

**University of Toronto Archives and
Records Management Services**



**Barry French
Fonds**

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University of Toronto Archives

Barry French Personal Records

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Biographical Note

Barry French was born on August 22 1931. In October 1955, he graduated with a B.A.Sc from the University of Toronto in Chemical Engineering. A year later, in 1956, he pursued his Masters degree at Graduate School of Thermodynamics at the University of Birmingham on an Athlone Fellowship. During this interim year, he worked as a research engineer for Orenda Engines in Malton Ont. and as a scientist to the Ramjet Section of the National Gas Turbine Establishment in Pyestock, Hants, England. In 1957, he returned to the University of Toronto, Institute of Aerophysics for his doctoral work. His thesis research, supervised by Prof. J.H. de Leeuw, related to plasma diagnostics and was both theoretical and experimental. He was hired as a lecturer in 1961, obtained his Ph.D. in 1962 and quickly rose through the ranks of the Institute of Aerospace Studies (UTIAS) to full professor by 1968. From 1974-1982, he held the position of Associate Director of UTIAS and from 1982-85 was half-time Dean of the School of Graduate Studies. He was also a founding board member of the Innovations Foundation. Prof. French is now Prof. Emeritus and has retained his ongoing connections to the University and specifically to the research done at UTIAS through his position as a scientific advisor of SCIEX (name derived from Scientific Export).

Prof. French has over sixty scientific publications and more than a dozen patents in his name. His early work in the 1960s on gasdynamics led to the establishment of the space simulation laboratories at the UTIAS and, as a result, was jointly involved with Prof. A.O Nier of Minnesota in developing the upper atmospheric mass spectrometer for Project Viking that collected atmospheric data for Mars. This research in miniature mass spectroscopy, vacuum gasdynamics and electronic technology led to several patented inventions relating to analyzing trace components. In 1974, Prof. French along with his associate Bill Breukelman founded SCIEX with the purpose of finding applications and markets based on these patents. For the twenty-five years following the establishment of SCIEX, Prof. French remained a key figure at SCIEX with positions on the Board of Directors and as a Senior Scientific Consultant. Much of his research in the latter part of his career related to further developments of trace analyzers and ionization mass spectroscopy. Today SCIEX, a division of MDS Health Group Ltd., is a world leader in mass spectroscopy instrumentation. It employs over 400 highly trained scientists and engineers and has established awards and research chairs at several Canadian universities. It is seen as the most significant research company to evolve out of the University of Toronto.

Prof. French is a fellow of the Canadian Academy of Engineers and the Royal Society of Canada and was a Fellow of the Royal Society of Art and the Canadian Aeronautics and Space Institute. He continues to advise at SCIEX and is presently working with Bill Breukelman on a new venture relating to geophysical instrumentation for resource exploration. He lives with his wife Gloria in Oakville, Ontario.

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Scope and Content

1955-1999 2.67 m textual; graphic

To varying degrees, records in this fonds document key components of Prof. French's career both within UTIAS and as an outside consultant. His education in the newly developing field of aerospace science is documented in his course notes found in Series 10. These notes were kept specifically to document the early teaching of this subject since Prof. French took courses from Professors Ben Etkin and Irvine Glass whose papers are also held by the University Archives. General correspondence files in Series 1, talks and papers found in Series 2 and 3 as well as course lectures found in Series 7 document his broad role as a university professor including his publishing activities, his relationship with other professionals and his role as an academic advisor and teacher. His role as an administrator both at the University and on the boards of professional associations are only marginally documented in two small series of records: University of Toronto, Series 6 and Professional Associations Series 8.

While Series 5 Research is by far the largest series in this fonds, it is mainly confined to the latter part of his career relating to research supporting SCIEX. Except for a few files, early research files are absent from this accession and researchers interested in research in the 1960s leading to Prof. French's participation in the Viking project will have to make due with records found in Series 2 and 3 and possibly some correspondence in Series 1. The strength of this fonds is how well it documents the research at SCIEX, one of Canada's most successful companies to evolve from a university research facility. Most records in Series 5, as well administrative files in Series 6 SCIEX, give a good picture of SCIEX's evolution including the research undertaken, the funding sources available at the time, the business strategies that led to its success and specifically the instrumental role Prof. French played in this commercial enterprise. These records will be of interest to anyone researching the commercialization and marketing of technology in the Canadian setting. SCIEX is also a successful example of cooperation between industry and a university with the support of government agencies.

Accession: B2006-0024

Access: All series records are OPEN except:

Letters of Recommendation found in Series 1

Student evaluation files found in Series 7.

See Series description for details.

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Series 1 Correspondence

1960- 1995

This series contains routine professional correspondence arranged chronologically. Types of activities documented include: appointments, awards, attendance at conferences and symposiums, the publishing and reviews of papers in journals, memberships in professional organizations, requests for technical and research data regarding specific projects, visits to other research facilities and tours given of UTIAS. Scattered through all the chronological files are requests from various institutions and firms looking for Ph.D. graduates to fill an ever growing aerospace engineering industry as well as the ongoing search for doctoral and post-doctoral researchers for UTIAS. Filed at the end of this series are files relating to recommendations written for students.

B2006-0024/001 - /002

Access: Letters of Recommendation B2006-0024/002 (10) – (12) are closed for 30 years from date of creation.

Series 2 Talks and Addresses

1960- 1992 0.13

This series contains copies of talks and addresses by Prof. French at professional meetings, symposia, and conferences. They are arranged chronologically and cover such research topics as upper atmospheric mass spectroscopy, the Trace Atmospheric Gas Analyser (TAGA), satellite aerodynamics, molecular beams and ion clustering. Not all talks were scientific in nature. Prof. French was often asked to speak about the role of engineering in space exploration and the relationship between university engineering research and industry as well as the commercialization of scientific applications. Historical talks include a paper on Canadian post-war aerospace development, a 1968 talk on Canadian development in space research, as well as papers telling the story of key scientific innovation such as the story on how TAGA and SCIEX came about and the role of the University of Toronto Innovation Foundation.

B2006-0024/003

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Series 3 Publishing

1961-1994 0.13 m

This series documents many of Prof. French's publishing activities in journals, as well as research and reports written as a consultant to industry and government. It contains offprints or typescripts of published papers as well as technical reports to clients. Also documented is Prof. French's role as a referee for several journals including *The Physics of Fluid*, the *American Institute of Aeronautics and Astronautics Journal*, *The Journal of Chemical Physics*, and several others. These files contain correspondence and referee comments and are filed at the end of the series

B2006-0024/004

Series 4 Research

1955-1999 0.91

Records in this series document Prof. French's many research projects especially those that relate to the development and refinement of inventions of specialized instruments to measure traces of elements and organic compounds. Most of the research files relate to the period after 1988 when SCIEX, in partnership with the University of Toronto, was given funding by the Ontario Technology Fund to establish an "International Analytical Instrument Company". The original proposal and agreement as well as reviews, reports, notes, minutes and memos document this pivotal partnership and the research undertaken. The main projects documented include: Liquid Sample Introduction System (LISQS), Monodisperse Dried Microparticulate Injector (MDMI), the Quadrapole Rod Development Program (ELAN) and Inductively Coupled Plasma Mass Spectrometry (ICP-MS). Records relating to patents held for these technologies can be found in B2006-0024/007.

Early in his career, Prof. French's pioneering research in gasdynamics and molecular beams resulted in the involvement in Project Viking to measure upper atmospheric data on Mars. Unfortunately, few records on this research have survived here. There is one file with some original data for the Trace Atmospheric Gas Analyser (TAGA). As well, there is some documentation on a few early projects including work done as a graduate student on the Iroquois Engine for Orenda Engines and research done in aerothermodynamics for the Missile and Space Vehicle Department (1960-61).

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Series 4 Research (cont'd)

For detailed file listing see Appendix A.

B2006-0024/005 Research Files Alphabetical
B2006-0024/006 Research Files Alphabetical
B2006-0024/007 Research Files Alphabetical and Files on Patents
B2006-0024/008 OTF – Ontario Technology Fund
B2006-0024/009 LIQSI – Liquid Sample Introduction System
B2006-0024/010 ELAN – Quadrapole Rod Development
B2006-0024/011 MDMI – Monodisperse Dried Microparticulate Injector and
ICP-MS – Inductively Coupled Plasma Mass Spectrometry

Series 5 SCIEX

1985-1999 0.26 m

Records documenting Prof. French's role in the administrative and operational activities of SCIEX, rather than research, can be found in this series. Included are planning and business development records such as strategic planning documents and business plans with related announcements and internal memoranda. Project reviews, progress reports, and presentations to the Scientific Advisory Board and the New Technologies Evaluations committee document overall research and development. Administrative records include minutes and agenda of the Senior Management meetings and the Operational and Financial Committee meetings. There are also files relating to licensing, awards established by SCIEX, publicity files and one file on SCIEX 25th anniversary.

B2006-0024/012 - /013

Series 6 University of Toronto

1970-2000 0.10 m

This small series documents Prof. French's activities on committees mainly at UTIAS including the Admission Committee, the Curriculum Committee and the Industrial Committee. Files contain memos, minutes of meetings and notes. Also included in this series are files relating to any awards and recognitions he received from the University of Toronto and well as one file on the opening of the new wing of UTIAS in 1989. Files are arranged chronologically.

B2006-0024/014 (01)-(14)

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Series 7 Teaching

1958-1988 0.16 m

This series is almost entirely made up of course lecture notes for undergraduate and graduate courses taught by Prof. French. Included here are lectures on Aeroelasticity, Rarefied Gas Dynamics, Gas Surface Interactions, Vacuum Technology, Applied Mass Spectrometry and Quadrupole Theory. There is also one file of Prof. French's appraisal reports of Ph.D. thesis which are restricted.

B2006-0024/014 (15) – (05) and /015

Access: B2006-0024/015 (09) is restricted. Please consult University Archivist.
All other files are OPEN.

Series 8 Professional Associations

1980-1990 0.07 m

This series relates to Prof. French's involvement with various professional associations and funding bodies for a ten year period through the 1980s. Included are files on the National Research Council, the Royal Society, the Science Council of Canada, the Canadian Society for Chemistry as well as several others. Correspondence, memos, agenda, papers and notes usually document his role as an advisor, reviewer or participant at a conference or meeting. There is also a file on the Bell Canada Forum Award that Prof. French received in recognition for excellence in business-university research collaboration. Files are arranged chronologically.

Correspondence found in Series 1 gives a more complete view of his activities in various associations. Talks given at conferences or meetings are found in Series 2.

B2006-0024/016

Series 9 Appointment books

1970 to 1994 0.13 m

Yearly appointment books document Prof. French's activities generally. Note that only pages containing annotations have been retained.

B2006-0024/021

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Series 10 Education

1950 -1961 0.52

Records in this series document Prof. French's university education during his B.A.Sc. (1955) in Chemical Engineering at the University of Toronto, his M.Sc. 1957 at the Graduate School of Thermodynamics at the University of Birmingham England, and his Ph.D. (1962) at the Institute of Aerophysics, University of Toronto. Included are course notes and problem sets for various undergraduate and graduate courses including Advanced Applied Aerodynamics, Gas Dynamics, Thermodynamics, Viscous Flow, and Mathematics. Also included are original research notes and lab books documenting both his masters and doctoral research on plasma diagnostics. Publications and patents relating to this early research are also found in this series. Records are arranged by degree and subsequently by course or topic.

B2006-0024/017 - /020

Series 11 Photographs

1965-199- 10 photographs and 1 slide

Photographs include a portrait of Prof French from 1990, several images of experimental equipment at UTIAS, a group shot of participants of a course on molecular beam methods at the New Hampton School (1965) and contact prints from the opening of the new wing at UTIAS in 1989. Arrangement is chronological.

B2006-0024/001P

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Appendix 1 Series 3: Research

Acc./Box	Description	Dates
B2006-0024/005	Research Files - Alphabetical Advanced Pumping	1989-1994
	(01)	
	(02) Agglomeration	
	(03) Artificial Muscle Fiber (Brock, MIT)	1994
	(04) Biomedical Photometrics	1994
	(05) Coanda Spray Chamber	1995
	(06) Cooperative biomedical Research Network (MDS)	1988
	(07) FIS – Field Iron Spectrometer	1998-1999
	(08) Food Irradiation - SCIEX	1993
	(09) Galileo Detection Development Program - SCIEX	1990
	(10) General Electric - Consulting Contract	1960-1961
	(11) Gold Standard API Millennium	1996-1998
	(12) Gassy Rods	1995-1996
	(13) High Ion Transmission	1978-1979
	(14) Ion Detectors - SCIEX	1990-1994
	(15) Ion Imaging – - SCIEX, D. Banks	1992
	(16) Ion Path – Computer Modelling – Prof Moure	1989
B2006-0024/006	Research Files - Alphabetical	
	(01) Ion Spray – UTIAS CDF Plus	1993-1997
	(02) Ion Spray – UTIAS CDF	1997-2000
	(03) Ion Traps - SCIEX	1992
	(04) Ion Traps	1995
	(05) Integrated Protein Sequencer- SCIEX	1991
	(06) Iroquois Engine of Orenda Engines	1955-1956
	(07) Lazer Volatization Solids Sampler	1987-1988
	(08) (NRC)Lasers, CME Peter Dawson	1994
	(09) Low Flow Torch	1995
	(10) Morphometrics	
	(11) MSD Isotopes - SCIEX	1991-1992
	(12) Nebulizers	1996
	(13) NORDION – Stable Isotopes	1991
	(14) Quad Rods	1995
	(15) Redwood Microsystems	1993
	(16) Russian Space Habitat Proposal - UTIAS	1991
	(17) The Seaside Consortium - SCIEX	1992
	(18) Spray Chambers – Wash Out	1995-1996
	(19) Spray Chamber - Analytical Model (reports by Etkin) - SCIEX	1995-1996

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Acc./Box	Description	Dates
B2006-0024/007	Research Files - Alphabetical	
	(01) TAGA Early Research, Agreement	1975-1980s
	(02) Torches	1995
	(03) Turbo Spray/Micro Spray	1993-1997
	(04) Ultrasonics	
	(05) – (10) Patents	1979-1993
B2006-0024/008	Ontario Technology Fund – OTF	
	(01) - Proposal	1987
	(02) - Award—Related Documents	1987
	(03) - Letter of Intent	1988
	(04) - Original Agreement UTIAS/SCIEX	1987?
	(05) - Technical Papers for Pitch (?) by SCIEX	1987-1988
	(06) - Milestone Reviews	1987-1989
	(07) - UTIAS Facilities	1988?
	(08) - Milestone Reviews	1990-1993
	(09) - Memos, Reports, Notes, Minutes	1988-1991
	(10) - Management Diary	1988
	(11) - Student Seminars Group Meetings	1990-1991
B2006-0024/009	LIQSI – Liquid Sample Introduction System	
	(01) - Agreement	1975, 1987
	(02) - Invention	1987
	(03) - Correspondence, Reports, Cost Summaries, License Agreement	1985-1989
	(04) - Research – Notes, Reports, Correspondence	1986-1989
	(05) - Reviews, Project Summaries	1990
	(06) - Patent	1991-1992
	(07) - Project Review	1991
B2006-0024/010	ELAN – Quadrapole Rod Development Program	
	(01) – (05) - Memoranda, Reports, Correspondence, etc...	1985-1993
B2006-0024/011	MDMI – Monodisperse Dried Microparticulate Injector	
	(01) - Management Meeting	1987
	(02) - Key Memos	1991-1992
	(03) - Project	1991-1992
	(04) - Project	1992
	(05) - Research Planning (?)	1991-1992
	(06) - Patent	1992
	(07) - Research – John Olesik Data and Paper	1992
	(08) - Progress Review	1992

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Acc./Box	Description	Dates
B2006-0024/011(09)	- Status Report	1992
(10)	- Patent – Apparatus and Method for Liquid Sample Introduction	1992
(11)	- Actions, Memos ICP-MS – Inductively Coupled Plasma Mass Spectrometry	1992-1993
(12)	- Correspondence and related	1989-1990
(13)	- Research and Development	1994-1996
(14)	- Interface (Hypersonic screening)	1995
(15)	- Sample Intro Systems	1995-1996
(16)	- Research	1996
(17)	- Memoranda and Reports	1996
(18)	- Product Strategy	1996
(19)	- Marketing	1997