

Percy Bridgman

"The International Ethics Of Security". **Principal Investigators Brian Job (Director, Institute of International Relations, and Political Science, UBC), and Robert Jackson (Political Science, UBC). April 5 – 7, 2001.**

The degree of human suffering that is associated with organized violence in our world has stimulated scholars and practitioners of world affairs to rethink the idea of security, to re-define and re-conceptualize how security impinges upon our world. We are now pressed to ask: who or what is properly the recipient of security? What does it mean to be secure? With whose security are we concerned? And, who is responsible for providing security? Thinking about these questions may suggest that

security refers to something more than the safety of particular political communities we call sovereign states. Hence we might more profitably think of security as referring to a perspective, a lens, or a unique vantage point, all of which are directed toward issues of gender, children, organized crime, health, economics, culture, welfare, development, the environment, the dangerous 'other', or some other non-state matter. Thus, it is now common to speak not only of national security, but of 'economic' security, 'environmental' security, 'gender' security, or 'human' security. But while the extension or broadening of the idea of security may yield new insights, it also raises a whole new set of theoretical, conceptual, and practical questions. Is security merely the sum of these many sectors? Does including security issues once marginal to the study of world affairs drain them of any intelligible meaning? And how are statespeople to pursue and implement this new security agenda in a society of states that still values the principles of political independence and non-interference?

It is not the strongest of the species that survive, nor the most intelligent, but the one most responsive to change.

Charles Darwin

The purpose of this very topical workshop was to interrogate the normative assumptions and moral justifications of the theory and practice of security, and its relation to war, international law, sovereignty, trusteeship, diversity, human rights, democracy, great powers, the law of war, self-determination, imperialism, diplomacy, globalization and the environment. Security is, above all else, a fundamental human value; it is a value whose meaning springs from beliefs about human relations and how human beings ought to treat one another. Thus, the idea of security expresses a moral idea. In exploring the international ethics of security the workshop researchers aimed at identifying and articulating a major research agenda, tentatively entitled 'Human Security in a World of States'. In the shorter term, the result of the workshop will be the publishing of the revised and edited workshop papers.

UBC participants in the workshop included: William Bain, Mickey Fabry, Kalevi Holsti, Robert Jackson, Brian Job, Paul Marantz, Allen Sens, and Mark Zacher (Political Science); George Egerton (History); and Patricia Marchak (Anthropology & Sociology). External participants were: David Clinton (Political Science, Tulane U.); Claire Cutler (Political Science, U. of Victoria); John Darwin and Andrew Hurrell (Nuffield College, U. of Oxford); Jack Donnelly (School of International Studies, U. of Denver); Carl Hodge (Political

Science, Okanagan U. College); Cindy Holder (Philosophy, U. of Arizona); Jennifer J. Peerce (European Institute, LSE); David Long (School of International Affairs, Carleton U.); James Mayall (Director, Centre for International Studies, Cambridge U.); Cornelia Navari (Political Science, U. of Birmingham); Cathay Nolan (International History Institute, Boston U.); Adam Roberts (International Relations, Balliol College, U. of Oxford); Sasson Sofer (International Relations, Hebrew U.); George Sorensen (Political Science, Aarhus U.); and David Welch (Political Science, U. Toronto).

The difference between what the most and the least learned people know is inexpressibly trivial in relation to that which is unknown.

Alvert Einstein

"The Social and Moral Dimensions of Hereditary Risk and Genetic Testing: Creating a Framework for Comparative Analysis". **Principal Investigators Michael Burgess (Chair, Biomedical Ethics, Centre for Applied Ethics and Medical Genetics, UBC), and Susan Cox (Centre for Applied Ethics, UBC). June 2 – 6, 2001.**

The central question put to the participants in this workshop was "What are the most salient issues for individuals and families at risk for hereditary disease and how can their experiences best inform research and theory?" By posing this question, the organizers sought to define a precise focus for the workshop. There was some debate among the participants as to whether the focus was in fact too narrow; specifically, that it was important to study scientists and clinicians working in a variety of domains (industry, research laboratories, patent offices), as well as at-risk individuals and families. Further, clinicians' attitudes, media and marketing strategies, as well as activism by non-profit disease societies, influence which diseases are viewed as 'good' candidates for genetic testing.

Comparative studies of the experience of hereditary risk and genetic testing may be approached in a number of ways, and the consensus coming out of this workshop was that it was important to: avoid a simplistic causal model of evaluating the effects of genetic testing; recognize important macro or structural constraints on experiences, institutions and research; sustain a realistic appraisal of funding opportunities and policy reform; and utilize a comparative framework or matrix as a checklist for planning research across categories and coordinating comparative analysis.

Specific outcomes of the workshop included expansion of the organizers' UBC based research group, preparation of several major grant applications, formation of new international research collaborations and publication of two papers.

UBC participants in the Hereditary Risk and Genetic Testing Workshop were: Michael Burgess and Sue Cox (Centre for Applied Ethics); Joan Bottorff and Sally Thorne (Nursing); Janice Graham and William McKellin (Anthropology & Sociology); Susan Harris (Rehabilitation Sciences); Anne Martin-Matthews (Social Work); and Laura Arbour and Barbara McGillivray (Medical Genetics).

External participants included: Diane Beerson (Sociology, California State U.); Peter Conrad (Sociology, Brandeis U.); Sarah Cunningham-Burley (Public Health Sciences, U. of Edinburgh); Claudia Downing (U. of Cambridge); Carl Elliott (Centre for Bioethics, U. of Minnesota); Kaja Finkler (Anthropology, U. of North Carolina); Nina Hallowell (Institute of Cancer Research, London); Pat Kaufeert (Community Health Sciences, U. of Manitoba); Anne Kerr (Sociology, U. of York); Emily Kolker (Sociology, Brandeis U.); Abby Lippman (Epidemiology and Biostatistics, McGill U.); and Martin Richards (Centre for Family Research, U. of Cambridge).

Disciplines, like nations, are a necessary evil that enable human beings of bounded rationality to simplify their goals and reduce their choices to calculable limits. But parochialism is everywhere, and the world badly needs international and interdisciplinary travelers to carry new knowledge from one enclave to another.

Herbert Simon

"Performance, Gender and the Narrative Design of the Ramayana". **Principal Investigator Mandakranta Bose (Director, Centre for India & South Asia Research, Institute of Asian Research, UBC). June 15 – 16, 2001.**

This workshop came about as a direct result of the highly successful "Mediating Cultures: The Foundational Role of the Ramayana in South and Southeast Asian Societies" Exploratory Workshop held at the Institute in June 2000. This second meeting allowed researchers to come together for a more narrowly-focused workshop. The sessions addressed two distinct but related questions: how performance traditions of the Ramayana create different epistemologies; and how narrative variants and ideas of gender relate to one another. Although the participants could not examine all of the many performative or textual traditions of the Ramayana, its selective focus did allow for considerable illumination of the landmarks in both traditions and help in understanding the different but intertwined ways in which the epic has provided

South and Southeast Asia's many cultures with models for understanding the world. The workshop program included a public performance of Rama tales at the UBC Museum of Anthropology.

Principal UBC participants in the workshop were: Madakranta Bose (Director, Centre for India & South Asia Research, and Classical, Near Eastern & Religious Studies); and Vidyut Aklujkar (Asian Studies). The external participants included Phillip Lutgendorf (U. of Iowa); Heidi Pauwels (U. of Washington); Bruce Sullivan (Northern Arizona U.); Sally Sutherland Goldman (UC Berkeley); V. N. Rao (U. of Wisconsin); and Paula Richman (Oberlin College).

- - -

Theme Development Workshops

These informal meetings allow researchers to meet with colleagues from a variety of disciplines to share initial ideas on researching particular themes. The Institute provides the meeting venue and a light lunch. Applications can be made at any time. Recent workshops included:

Culture and Cognition, coordinated by Darrin Lehman (Psychology) on September 6, 2000.

Blood Research, coordinated by Don Brooks (Pathology and Chemistry, and Coordinator of UBC CFI Office) on October 3, 2000.

Pain Research, coordinated by Ken Craig (Psychology) and Peter Soja (Pharmaceutical Sciences) on October 10, 2000.

- - -

Weekly Colloquia

These talks are usually held during the lunch hour in the Institute's conference rooms. The Institute provides accommodation for a visiting speaker and a luncheon for up

to twelve guests. Applications by departments, Faculties and other academic units may be made at any time during the year. This year the Institute sponsored the following speakers:

Peter Tillers, Cardozo Law School, Yeshiva U., spoke on the topic ***The Architecture of Reasoning about Factual Issues in Legal Proceedings*** on September 8, 2000.

Ron T. Brown, Department of Paediatrics, Associate Dean for Health Professions, Medical U. of South Carolina, spoke on the subject ***Paediatric Psychology Research and Psychological Oncology: What Do We Know and Where Do We Go?*** on September 15, 2000.

Patricia Parker, Department of English & Comparative Literature, Stanford U., gave a talk on ***Mulberries, Moors and More: Discourses of Race and Other Early Modern Subjects*** on September 22, 2000.

Carla Zecher, Director of Renaissance Studies, Newberry Library, gave a talk entitled ***Of Flutes, Courtiers, and Conduct in Renaissance France*** on September 29, 2000.

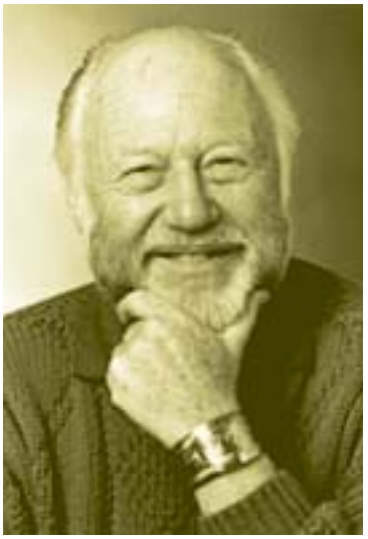
Keith Bradley, Department of Greek and Roman Studies, U. of Victoria, gave a talk on ***Fictive Families: Family and Household in Apuleius'*** **Metamorphoses** on October 13, 2000.

Brian Skyrms, Distinguished Professor of Logic, Philosophy of Science and Economics, U. of California at Irvine, spoke on the subject ***Evolution of the Social Contract*** on February 2, 2001.

Barbara Kennedy, Sr. Lecturer, Department of Geography, U. of Oxford, spoke on the subject ***Darwin and Valleys*** on February 27, 2001.

Barry Schwartz, Dorwin Cartwright Professor of Social Theory and Social Action, Department of Psychology, Swarthmore College, gave a talk entitled ***The Tyranny of Choice: Why More is Less*** on April 27, 2001.

Peter Wall Distinguished Professors



Michael Smith–On October 4, 2000 Michael Smith, Peter Wall Distinguished Professor of Biotechnology and Chair of the PWIAS Advisory Committee, died of leukaemia. In the Director's message at the beginning of this Annual Report, we describe how much his association honoured and helped the Institute. Reproduced below is material drawn from the Nobel Prize citation, his subsequent autobiographical comments, and a partial list of his awards.

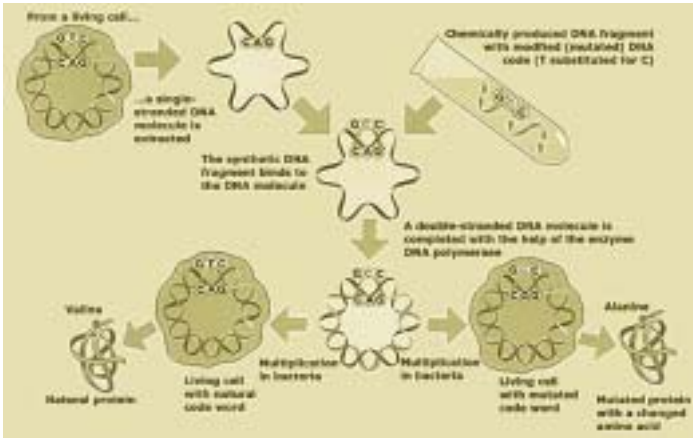
On October 13, 1993, the Royal Swedish Academy of Sciences issued the following announcement:

The Royal Swedish Academy of Sciences has decided to award the 1993 Nobel Prize in Chemistry for contributions to the development of methods within DNA-based chemistry, with half to **Dr Kary B. Mullis**, La Jolla, California, U.S.A., for his invention of the polymerase chain reaction (PCR) method, and half to **Professor Michael Smith,** University of British Columbia, Vancouver, Canada, for his fundamental contributions to the establishment of oligonucleotide-based, site-directed mutagenesis and its development for protein studies.

The chemical methods that Kary B. Mullis and Michael Smith have each developed for studying the DNA molecules of genetic material have further hastened the rapid development of genetic engineering. The two methods have greatly stimulated basic biochemical research and opened the way for new applications in medicine and biotechnology. The genetic code programmed into the DNA molecule determines the number and sequence of amino acids in a protein, and thus also the functional properties of the protein. With Smith's method it is possible to re-programme the genetic code and in this way replace specific amino acids in the proteins. This is termed site-directed mutagenesis. The possibilities of studying the structure and function of the protein molecules have changed fundamentally, and hence also the possibilities of constructing proteins with new properties. Attempts are being made, for example, to improve protein stability so that proteins can manage technical processes, to

tailor antibodies so that they can attack cancer cells and to alter proteins to create faster-growing crop strains. The term protein design has already become a concept.

… [A] dream of biochemical researchers has been to alter a given code word in a DNA molecule so as to be able to study how the properties of the mutated protein differ from the natural. It was through Smith's oligonucleotide-based site-directed mutagenesis that this dream became reality. As early as the 1970s Smith learned to synthesize oligonucleotides, short, single-strand DNA fragments, chemically. He also studied how these synthetic fragments could bind a virus to DNA. Smith then discovered that even if one of the letters of the synthetic DNA fragment was incorrect it could still bind at the correct position in the virus DNA and be used when new DNA was being synthesized. At the beginning of the 1970s Smith was a visiting researcher at Cambridge and the story goes that it was during a coffee-break discussion that the idea arose of getting a reprogrammed synthetic oligonucleotide to bind to a DNA molecule and then having it replicate in a suitable host organism. This would give a mutation which in turn would be able to produce a modified protein. In 1978 Smith and his co-workers made this idea work in practice. They succeeded both in inducing a mutation in a bacteriophagic virus and "curing" a natural mutant of this virus so that it regained its natural properties. Four years later Smith and his colleagues were able for the first time to produce and isolate large quantities of a mutated enzyme in which a pre-determined amino acid had been exchanged for another one.



Site-directed mutagenisis reprograms DNA

Smith's method has created entirely new means of studying in detail how proteins function, what determines their three-dimensional structure and how they interact with other molecules inside the cell. Site-directed mutagenesis has without doubt revolutionised basic research and entirely changed researchers' ways of performing their experiments. The method is also important in biotechnology, where the

concept protein design has been introduced, meaning the construction of proteins with desirable properties. It is already possible, for example, to improve the stability of an enzyme which is an active component in detergents so that it can better resist the chemicals and high temperatures of washing water. Attempts are being made to produce biotechnically a mutated haemoglobin which may give us a new means of replacing blood. By mutating proteins in the immune system, researchers have come a long way towards constructing antibodies that can neutralise cancer cells. The future also holds possibilities of gene therapy, curing hereditary diseases by specifically correcting mutated code words in the genetic material. Site-directed mutagenesis of plant proteins is opening up the possibility of producing crops that can make more efficient use of atmospheric carbon dioxide during photosynthesis.

Autobiographical Comments prepared by Michael Smith for the Nobel Committee, 1993.

I was born on April 26th, 1932 at Blackpool, England… My parents, Mary Agnes Smith and Rowland Smith, both had to work since their early teens, she in the holiday boarding house of her mother and he in his father's market garden… During my last year at elementary school, 1943, I sat for the "Elevenplus" examination which was used in the English schools in those days…. I was lucky enough to obtain a scholarship to the local private school, Arnold School. I did not, at the time, consider this to be luck…. I cannot say it was the happiest time in my life… But the schooling was first-rate, and in this I flourished, although not equally well in all subjects. Clearly, science was my metier, and I was lucky to have a chemistry teacher, Sidney Law, who stimulated my interest in chemistry and who took a personal interest in me….

I was not proficient in Latin and so was not able to go to Oxford or Cambridge. However, I did enter the first-rate chemistry honours program at the University of Manchester in 1950… I had hoped to get a firstclass degree, but only got a 2(i)! I was very disappointed. However, I still was able to obtain a State Scholarship which supported me throughout my graduate studies until I finished my Ph.D. degree in 1956.

My supervisor was H.B. Henbest. He was an outstanding young organic chemist, and I was glad to have him as a supervisor of my work on cyclohexane diols….

I heard, in the summer of 1956, that a young scientist in Vancouver, Canada, Gobind Khorana, might have a fellowship to work on the synthesis of biologically important organo-phosphates. While I knew this kind of chemistry was much more difficult than the cyclohexane stereochemistry in which I was trained, I wrote to him and was awarded a fellowship….

I arrived in Vancouver in September 1956. My first project was to develop a general, efficient procedure for the chemical synthesis of nucleoside-5' triphosphates based on the synthesis of ATP by Khorana in 1954….

In 1960, the Khorana group, including myself, newly married (I have three children, Tom, Ian and Wendy. My wife Helen and I separated in early 1983.), moved to the Institute for Enzyme Research at the University of Wisconsin. There I worked on the synthesis of ribo-oligonucleotides, that most challenging of chemical problems for a nucleic acid chemist. Early in 1961, I began to realize that it was time to move on. Helen and I wanted to return to the West Coast of North America, and I accepted a position with the Fisheries Research Board of Canada Laboratory in Vancouver. I enjoyed my time there because of the opportunity it presented to learn about marine biology and I was able to sustain my interest in nucleic acid chemistry because of the award of a U.S. National Institutes of Health Grant, which led to a new synthetic method for nucleoside-3',5' cyclic phosphates. However, the atmosphere of the laboratory, although based on the campus of the University of British Columbia, was not really conducive to, or supportive of, academic research. Hence, in 1966, I was very glad that Dr. Marvin Darrach, then Head of the Department of Biochemistry, offered to nominate me for the position of Medical Research Associate of the Medical Research Council of Canada. This award, which provided salary support, allowed me to become a faculty member of the Department, my academic home ever

Michael Smith meeting with 2000 Visiting Junior Scholars

since, except for sabbaticals at Rockefeller University, the Laboratory of Molecular Biology of the Medical Research Council in Cambridge and Yale University. The Council also has provided research grant support throughout my academic career….

In 1986, I was asked by the then Dean of Science at the University of British Columbia, Dr. R.C. Miller, Jr., to establish a new interdisciplinary institute, the Biotechnology Laboratory. I decided that it was time for me to start paying back for the thirty years of fun that I had been able to have in research. I have very much enjoyed recruiting and helping to get established the group of young faculty members that constitute the core of the Biotechnology Laboratory…

I look forward to shedding all my administrative responsibilities in another couple of years and returning to my first scientific love, working at the bench and having more time for sailing and for skiing.

Northwest coast graphic (northwest coast motif) commissioned to honour Michael Smith by SCWIST Women at the Frontier of Exxcellence Symposium

Partial Lising of Michael Smith Honours and Awards

Jacob Biely Faculty Research Prize, UBC, 1977
Fellow, Royal Society of Canada 1981
Boehringer Mannheim Prize of the Canadian Biochemical Society, 1981
Gold Medal, Science Council of BC, 1984
Fellow, Royal Society (London) 1986
Gairdner Foundation International Award, 1986
Killam Research Prize, UBC, 1986
Award of Excellence, Genetics Society of Canada, 1988
G. Malcolm Brown Award, Canadian Federation of Canadian Biological Societies, 1989
Flavelle Medal, Royal Society of Canada, 1992
Nobel Prize, Chemistry, 1993
Peter Wall Distinguished Professor of Biotechnology, 1994
Manning Award, 1995
Laureate of the Canadian Medical Hall of Fame, 1995
Companion of the Order of Canada, 1995
Foreign Associate, The National Academy of Sciences, USA, 1996
Royal Bank Award, 1999
18 honourary doctorates

Special Event in Honour of Michael Smith

In 1993, Dr. Michael Smith donated a portion of his Nobel Prize award to a fledgling organization — the Society for Canadian Women in Science and Technology (SCWIST), enabling it to provide outreach programs throughout British Columbia to encourage young women to follow a career path in science or technology.

On April 7, 2001 Canadian women who are outstanding leaders in their scientific fields came to UBC for a special symposium to honour Dr. Smith for his investment in the future of British Columbia, and his vision that Canadian women can and will shape the future of science and technology as we know it. The Peter Wall Institute was pleased to be a major sponsor of this event. See Appendix B for a list of the distinguished women scientists who participated in the "Women at the Frontier of Exxcellence" symposium. Our thanks to UBC SCWIST Chair Jane Roskams, Centre for Molecular Medicine and Therapeutics, Assistant Professor, Department of Psychiatry, Division of Neurological Sciences, for her lead in organizing this tribute to Michael Smith. For more information on SCWIST visit the website at www.harbour.sfu.ca/scwist/.

- - -

Distinguished UBC Scholars in Residence

This program, now moving into its third year, was developed to bring to the Institute outstanding, tenure-track UBC faculty members with excellent research records. Each Scholar is given a research office and infrastructure budget of $10,000. The Distinguished Scholars in Residence each give a lecture on their research, and are encouraged to plan a research related event, such as a lecture series or workshop, during their tenure at the PWIAS. An additional budget of $5,000 is provided for this event.

The residency period is the calendar year. The scholars who were in residence during the July 1 - December 31, 2000 period were: William Hsieh, Patricia Marchak, Peter Suedfeld, and John Willinsky. For details on these scholars and their projects see the 1999-2000 Annual Report.

Applications for this program are received by June 30, the invitations are issued in September, and the residency begins January 1. The Selection Committee chose the 2001 Distinguished Scholars in Residence primarily on the candidates' research attainments and on how well the research matched the mandate of the Institute to support work that is both basic and interdisciplinary. These Scholars are:

Anthony Barrtett
2001 Distinguished Scholar In Residence

Anthony Barrett (Classical, Near Eastern & Religious Studies) – Dr. Barrett's areas of research are Roman literature and history, and classical art and archaeology. Since 1988 he has been Director of the excavation of the Roman fort on the 'Lunt', a plateau overlooking the river Sowe to the south of the city of Coventry, England. Professor Barrett conducts an annual training excavation at the site each August. For his Institute project he will be holding a workshop on technical applications in archaeology.

Dr. Barrett's other main research activity is his involvement in the Imperial Biographies Series published by Yale University Press. This series envisages new analyses of the lives and careers of the more significant figures of Rome's imperial families. Dr. Barrett has so far completed three volumes in the series. His first book, *Caligula: The Corruption of Power,* offered the portrait of a sane and rational emperor, but one without moral compunctions. It has been translated into Italian, with Russian and German editions pending. The second, *Agrippina: Sex, Power and Politics in the Early Empire,* seeks to dispel that notion of the promiscuous murderess and to suggest that Agrippina's contribution to the state was beneficial. It also argues that she saw her main role as partner to the emperor Claudius, rather than merely the agent of her son Nero. A Russian edition is pending. A volume on Livia, the wife of the first emperor, Augustus, is in press.

Dr. Barrett is a Fellow of the Royal Society of Canada, and of the Society of Antiquaries, London. From 1993 – 1998 he served as Head of the Department of Classics at UBC. For his Institute project Dr. Barrett will be holding a workshop entitled "Archaeology in the New Century: Scientific Advances in Archaeological Research". This workshop will explore some of the advances made by the new generation of archaeologists, and will illustrate how techniques ranging

from botany to the study of isotopes in the bones are taking archaeology across new frontiers.

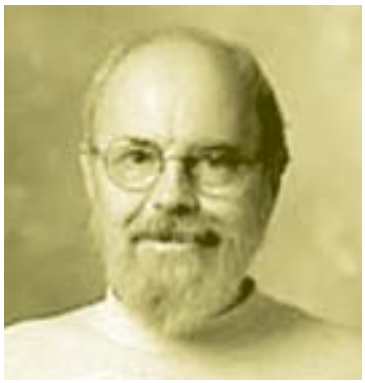
John Wilson Foster (English) – Professor Foster's primary field of research is literary criticism, particularly of British and Irish literature. His work, from the beginning informed by social anthropology and folklore, has broadened in recent years to include the history of natural history, Titanic studies, and political culture.

John Wilson Foster
2001 Distinguished Scholar In Residence

Dr. Foster is author of five books and editor of four others. The five authored works are: *Forces and Themes in Ulster Fiction* (1974); *Fiction of the Irish Literary Revival: A Changeling Art* (1987); *Colonial Consequences: Essays in Irish Literature and Culture* (1991); *The Achievement of Seamus Heaney* (1995); and *The Titanic Complex* (1997). The most important of Dr. Foster's edited books is *Nature in Ireland: A Scientific and Cultural History* (1997, 1998).

Professor Foster's Institute project will be a week-long symposium entitled "Contemporary Irish Writing & Its Cultural Contexts". The symposium will bring to UBC outstanding Irish writers and literary critics including poets Paul Muldoon and Michael Longley, playwright Thomas Kilroy, novelist Dermot Healy, poet/memoirist Ciaran Carson, author/critic Robert Welch and poet/critic Gerald Dawe.

Dale Rolfsen (Mathematics) - Dr. Rolfsen is a theoretical mathematician with strong research interests in topology and algebra. Among his areas of specialization are the theory of knots and braid groups, dynamics, manifolds of dimension 2, 3 and higher, and applications of these theories. Professor Rolfsen's current work is centered on ordered groups, 3-manifolds and the structure of braid groups. Dr. Rolfsen's work in knot theory has applications in diverse fields including the spatial structure of DNA and other polymers, how enzymes affect the topology of molecules, and protein folding. Professor Rolfsen's book *Knots and Links* is a well-known text in this field.



Dale Rolfsen
2001 Distinguished Scholar In Residence

From 1989-94 Dr. Rolfsen served as Head of the UBC Mathematics Department. He is currently UBC Site Director of the Pacific Institute for the Mathematical Sciences.

Linda Siegel

2001 Distinguished Scholar In Residence

Linda Siegel (Educational & Counselling Psychology and Special Education) – Professor Siegel's areas of research activity are learning disabilities, attention deficit disorder, detection of children at risk for learning and behaviour problems, cognitive development, language development, and the history of childhood. Her publications include the co-authored books *Current Directions in Dyslexia Research* (with K. van den Bos, D. Bakker, and D. Share, 1994) and *The Social and Cognitive Aspects of Normal and Atypical Language Development* (with S. von Tetzchner and L. Smith, 1989).

Professor Siegel's current research is a longitudinal study in North Vancouver to examine the early identification and intervention of native English-speaking and ESL speaking children at risk for reading failure. This school-based research in dyslexia and reading failure is also in the preliminary stages in other districts in BC. The other study Dr. Siegel is currently conducting is to examine the development of reading, language, and memory skills in children and adults with learning disabilities. An assessment of reading, language, spelling, memory and arithmetic is conducted with each participant. Suggestions for remediation and appropriate accommodations in school and the workplace, and/or further education are made for each individual, based on their personal learning difficulties.

Dr. Siegel holds the Dorothy C. Lam Chair in Special Education in the UBC Faculty of Education. She is a Fellow of both the American Psychological Association and the Canadian Psychological Association.

Early Career UBC Scholars

In the fall of 1999 a new PWIAS program was announced, the Early Career UBC Scholars program. The success of the Visiting Junior Scholars program was the inspiration for this new program and it is directed at a recognized need to bring together UBC tenure track faculty members from diverse disciplines at the early stages of their careers. This program welcomed its first cohorts of Associate and Assistant Professors in the fall of 2000. For the participants,

the goals of this program are to: 1) expose participants to research from across the University; 2) allow for interaction with excellent peers across a wide variety of disciplines; 3) explore the connections of one's own research with research that one would not ordinarily encounter; 4) learn about the research infrastructure at UBC; and 5) provide special recognition and a modest stipend to support research. For the University and the Institute, the goals are to: 1) help promote interdisciplinary research; 2) encourage an identification with the University as a whole; 3) provide awareness of the activities of the Institute; and 4) contribute to the overall research accomplishments at UBC. Applications to the program had a January 2000 deadline and selections were made in April. The program runs from September through August.

The meeting of two personalities is like the contact of two chemical substances. If there is any reaction, both are transformed.

Carl Jung

The Early Career Scholars program started with separate weekend retreats; the Assistant Professors met Sept. 16-17 and the Associate Professors met Sept. 23-24. Each program started at 8am Saturday morning and concluded in late afternoon on Sunday. Each scholar spent 30-40 minutes giving an overview of their research, then there was a discussion of about 20 minutes. The participants had various opportunities to get to know each other personally during frequent breaks and over lunches and Saturday dinner. Most stayed in our residential area on Saturday evening. Each day was very intense but stimulating.

In November the two Assistant and Associate Professor cohorts met together for the first time. They were formed into small groups to discuss research connections within their sub-group and then, by reporting back to the joint cohorts, exploring interconnections more broadly. The groups, consisting of three individuals each, were very diverse: (a) medical genetics, electrical engineering, epidemiology; (b) sociology, educational testing, botany; (c) political science, mathematical zoology, cognitive psychology; (d) journalism, computer science, linguistics; and (e) social psychology, nursing, immunology.

In the Spring, the joint cohorts met with senior UBC administrators. In April they met with the Vice President of Research, Indira Samarasekera, and in May they met with President Martha Piper. Both sessions were very useful in giving these junior scholars special access to UBC top-level

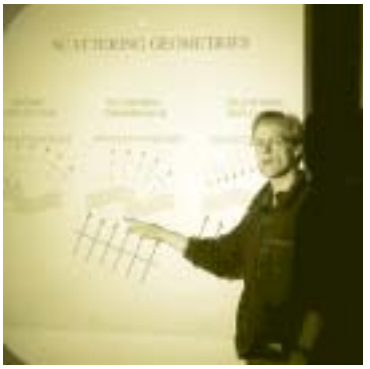
administration. It also gave the President and VP-Research an opportunity for exchanging thoughts with some of the very best young researchers across the whole campus.

In other months the two cohorts met separately to discuss a wide range of research-related issues. A particularly successful format was to have each participant raise a general research issue with no advance notice. These "surprise" questions ranged from seemingly narrow ones (e.g., specific human subject research constraints) to seemingly broad ones (e.g., important paradigm shifts over the past century). The discussion of a particular question would typically be about 40 minutes. In virtually all cases the discussion managed to hit provocative and substantive levels on each topic.

Associate Professors

2000 Early Career UBC Scholars – Associate Professors

Barbara Arneil (Political Science) - Barbara was appointed as Associate Professor in the Dept. of Political Science at UBC in 1998. She received her PhD in Political Theory from the University of London in 1992, with her dissertation "All the World Was America: John Locke and the Defense of English Colonialism." After lecturing at London Guildhall University, Barbara became a senior policy adviser to Lloyd Axworthy in the Dept of Foreign Affairs. She came to UBC from her post in Foreign Affairs. Currently she is researching the politics of exclusion, and the role of children in liberal democratic theory and practice. Barbara has authored two books: *John Locke and America: The Defence of English Colonialism* (Oxford University Press, 1996); and *Politics and Feminism* (Blackwell's Press, 1999).



Early Career Scholar Associate Professor Michael Bostock

Michael Bostock (Earth & Ocean Sciences) – Michael was appointed as Associate Professor in the Dept. of Earth & Ocean Sciences in 1998. He received his PhD in Seismology from Australian National University in 1991, after which he held a two-year Postdoctoral fellowship at Utrecht. Michael came to UBC as an Assistant Professor in 1993. He is considered one of the best young seismologists in North America. Michael has developed innovative data-analysis

algorithms and wave-propagation tools to detect "stretch marks" in subsurface rock that occurred more than a billion years ago. He is currently imaging topography of the mantle root underlying the Canadian Shield, and documenting the transition between Precambrian and Phanerozoic mantles.

My idea of education is to unsettle the minds of the young and inflame their intellects.

Robert M. Hutchins

Mark Schaller (Psychology) – Mark was appointed as Associate Professor in the Dept. of Psychology in 1999. He received his PhD in Psychology from Arizona State University in 1989. Before accepting a position at UBC, Mark taught psychology for several years at the University of Montana. Mark conducts research on how stereotypes are formed, and analyzes how prejudices are perpetrated. Currently he is conducting research on altruism, human reasoning and judgment.

Elizabeth Simpson (Medical Genetics) – Elizabeth was appointed as Associate Professor in the Dept. of Medical Genetics in 1999. She received her PhD in Cell Genetics from the University of Toronto in 1985. She held a Postdoctoral fellowship in Medical Genetics at the U. of Toronto from 1985 - 87, before taking a staff scientist position at the Jackson Laboratory in Maine, known as a world-class mouse research facility. Elizabeth came to UBC to expand her research into studies of humans. Her direct interests range from genomics to psychiatry. Initially she focused on the biology of reproduction; currently she is researching genetic and developmental mechanisms in human mental illnesses.

Early Career Scholar Associate Professor Elizabeth Simpson

John Torpey (Anthropology & Sociology) – John was appointed as Associate Professor in the Dept. of Anthropology & Sociology and the Institute for European Studies in 1999. He received his PhD in Sociology from the University of California, Berkeley in 1992. Prior to coming to UBC John taught in the Dept. of Sociology at the University of California, Irvine. His research concerns the development of states, migration patterns and policies, European politics and society, and the "politics of the past." Currently he is focusing on reparation politics and developing frameworks to study society, history and human rights. John has authored two books: *Intellectuals, Socialism and Dissent: The East*

PWIAS Director Ken MacCrimmon with Associate Professor Early Career Scholars

German Opposition and Its Legacy (University of Minnesota Press, 1995); and *The Invention of the Passport: Surveillance, Citizenship, and the State* (Cambridge University Press, 2000).

Stephen Ward (Journalism) – Stephen was appointed as Associate Professor in the School of Journalism in 1998. He received his PhD in Philosophy from the University of Waterloo in 1988. From 1984 – 1987 Stephen was a reporter with the *Saint John Telegraph-Journal*. Next he spent ten years with The Canadian Press; as editor of the Halifax bureau, as London-based European staff reporter and lastly as bureau chief in Vancouver. His research includes the philosophy of journalism, the cognitive psychology of reporting, and the education of journalists. Stephen is currently developing a new theory of objectivity for news media, and is completing a book on the future of media ethics in this age of new media.

Assistant Professors

Lyren Chiu (Nursing) – Lyren was appointed as Assistant Professor in the School of Nursing in 1999. She received her PhD in Nursing from the University of Texas (Austin) in 1996. She has conducted research on breast cancer and developed a spiritual well-being scale. Currently she is studying mental health and Chinese immigrant women, traditional healing practices, and psychiatric care that focuses on violence management.

2000 Early Career UBC Scholars – Assistant Professors

Cristina Conati (Computer Science) – Cristina was appointed as Assistant Professor in the Dept. of Computer Science in 1999. She received her PhD in Intelligent Systems from the University of Pittsburgh in 1999. Her early research concentrated on using cognitive modeling techniques to study human performance in information retrieval, interpretation of graphics, and learning in interactive educational environments. Currently she is analyzing artificial intelligence tutoring systems.

Michael Doebeli (Mathematics and Zoology) – Michael was appointed jointly as Assistant Professor in the Depts. of Mathematics and Zoology in 1999. He received his PhD in Mathematics from the University of Basel in 1992. Prior to arriving at UBC Michael taught mathematical biology at the University of Basel. He combines ecological and genetic modeling to theorize about sympatric speciation, cooperation & complex population dynamics in ecological systems.

Early Career Scholar Assistant Professors Lyren Chiu and François Jean

James Dunn (Geography) – Jim was appointed as Assistant Professor in the Dept. of Geography in 2000. He received his PhD in Geography from Simon Fraser University in 1998. His main research focuses on linking socio-economic status and health status, and on housing and health.

Kadriye Ercikan (Educational & Counselling Psychology, and Special Education) – Kadriye was appointed as Assistant Professor in the Dept. of Educational & Counselling Psychology in 1998. She received her PhD in Research & Evaluation Methods from Stanford University in 1992. She was a Senior Research Scientist with McGraw Hill Publishers until her appointment at UBC. Currently she is utilizing mathematics and psychometrics to research large-scale educational and psychological assessments.

Sidney Fels (Electrical & Computer Engineering) – Sid was appointed as Assistant Professor in the Dept. of Electrical & Computer Engineering in 1998. He received his PhD in Computer Science from the University of Toronto in 1994. His current research is centered on human and robotic communication systems, specifically speech recognition and neural network models for language acquisition.

Bryan Gick (Linguistics) – Bryan was appointed as Assistant Professor in the Dept. of Linguistics in 1999. He received his PhD in Linguistics from Yale University in 1999. Bryan is currently researching speech physiology and motor control to understand the organization of language in the human mind. He is also studying speech production and native American languages.

Early Career Scholar Assistant Professor Bryan Gick

François Jean (Microbiology & Immunology) – François was appointed as Assistant Professor in the Dept. of Microbiology & Immunology in 1999. He received his PhD in Biomedical Sciences from Université de Montréal in 1995. He was a Postdoctoral Fellow at Oregon Health Sciences University until he joined UBC. Currently he is researching anti-viral approaches of interrupting enzymatic pathways to inhibit infectious diseases.

Early Career Scholars Assistant Professors Sid Fels, François Jean, Patrick Keeling and Alan Kingstone

Patrick Keeling (Botany) – Patrick was appointed as Assistant Professor in the Dept. of Botany in 1999. He received his PhD in Biochemistry from Dalhousie University in 1996. He held the post of Visiting Scientist at the University of Melbourne and was a Postdoctoral Fellow at Indiana University before joining UBC. Patrick's research is centered on an alternate genetic code in molecular evolution and parasitology.

Alan Kingstone (Psychology) – Alan was appointed as Assistant Professor in the Dept. of Psychology in 1999. He received his PhD in Psychology from the University of Manchester in 1990. He was a Medical Research Scholar with the Alberta Heritage Foundation for Medical Research before coming to UBC. Currently his research is on selective attention and cognitive neurosystems, focused on imaging and encoding.

Formula for breakthroughs in research: Take young researchers, put them together in virtual seclusion, give them an unprecedented degree of freedom and turn up the pressure by fostering competitiveness.

James D. Watson

Visiting Junior Scholars

This program brings up to ten outstanding international scholars at the early stages of their careers to UBC for one month each summer. Candidates are nominated by UBC academic units and chosen by the Institute's Selection Committee based on their research excellence and promise, along with their fit with the Institute's mandate to support fundamental, interdisciplinary research. The program aims to provide an opportunity for participants to interact with peers from diverse disciplines and for UBC departments to have an opportunity to develop contacts with exceptional new scholars.

Each participant is provided with an expense allowance of $5,000, accommodation at the PWIAS and scheduled meals. While the program includes daily talks, lectures and meetings, time is provided for the participants to continue their own research work and to work with their UBC departmental sponsors. In 2000 the Institute brought two cohorts of Junior Scholars to UBC, seven participants in July and eight in August.

Distinguished Professor Michael Smith meeting with Visiting Junior Scholars

July Visiting Junior Scholars

Meltem Ahiska (Sociology) is a Lecturer in the Department of Sociology at Bogaziçi University, Istanbul. She was nominated to the program by the Department of Anthropology & Sociology. Meltem received her PhD in May 2000 from the Department of Sociology, Goldsmith College, University of London. Her dissertation was titled "An Occidentalist Fantasy: Early Turkish Radio and National Identity". Meltem's research interests are associated with the emergence of Turkey as a nation-state in particular, and the nature of modernity in general. Specifically, her research addresses the forms of communication developed by the Turkish governing elite in the first half of the twentieth century to "Westernize" the country and to create a national community where in fact none existed.

Eugeny Ermanyuk (Civil Engineering) is a senior researcher at the Lavrentyev Institute for Hydrodynamics, Novosibirsk, Russia. After completing the equivalent of a Masters degree in naval architecture at the Leningrad Shipbuilding Institute, Eugeny received his PhD at the Lavrentyev Institute in 1997. His thesis was titled "Experimental Investigation of Interaction Between Internal Waves and Submerged Bodies". Eugeny was nominated to the program by the Department of Civil Engineering. Eugeny's research work is in the areas of stratified fluids, loads on rigid bodies due to internal and surface waves, the dynamics of body motion in stratified fluids, second-order wave forces and wave drift effects, and the impact of a body on a free surface. From August 1998 to May 1999 Eugeny was

Visiting Junior Scholars

a Visiting Researcher at the Research Institute for Applied Mechanics, Kyushu University, Fukuoka, Japan.

Ingrid Hendy (Geological Sciences) was nominated to the program by the Department of Earth & Ocean Sciences. Ingrid received her PhD from the University of California at Santa Barbara in May, 2000. Her PhD thesis title was "Rapid Climate Change Recorded in the North Pacific: Triggers, Processes, and Effects". Ingrid's research centers on three areas: climate change in the southern California margin; mechanisms for rapid climate change in the North Pacific; and correlating this rapid climate change with the Greenland Ice Sheet as the key to extracting a global response. Ingrid's honours include the outstanding student paper award at the International Conference on Paleoceanography (Lisbon, 1998) and at the Fall Meeting of the American Geophysical Union (1996).

Visiting Junior Scholars rafting at Whistler

Eva Micheler (Law) is currently working towards her M. Litt. at Oxford as well as her Habilitation from the University of Economics, Vienna, where she is also Universität assistentin (Fellow) in the Department of Business Law. Eva received her Doctor of Law from the University of Vienna in 1992 and her Magister Juris in European and Comparative Law from the University of Oxford in 1998. The title of her thesis was "Share Transfer Systems in England, Austria, Germany and Russia: A Comparative Study". Eva's research interests include the law of electronic share transfers, comparative law, corporate law, and property theory. Eva's honours include the Marie Curie Fellowship, Faculty of Law, University of Oxford; and the Rudolf Sallinger Preis, University of Vienna, Faculty of Law. In the Fall of 2000 Eva was appointed a Lecturer in the Department of Law at the London School of Economics.

Fabio Rossi (Molecular Pharmacology) was nominated to the Visiting Junior Scholars program by the UBC Biomedical Research Centre. Fabio received his MD in 1991 from the Universita di Genova. In 1996 Fabio completed a PhD at the European Molecular Biology Laboratories at the University

Visiting Junior Scholars excursion to Galliano Island

of Heidelberg, Germany. His thesis was entitled "Regulation of Ch21 Protein Expression During in vitro Differentiation of Chicken Chondrocytes." At the time of his Visiting Junior Scholar appointment, Fabio was a senior research scientist in the Department of Molecular Pharmacology, Stanford University School of Medicine. Two areas of Fabio's recent research work are: contributions to the further understanding of the tetracycline-regulatable system, specifically that a dose-dependent response is possible at the single-cell level and how to convert that response into the threshold transcriptional response typical of most biological situations; and that beta-galactosidase mutants can be used to monitor the interaction of other proteins when synthesized as fusion proteins.

Josh Tenenbaum (Psychology) received his PhD in Brain and Cognitive Sciences from MIT in 1999. His thesis was titled "A Bayesian Framework for Concept Learning". Josh is an Assistant Professor in the Department of Psychology at Stanford University. His areas of research are in computational theories and behavioural studies of learning and inference in perception and cognition. Josh's current research focus includes continuing work on a Bayesian theory of concept learning, models of learning perception, word learning and early stages of language acquisition, causal reasoning in both children and adults, probabilistic reasoning, social cognition, and brightness perception. Josh was awarded a Predoctoral Fellowship from the Howard Hughes Medical Institute and in 1997 was awarded the Outstanding Paper award at the IEEE Conference on Computer Vision and Pattern Recognition for joint work on separating style and content in perception.

John Watrous (Computer Science) received his PhD from the University of Wisconsin at Madison in 1998. His thesis was titled "Space-Bounded Quantum Computation". Prior to taking up his present position as Assistant Professor of Computer Science at the University of Calgary, John was a Postdoctoral Fellow in the Département IRO, Université

de Montréal. His recent research has included work in the areas of quantum complexity theory, interactive proofs using quantum computers as well as continuing his work on space-bounded quantum computation.

August Visiting Junior Scholars

Visiting Junior Scholars Leonid Kogan, Jessica Maye and Eric Remacle

Owen Dwyer (Geography) received his PhD from the University of Kentucky in May, 2000. The title of his dissertation was "Memorial Landscapes of the Civil Rights Movement". Owen was nominated to this program by the Department of Geography. He presently holds a Rockefeller Humanities Fellowship at the Institute of Liberals Arts at Emory University. His research interests include cultural landscapes and contemporary implications for social memory, comparative racism and geography, urban housing policy, community lending institutions and volunteerism, spatial strategies and tactics of new social movements, and cultural and social geographies of American mobility. In the Fall of 2000 Owen was appointed Assistant Professor of Geography at Indiana University - Purdue University at Indianapolis.

Sam Gosling (Psychology) received his PhD in Psychology from the University of California, Berkeley in 1998. His dissertation was titled "Personality Dimensions in Animals". Sam is Assistant Professor of Psychology at the University of Texas at Austin. His areas of research interest are the interactions between people and the spaces they inhabit, specifically how physical environments reflect the personality and values of the occupants, issues of consensus and accuracy; for example, comparing the cues people use to make personality inferences to the cues that are actually valid, examining how research on animals can inform theories of personality and social psychology, and using empirical indices to track trends in the history of psychology.

Visiting Junior Scholar Helen Keane and Prof. Sneja Gunew (English, UBC)

Helen Keane (Women's Studies) was nominated to the Visiting Junior Scholars program by the Centre for Research in Women's Studies & Gender Relations at UBC. Helen received her PhD in Women's Studies in 1998 from Australian National University, Canberra. Her dissertation was titled "What's Wrong With Addiction?" Helen is now

Research Fellow at the National Centre in HIV Social Research, University of New South Wales, Sydney. Her research interests include cultural and critical studies of health and medicine, drug and alcohol use, drug use in sport, feminist theory, and feminist science and technology studies.

August 2000 Visiting Junior Scholars

Leonid Kogan (Finance) was nominated by the Faculty of Commerce and Business Administration. He received his first PhD in Theoretical and Applied Mechanics from Cornell University in 1995. Leonid's second PhD, awarded in 1999 by MIT, is in Finance. Leonid's areas of research interest are asset pricing, dynamic hedging, derivatives, real investment, and models of bounded rationality. In 1998, while at MIT, he was awarded the Lehman Brothers Fellowship for Research Excellence in Finance. Leonid is currently Assistant Professor, Finance Department, at the Wharton School, University of Pennsylvania.

Victoria Lamont (English) received her PhD in 1998 from the University of Alberta. Her dissertation was titled "Writing on the Frontier: Western Novels by Women 1880-1920". She was nominated by the Department of English. Victoria's areas of research interest are theories of gender and popular culture, femininity and the frontier, the female body in 19th century American frontier, and the melting pot 'myth' and American cultural imagery. Victoria is currently Assistant Professor, Department of English, University of Waterloo.

Visiting Junior Scholars excursion to "Bard on the Beach" festival

Jessica Maye (Linguistics) was co-sponsored by the Departments of Psychology and Electrical & Computer Engineering. She received her PhD in Linguistics from the University of Arizona in May 2000. Her dissertation was titled "Learning Speech Sound Categories From Statistical Information". Jessica's research interests intersect a number of fields including psycholinguistics, computer engineering, and cognitive science. Her areas of investigation include statistical models of learning, categorization of speech sounds, speech perception, phonological development, and language acquisition. As of September 2000, Jessica is a

The scientist does not study nature because it is useful; he studies it because he delights in it, and he delights in it because it is beautiful. If nature were not beautiful, it would not be worth knowing, and if nature were not worth knowing, life would not be worth living.

Jules Henri Poincaré.

Post-doctoral fellow at the Brain & Cognitive Sciences Center at the U. of Rochester.

Martin Polz (Biology) was nominated to the program by the Department of Earth & Ocean Sciences. He received his PhD in Organismic and Evolutionary Biology from Harvard University in 1997. His thesis was "The Ecology of Epibiotic Associations in the Marine Environment". Martin's research work spans a broad range of disciplines: botany, zoology, microbiology, oceanography, and environmental studies. His research interests are in environmental microbiology with an emphasis on the formation of general ecological principles guiding activities of microorganisms, identification of controlling factors of microbial community structure, interactions of bacteria and other organisms, phylogeny and evolution of microorganisms and their communities, effects of natural and anthropogenic disturbances, and microbially mediated transformations of energy and matter. Martin is Assistant Professor, Department of Civil and Environmental Engineering, MIT.

Eric Remacle (Political Science) was nominated by the Institute for European Studies at UBC. Eric received his PhD from the Université Libre de Bruxelles in 1996. His thesis was entitled "L'expérience de l'Union de l'Europe occidentale comme fondement pour une défense européene intégrée dans l'union européene." His areas of research interest are European integration and international relations, in particular as it intersects with the issues of foreign security and defence policy. Eric is Director of the Institute for European Studies, and Assistant Professor, Université Libre de Bruxelles.

Trustees Initiatives

The Trustees of the Institute can propose funding worthy research-related activities or events that do not fit the criteria of the Institute's thematic or residential programs. The academic integrity of the proposals are assessed by the director and the endowed professors. There were no trustee initiated proposals this year.

- - -

Associates Gatherings

Associates of the Peter Wall Institute are those faculty members who have served on one of the Institute's committees, have been or are currently a PI on one of the Institute's thematic awards, or are individuals who have been selected for one of the three residential programs (see page 57 for a complete list of Institute Associates). On two Wednesdays each month the Institute offers alternating lunches and dinners with a following lecture. All Associates are invited to attend and a fee is charged to cover partial meal costs. This program provides a forum for Faculty Associates to exchange ideas and knowledge across different departments and Faculties.

Associates Events

2000

July 12 Dinner, Pat Marchak, "State Terrorism"
July 19 Lunch, Mohan Matthen, "What Good is Cognition?"
Aug 9 Dinner, Janet Werker, "On Language Development in Children"
Aug 16 Lunch, William Hsieh, "Neural Networks for Non-linear Data Analysis and Prediction"
Sept 13 Lunch, Christine Boyle, "Contracts and Treaties: When Must We Act Honourably?"
Sept 27 Dinner, Jonathan Wisenthal, "Three 1904 Narratives of Empire: Opera, Fiction, Drama"
Oct 4 Lunch, Max Cameron, Preview of the Exploratory Workshop: "Threats To Democracy in Latin America", to be held November 3-4
Oct 18 Dinner, Gideon Davies, "The Synthesis and Breakdown of Sugars: Sweet Tales From a Catalytic Visitor"
Nov 8 Lunch, Luciana Duranti, "Trusting Electronic Records: The InterPARES Project"

Nov 22 Dinner, Joseph C. Smith, "From the Hoots of Apes to the Prose of Hamlet: What Can Evolutionary Psychology Tell Us About the Mysteries of the Origin of Language?"

Dec 13 Annual PWIAS Holiday Reception

2001

Jan 10 Lunch, Patricia Vertinsky, "Episodes in the History of the Body"

Jan 24 Dinner, Anthony Barrett, "Mad, Mean or Mild? Probing the Mind of the Roman Emperor"

Feb 7 Lunch, Wendy Robinson, Carolyn Brown and Mary Stephenson, Preview of the Exploratory Workshop "Genes, Chromosomes, and Human Reproduction", to be held Mar. 9-10

Feb 28 Dinner, Linda Siegel, "Dyslexia and Murder: Insights from Popular Fiction"

Mar 7 Lunch, Robert Jackson and Brian Job, Preview of Exploratory Workshop "International Ethics of Security", to be held April 5-7

Mar 21 Dinner, John Wilson Foster, "Titanic and the Machine Age"

Apr 11 Lunch, Dale Rolfsen, "Knots, DNA, and Outer Space"

Apr 25 Dinner, Tony Phillips, "Memories Are Made of This"

May 9 Lunch, Mike Burgess and Sue Cox, Preview of the Exploratory Workshop "Social and Moral Dimensions of Hereditary Risk and Genetic Testing", to be held June 4-6

May 23 Dinner, Mike Healey, "Ludwig's Ratchet, the Fairness Paradox, and the Collapse of East Coast Fisheries"

June 13 Lunch, Wes Pue, "Lawyers and Colonialism"

June 27 Dinner, Harvey Richer, Preview of Exploratory Workshop "White Dwarfs as Dark Matter", to be held Aug. 20-22

2001 Associates Gathering

Facilities & Resources

PWIAS Facilities

Administration
The Institute occupies the top floor of the University Centre. The east wing includes the offices of the Director and staff, the research offices of the Distinguished Scholars in Residence, and a boardroom and lounge for the use of the Scholars.

Conferences
The Institute has two conference rooms on the west wing of the University Centre's third floor. The large and small meeting rooms, approximately 800 and 600 sq. ft. respectively, can be used separately or combined. The rooms both open onto a large terrace with a sweeping view of the sea and mountains. When not in use by the Institute for program events, the conference rooms are available to other groups. Priority in booking the Institute facilities is given to research related activities open to the University community.

Residences
Located at the northeast end of the University Centre is the Institute's guest residence of twelve rooms. These superior rooms are well furnished and offer a view to the ocean and mountains. The residence offers two room configuration, a standard hotel style and a kitchenette style. All rooms include a full private bathroom, queen bed, internet linked PC, cable TV and voice mail. The rooms can be booked individually or as two room suites. Rental rates give preference to Institute program guests. When not in use by the Institute, the rooms are available for rent by visitors to the University.

The Institute has experienced a substantial increase in demand for the use of its conference and residential space. In particular, the guest rooms are popular with other UBC academic units bringing guests to the Campus. The income

from the rental of conference and residence rooms is used to offset the operating costs of the facilities.

Website

The Institute's website, at www.pwias.ubc.ca, has been online since December 1996. The website provides a full description of all Institute programs, listings of all thematic and residential program awards past and present, with links to related websites, and descriptions and photographs of the Institute facilities including rental rates and policies. Our website also includes a downloadable version of the thematic programs application form.

Financial Summary

Funding for the Institute comes from two endowments. The Peter Wall Endowment comprises Peter Wall's original gift of 6.5 million Wall Financial Corporation shares. The dividends from these shares support the Residential Programs and a portion of the Institute administration. The Hampton Endowment, a $10 million fund dedicated to the Institute in 1994, supports the Thematic Programs and a portion of the administrative costs. The Hampton Endowment is currently (June 2001) valued at approximately $13 million.

For 2000-01 the principal program expenditures were:

Thematic Programs

- $539,000 in support of three Major Thematic projects: Pathogenomics; Narratives of Disease, Disability and Trauma; and Acoustic Ecology.
- $92,250 for five Exploratory Workshops.
- $30,000 for Theme Development Workshops, Weekly Colloquia and PWIAS Associates Forums.

Residential Programs

- $62,000 for the four Distinguished UBC Scholars in Residence.
- $95,000 for the eighteen Early Career UBC Scholars.
- $102,000 for the fifteen Visiting Junior Scholars.

Other Programs

- $64,500 for the Endowed Professorship.
- $18,000 for the Michael Smith memorial ***Women in Science and Technology*** Symposium.

The Institute leases its research, administrative, residential and meeting space from the University of British Columbia at an annual rate of $210,000 for a five-year term, beginning in 1999. Combined income from the rental of the Institute guest rooms and meeting rooms and from the Associates events was $196,000 this year. These revenues are applied against the operating costs of the facilities.

PWIAS Staff

Kenneth R. MacCrimmon was appointed in 1996 as the first Director of the Peter Wall Institute for Advanced Studies. He also holds the endowed chair as E.D. MacPhee Professor of Management at UBC. His PhD is from UCLA in interdisciplinary studies. Early in his career he was on the faculty of Carnegie Mellon University as well as holding an extended appointment at the Rand thinktank. Later he was J.L. Kellogg Distinguished Professor of Strategy and Decision at Northwestern University. He is co-author of the book *Taking Risks*, and his current research focuses on descriptive and normative aspects of decision theory and creativity.

Christopher McGill is Assistant to the Director. Chris was appointed in May 1999. He obtained his BA (Hons.) from Trent University, a B.Ed from St. Mary's University and is currently completing a MA in Liberal Studies at Simon Fraser U. Chris is responsible for the day-to-day operations of the facilities and program administration.

Dale MacCrostie is the Institute's Systems Coordinator. She manages all information systems hardware and software including the needs of the Distinguished Scholars in Residence, the administrative offices, the residential annex and the website.

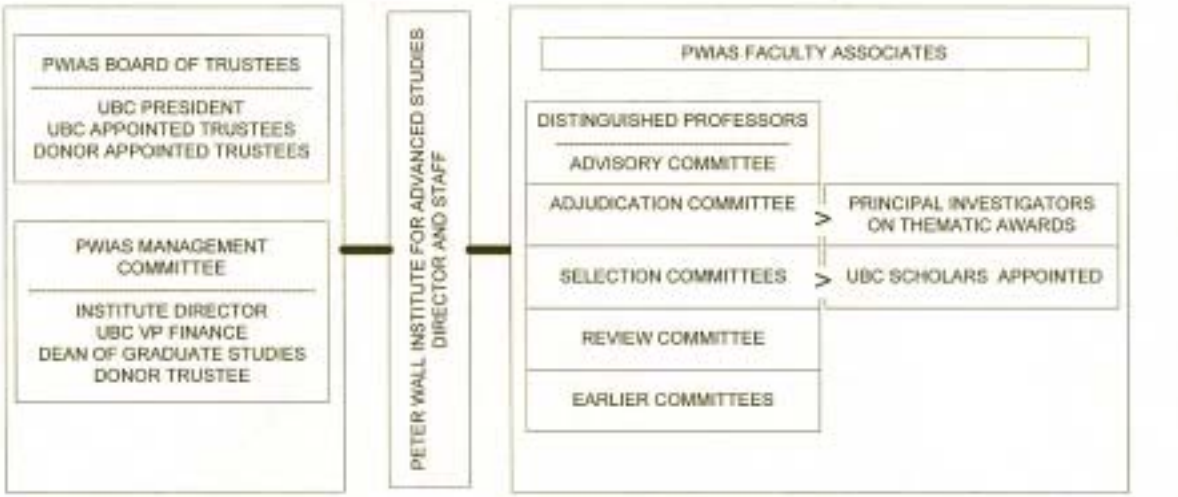
Katie Eliot is the Institute secretary. Katie has a BA in Geography from UBC. She has considerable experience working at the University including IT Services and the Institute for Asian Research. In addition to her program support responsibilities, Katie looks after all aspects of the booking of Institute facilities.

Ken MacCrimmon, Director
Peter Wall Institute
for Advanced Studies

Katie Eliot, Dale MacCrostie,
and Chris McGill

Governance

The diagram below illustrates the academic and administrative responsibilities and links within the Peter Wall Institute for Advanced Studies.



Board of Trustees

There are five trustees on the Peter Wall Institute board. They are:

Akbar Lalani, Royal Columbian Hospital
Robert H. Lee, Prospero International Realty Inc.
Les Peterson, Boughton Peterson Yang Anderson
Martha Piper (Chair), President, UBC
Bruno Wall, Wall Financial Corporation

Management Committee

Four members oversee the financial operations of the Institute. They are:

Frieda Granot, Graduate Studies, UBC
Ken MacCrimmon, Peter Wall Institute for Advanced Studies, UBC
Terry Sumner, Finance and Administration, UBC
Bruno Wall, Wall Financial Corporation

Faculty Associates

Associates of the Institute are those UBC faculty members who are or have been a PI on an Institute competitive award, have been selected as a Distinguished Professor, Scholar in Residence, or Early Career Scholar, or who have served on one of the Institute's committees.

Agricultural Science

Les Lavkulich, Soil Science
Moura Quayle, Landscape Architecture
Stephen Sheppard, Landscape Architecture
James Thompson, Agricultural Science
Hennie van Vuuren, Food Biotechnology

Applied Science

Joel Bert, Chemical Engineering
Sheldon Cherry, Civil Engineering
Lyren Chiu, School of Nursing
Sidney Fels, Electrical & Computer Engineering
John Grace, Chemical Engineering
Martha Salcudean, Mechanical Engineering
Tim Salcudean, Electrical & Computer Engineering

Arts

Barbara Arneil, Political Science
Anthony Barnett, Classical, Near Eastern & Religious Studies
Bill Benjamin, Music
Alan Cairns, Political Science *
Maxwell Cameron, Political Science
Michael Chandler, Psychology
Jane Coop, Music
James Dunn, Geography
Luciana Duranti, Library, Archival & Information Studies
Eric Eich, Psychology
Richard Ericson, Anthropology & Sociology, and Law; Green College
John Wilson Foster, English

Nancy Frelick, French, Hispanic & Italian Studies, and Comparative Literature
Marketa Goetz-Stankiewicz, Germanic Studies
Derek Gregory, Geography
Sneja Gunew, English
Robert Jackson, Political Science
Brian Job, Political Science
Alan Kingstone, Psychology
Eva-Marie Kroller, English
Diana Lary, History and Centre for Chinese Research
David Ley, Geography
Patricia Marchak, Anthropology & Sociology
Mohan Matthen, Philosophy
Ralph Matthews, Anthropology & Sociology
Dianne Newell, History
Anthony Phillips, Psychology
Ruth Phillips, Art History, Museum of Anthropology
Catharine Rankin, Psychology
Valerie Raoul, French, Hispanic & Italian Studies and Centre for Research in Women's Studies & Gender Relations
Alan Richardson, Philosophy
Laurie Ricou, English
Steven Savitt, Philosophy
Mark Schaller, Psychology
Robert Silverman, Music
Olav Slaymaker, Geography
Peter Suedfeld, Psychology
John Torpey, Anthropology & Sociology and Institute for European Studies
Mark Vessey, English
Janet Werker, Psychology
Catherine Wilson, Philosophy
Rhodri Windsor-Liscombe, Art History, Visual Art & Theory
Jonathan Wisenthal, English
Paul Yachnin, English

Commerce & Business Administration

Raphael Amit, Strategy & Business Economics*
Dale Griffin, Marketing
Alan Kraus, Finance
Maurice Levi, Finance
Ken MacCrimmon
Ilan Vertinsky, Strategy & Business Economics

Dentistry

Don Brunette, Oral, Biological & Medical Sciences
David Sweet, Oral, Biological & Medical Sciences and Bureau of Legal Dentistry

Education

Patricia Arlin, Educational & Counselling Psychology and Special Education *
Kadriye Ercikan, Educational & Counselling Psychology and Special Education
Linda Siegel, Educational & Counselling Psychology and Special Education
Patricia Vertinsky, Educational Studies
John Willinsky, Language & Literary Education

Graduate Studies

Frieda Granot, Dean
Mandakranta Bose, Institute of Asian Research
Michael Burgess, Centre for Applied Ethics, and Medical Genetics
Lawrence Green, Centre for Health Services & Policy Research *
Kathy Pichora-Fuller, Institute for Hearing Accessibility Research, and Audiology & Speech Sciences

Law

Christine Boyle
Jutta Brunee *
Marilyn MacCrimmon
Wes Pue
Joseph Smith

Medicine

Patricia Baird, Medical Genetics
William Bowie, Infectious Diseases
Don Brooks, Pathology and Chemistry
Carolyn Brown, Medical Genetics
Campbell Clark, Psychiatry
Dana Devine, Pathology
Judith Hall, Pediatrics and Medical Genetics
Michael Hayden, Medical Genetics
Clyde Hertzman, Health Care & Epidemiology
James Hogg, Pathology
François Jean, Microbiology & Immunology
Dagmar Kalousek, Pathology
Barbara McGillivray, Medical Genetics
Peter Reiner, Psychiatry
Wendy Robinson, Medical Genetics
Ann Rose, Medical Genetics
Elizabeth Simpson, Medical Genetics
David Speert, Pediatrics
Mary Stephenson, Obstetrics & Gynaecology

Pharmaceutical Sciences

Gail Bellward
John McNeill

Science

Ian Affleck, Physics & Astronomy
Michael Blades, Chemistry
Michael Bostock, Earth & Ocean Sciences
Chris Brion, Chemistry
Cristina Conati, Computer Science
Anne Condon, Computer Science
Michael Doebeli, Mathematics and Zoology
David Dolphin, Chemistry
Brett Finlay, Biotechnology, Biochemistry and Molecular Biology
Priscilla Greenwood, Mathematics*
Michael Healey, Earth & Ocean Sciences
Nancy Heckman, Statistics
Peter Hochachka, Zoology
Grant Ingram, Earth & Ocean Sciences

William Hsieh, Earth & Ocean Sciences
Brian James, Chemistry
Patrick Keeling, Botany
David Kirkpatrick, Computer Science
Charles Krebs, Zoology
George Mackie, Biochemistry and Molecular Biology
Grant Mauk, Biochemistry and Molecular Biology
Andrew Ng, Physics & Astronomy
Sally Otto, Zoology
Tony Pitcher, Fisheries Centre and Zoology
Rosemary Redfield, Zoology
Dale Rolfsen, Mathematics
Dolph Schluter, Zoology
Anthony Sinclair, Zoology
Terrance Snutch, Biotechnology, Psychiatry and Zoology
Curtis Suttle, Earth & Ocean Sciences
William Unruh, Physics & Astronomy
Antony Warren, Microbiology & Immunology
Stephen Withers, Chemistry
James Zidek, Statistics

Note: * denotes Associates no longer at UBC.

Committees

Advisory Committee
This committee meets as required to discuss directions for PWIAS and recommend program changes.

Patricia Baird, Medical Genetics
Don Brooks, Pathology and Chemistry
Richard Ericson, Law, Anthropology & Sociology
Brett Finlay, Biotechnology, Biochemistry, and Molecular Biology (Chair, beginning Nov. 2000)
Peter Hochachka, Zoology
David Kirkpatrick, Computer Science
Anthony Phillips, Psychology
Martha Salcudean, Mechanical Engineering

George Sawatzky, Physics & Astronomy
Michael Smith (Chair, deceased October 2000)
William Unruh, Physics & Astronomy
Patricia Vertinsky, Educational Studies
Janet Werker, Psychology

Adjudication Committee
This committee is charged with evaluating thematic grant proposals.

Joel Bert, Chemical Engineering
Philip Austin, Geography and Earth & Ocean Sciences
Don Brooks, Pathology and Chemistry
Anne Condon, Computer Science
David Dolphin, Chemistry
Luciana Duranti, Library, Archival & Information Studies
Caroline Ford, History
Dale Griffin, Commerce & Business Administration
George Mackie, Biochemistry
Mohan Matthen, Philosophy
Ken MacCrimmon, Peter Wall Institute for Advanced Studies (Chair)
Marilyn MacCrimmon, Law
Barbara McGillivray, Medical Genetics
John McNeill, Pharmaceutical Sciences
Linda Siegel, Educational & Counselling Psychology and Special Education
Phillip Stamp, Physics & Astronomy
David Sweet, Dentistry
James Thompson, Agricultural Sciences
Janet Werker, Psychology
John Willinsky, Language & Literacy Education
Jonathan Wisenthal, English

Review Committee
This committee reviews past awards in the thematic competitions.

Gail Bellward, Pharmaceutical Sciences (Chair)
William Bowie, Infectious Diseases
Don Brunette, Dentistry
Derek Gregory, Geography
Alan Kraus, Commerce & Business Administration
Ken MacCrimmon, Peter Wall Institute for Advanced Studies
Andrew Ng, Physics & Astronomy
Wes Pue, Law
Catharine Rankin, Psychology
Curtis Suttle, Earth & Ocean Sciences
Rhodri Windsor-Liscombe, Fine Arts

Selection Committee – Senior Level
Charged with evaluating applications for senior scholar appointments (formerly the Appraisal Committee).

Steve Calvert, Earth & Ocean Sciences
Richard Ericson, Law, Anthropology & Sociology, Green College
David Kirkpatrick, Computer Science
Ken MacCrimmon, Peter Wall Institute for Advanced Studies (Chair)
Dolph Schluter, Zoology
Peter Suedfeld, Psychology
Patricia Vertinsky, Educational Studies

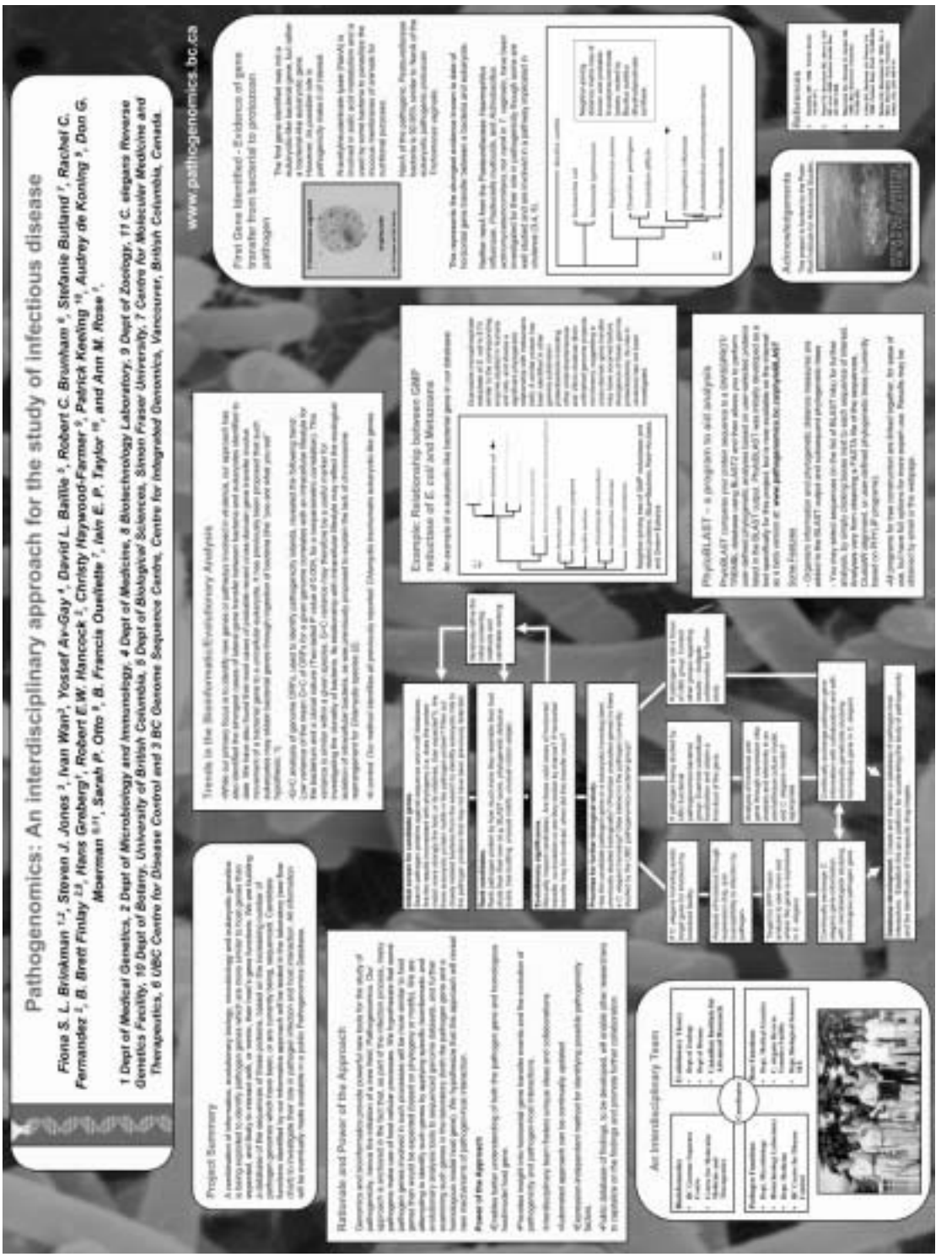
Selection Committee – Junior Level
Responsible for evaluating applications for visiting junior and early career scholar appointments.

Dana Devine, Pathology
Eric Eich, Psychology
Grant Ingram, Earth & Ocean Sciences, St. John's College
Ken MacCrimmon, Peter Wall Institute for Advanced Studies (Chair)

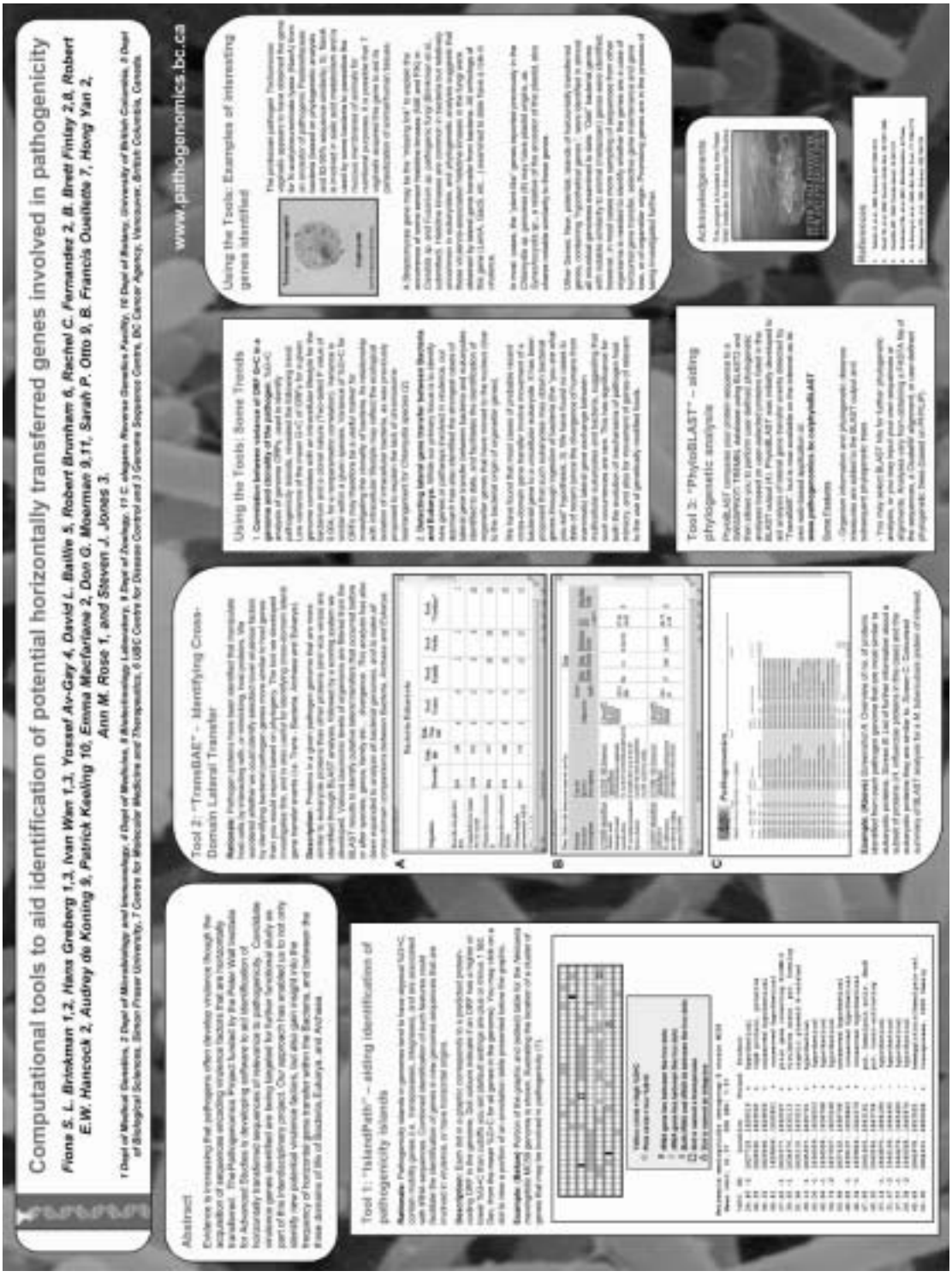
Dianne Newell, History
Laurie Ricou, English
Tim Salcudean, Electrical & Computer Engineering
Shirley Sullivan, Classical, Near Eastern & Religious Studies
Hennie van Vuuren, Food Biotechnology
Ilan Vertinsky, Commerce & Business Administration
Catherine Wilson, Philosophy

Appendices

Pathogenomics: Poster A



Pathogenomics: Poster B



Pathogenomics Major Thematic Project

Presentations 2000 – 2001

(Only presentations outside of British Columbia, Canada are listed)

Poster for the Thirteenth International Caenorhabditis elegans Meeting, Los Angeles, California, USA. June 22-26, 2001 (presented by Nancy Price).

Invited Talk, Annual General Meeting of the Canadian Society of Microbiologists (theme: "Bioinformatics & Biotechnology in the Post-Genome Era"), University of Waterloo, Ontario, Canada. June 10-13, 2001 (presented by Fiona Brinkman).

Poster for the ASM and TIGR Conference on Microbial Genomes, January 28 - 31, 2001, Monterey, California, USA (presented by Fiona Brinkman).

Invited Talk, National Center for Genome Resources, Santa Fe, USA. January 12, 2001 (presented by Fiona Brinkman).

Invited Talk, National Research Council of Canada Genome Meeting, Halifax, Canada, August 18, 2000 (presented by Bob Hancock).

Poster for the International Society for Evolutionary Protistology Annual Meeting (ISEP XIII), July 31 - August 4, 2000 in Ceske Budejovice, Czech Republic (presented by Audrey de Koning).

Peter Wall Institute for Advanced Studies

Understanding Electron Motion in Matter: Orbital Imaging of Biomolecules, Transition Metal Complexes, Chemically Reactive Species and Condensed Matter

Third Annual Workshop and Symposium, Monday, September 25, 2000,
PWIAS Conference Rooms (#307 / #309), The University Centre, UBC.

Program

9.00-9.10am	Introduction and Welcome: Prof. Chris Brion (Chemistry, UBC) and Dr. Ken MacCrimmon (Director, PWIAS).
9.10-9.40am	"The Present Status of the Electron Motion in Matter Project": Prof. Chris Brion / Dr. Yenyou Zheng (Chemistry, UBC).
9.40-10.40am	"DFT and Ab-initio Methods in Theoretical Quantum Chemistry – Perspectives for EMS Studies": Prof. Ernest Davidson (Chemistry, Univ. of Indiana).
10.40-11.00am	**Coffee break.**
11.00-11.30am	"New Functionals for DFT - Application to EMS Calculations of Free Molecules and Solids": Prof. Del Chong (Chemistry, UBC).
11.30-12.00pm	"Interpretation of the Binary (e,2e) Reaction in EMS Experiments": Prof. Chris Brion (Chemistry, UBC).
12.00-1.00pm	Open Forum and Discussion of EMS Experiments and Theory. Moderator: Dr. Glyn Cooper (Chemistry, UBC).
1.00 - 2.30pm	**Lunch.**
2.45-3.45pm	"Inner-shell Excitation Studies of Surfaces, Adsorbates and Interfaces by Electron and Photon Impact - Implications for EMS Studies": Prof. Adam Hitchcock (Chemistry, McMaster Univ).
3.45-4.15pm	"Present Status of the Surface Reflection EMS Project": Dr. Sebastian Tixier (Chemistry and AMPEL, UBC).
4.15-4.30pm	**Coffee break.**
4.30-5.30pm	Open Forum and Discussion on EMS Studies of Surfaces, Solids and Adsorbates. Moderator: Prof Tom Tiedje (Physics and Electrical and Computer Engineering, UBC).
5.30pm	Concluding remarks: Prof. Chris Brion (Chemistry, UBC).

All interested are invited to attend (no registration fee required).

The University of British Columbia

BRAIN Research Centre

VANCOUVER HOSPITAL & Health Sciences Centre
A part of the Vancouver/Richmond Health Board

The Peter Wall Institute for Advanced Studies,
Major Thematic Acoustic Ecology Project, and
The Brain Research Centre
present

"THE LISTENING BRAIN"

Saturday, March 3, 2001 – IRC Lecture Theatre #3

8:00 AM	**Registration and Coffee**
8:45 AM	Dr. John Gilbert, Introduction and Welcome Dr. Kathy Pichora-Fuller, Dr. Max S. Cynader
Chair	*Dr. Dietrich Schwarz*
9:00 AM	Dr. Laurel H. Carney, Boston University Hearing Research Center and Department of Biomedical Engineering, Boston University "Detection of Sounds in Noise – A New Approach to a Classical Puzzle"
9:35 AM	Dr. Janet F. Werker, Department of Psychology, UBC "Speech Perception and Word Learning in Infancy"
10:05 AM	Dr. Dennis P. Phillips, Hearing Research Laboratory, Dalhousie University "Time, Space and Channels in Auditory Perception"
10:40 AM	**Coffee**
Chair	*Dr. David Stapells*
11:00 AM	Dr. Alan Kingstone, Department of Psychology, UBC "Ventriloquism in Motion"
11:30 AM	Dr. Claude Alain, Rotman Research Institute, Baycrest Centre for Geriatric Care and University of Toronto "Event-Related Brain Activity Associated with Distinguishing Concurrent Auditory Objects"
12:00 PM	**Lunch**
Chair	*Dr. Sid Fels*
1:00 PM	Dr. Phil Hetherington, Wavemakers Research Inc. "Devices that Listen"
1:30 PM	Dr. Eric Vatikiotis-Bateson, ATR International Information Sciences Division, Kyoto, Japan "Multimodal Speech, Redundancy, and Communication"

Note: *If you require assistive technology, please contact the Brain Research Centre by Feb. 22, 2001.*

2211 Westbrook Mall Vancouver, BC V6T 2B5 Telephone: (604) 822-0394 Facsimile: (604) 822-0361
e-mail: cynader@brain.ubc.ca web site: www.brain.ubc.ca

Acoustic Ecology Talks: 2000 – 2001

The following talks have been sponsored by Acoustic Ecology this year:

October 30
"Physical and Physically-Inspired Models for Sound Synthesis"
Perry R. Cook, Princeton University, Departments of Computer Science and Music.

November 24
"Relations between sensory and cognitive aging: Contributions of sensory declines and losses in processing speed to speech comprehension in older adults."
Bruce Schneider. University of Toronto, Department of Psychology.

November 27
"Rating and ranking UBC classrooms for speech quality and evaluating new designs and renovations"
Murray Hodgson, UBC, Director, Occupational & Environmental Hygiene, Professor, Department of Mechanical Engineering.

December 4
"Interactive Audio Synthesis for Virtual Reality"
Kees van den Doel, UBC, Computer Science Department.

April 9
"Speech Input and Infants Processing of Basic Syntactic Categories"
Presenter: Rushen Shi, Research Associate for Acoustic Ecology.

Narratives of Disease, Disability and Trauma: Lectures and presentations, 2000 – 2001

November 8
Barb Findlay from the Tzu-Chi Institute (Vancouver):
"Conducting Health Outcomes Research in an Integrated Care Clinic:
The Role of Storytelling."

December 6
Persimmon Blackbridge and Lizard Jones (Vancouver):
"That Long Distance Feeling: Psychiatric Adventures and Stories of MS"

January 24
James Pennebaker, University of Texas
"Stories, Words and Health"

February 16
Gloria Alvernaz Mulcahey, University of Western Ontario
"Aboriginal Healing Practices: Beyond the 'Healing Pathways' Symposium

March 2
Richard Ingram, James Overboe, Joy Adams Henley, Susan Penfold &
Ulrich Teucher, University of British Columbia
"Healthy Bodies, Excess Bodies and Questions of Access"

March 11
Irit Shimrat (Vancouver)
"Finding My Marbles: How Cancer Cured Me of Schizoaffective Bipolar
Disorder"

April 11
Bonnie Sherr Klein (Vancouver):
"The Art of Disability: Introduction to the Disability Arts and Culture
Movement"

Women at the Frontier of Excellence

Michael Smith's Legacy
to Canadian Women in Science

April 7, 2001

Agenda

Home
Directions
History
Agenda
Speakers
Registration
Contact Us
Press
Sponsors
Links

Time	Event
8 AM	Registration Coffee and Light Snacks
9 AM	Dedication to Michael Smith
9:15 AM	Shirley Tilghman, Princeton University
10 AM	Janet Rossant, Samuel Lunenfeld Institute
10:45 AM	Coffee Break
11 AM	Gabrielle Boulianne, Hospital for Sick Kids, Toronto
11:45 AM	Freda Miller, Montreal Neurological Institute
12:30	Lunch and tour of Vancouver Regional Science Fair Projects
2 PM	Julia Levy, QLT Incorporated
2:45 PM	Lea Harrington, Ontario Cancer Institute
3:15 PM	Coffee Break
3:30 PM	Catherine Kallin, McMaster University
4:15 PM	Claire Tomlin, Stanford University
5 PM	Geraldine Kenney-Wallace, British Aerospace
5:45 PM	Closing Remarks
6 - 7 PM	Refreshments

The **Peter Wall Institute for Advanced Studies** is located at the University Centre in the cultural heart of the University of British Columbia. The University Campus occupies a beautiful wooded site at the western tip of Vancouver on cliffs overlooking the Pacific Ocean. The **Institute** facilities include two well-appointed conference rooms opening to a broad terrace with spectacular water and mountain views. The residential annex, adjacent to the University Rose Garden, has twelve fully-equipped rooms.

The **Peter Wall Institute for Advanced Studies** has a variety of programs directed at supporting outstanding research. Several programs are thematic in nature designed to fund the collaborative research of interdisciplinary teams. These activities range from single meetings for developing themes, to multi-year major thematic grants. Other **Institute** programs focus on bringing together distinguished researchers, from both UBC and around the world, to spend time in residence at the **Institute.** These residencies, ranging in term from one month to one year, encourage the interaction of scholars from a variety of disciplines in exploring new research directions.

Peter Wall Institute
for Advanced Studies
The University Centre
6331 Crescent Road
Vancouver, BC Canada V6T 1Z2
Tel: 604.822.4782 Fax: 604.822.4222
e-mail: info@pwias.ubc.ca