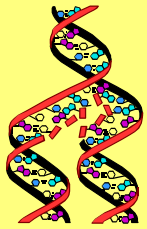

National DNA Data Bank
Advisory Committee

Annual Report

2001-02

An Independent Advisory Committee Reporting to the Commissioner of the Royal Canadian Mounted Police

Richard A. Bergman, Chairperson
Dr. George R. Carmody, Vice-Chairperson

Enquiries concerning the Advisory Committee may be directed to:

The Secretariat
National DNA Data Bank Advisory Committee
Room 257, National Police Services Building
1200 Vanier Parkway
Ottawa, Ontario K1A 0R2
Tel: (613) 998-6339
Fax: (613) 952-0156

www.rcmp-grc.gc.ca/dna_ac/index_e.htm

The website of the National DNA Data Bank of Canada may be found at:

www.nddb-bndg.org

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Acronyms/Abbreviations Used in this Annual Report

Acronyms

A/Commr	Assistant Commissioner
B&E	Breaking and Entering
CODIS	Combined DNA Index System
CRU	Case Reception Unit
DNA	Deoxyribononucleic Acid
ERU	Evidence Recovery Unit
FBI	Federal Bureau of Investigation
FLS	Forensic Laboratory Services
NPS	National Police Services
O I/C	Officer in Charge
RCMP	Royal Canadian Mounted Police
STR	Short Tandem Repeats
STaCS	Sample Tracking and Control System

Abbreviations

National DNA Data Bank Advisory Committee	Committee
National DNA Data Bank of Canada	Data Bank

The Committee was appointed by the Solicitor General of Canada in early 2000 to function as an independent body to oversee the effectiveness and efficiency of the Data Bank. The Committee was established pursuant to the *DNA Identification Act* and the annexed *Data Bank Advisory Committee* Regulations and is charged to report to the Commissioner of the RCMP annually. Since the inauguration of the Committee and the opening of the Data Bank in June 2000, members have regularly reviewed all phases of the implementation process and the Data Bank operations.

The following recommendations have been made which, if accepted, will bring about the continuation of the successes of the Data Bank and ensure that the original objectives set by our government will be met. The Committee has also identified their objectives for the coming year, and these are contained within this Report. They include an evaluation of STaCS, as well as a closer examination of Data Bank effectiveness.

The Committee has stated their very positive comments about how the Data Bank has progressed to date and will continue to monitor all aspects of the operation in accordance with their mandate.

To all RCMP members and staff for their assistance during the past year, as well as to those from other departments and agencies, the Committee extends sincere appreciation.

Recommendation 1
That the Department of Justice proceed as expediously as possible to make amendments to Section 2(2) of the *DNA Identification Regulations* which will ensure that fingerprints are available to confirm identity and, as well, to make the legislative changes identified through the consultation process that has taken place over the past 24 months.

Recommendation 2
That the Commissioner implement the recent plan, provided by the Committee, to address the serious privacy, legal and communications issues surrounding the Data Bank receiving convicted offender samples that fall under the non-designated classification.

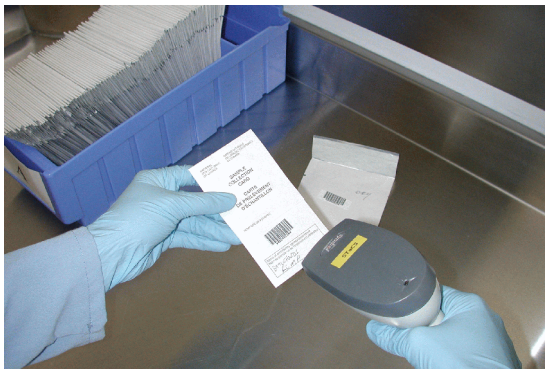
The Committee had pointed out that the Orders fell within two groups. First, those that clearly fell outside the purview of the authorizing legislation. To retain the samples associated with these Orders would violate privacy rights. Second, those that did not appear to meet the statutory requirements but might possibly do so if further explanations and clarifications had been given. The Committee had submitted a plan to the Commissioner that would authorize the O I/C of the Data Bank to process these Orders.

Recommendation 3
That the Commissioner examine the current federal, provincial and territorial funding agreements with a view

to producing a flexible shared costing arrangement which will both recognize the need to encourage the submission, processing and addition of limited exhibit crime scene DNA profiles (i.e. B&E's) to the Crime Scene Index as well as fairly contribute to the laboratory costs associated with complex case submissions involving large numbers of exhibits.

Recommendation 4
That the Committee be charged to monitor the ongoing effectiveness of International Agreements over the coming year, as a follow-up to the process recently enacted, to ensure that standards of privacy and security continue to be adhered to.

Recommendation 5
That the Commissioner monitor the flow of basic convicted offender samples being sent to the Data Bank with a view of ensuring the capacity of the Data Bank is being utilized to the fullest extent possible.



Chairperson's Message to Commissioner

June 2002

Commissioner Giuliano Zaccardelli
Royal Canadian Mounted Police

Dear Commissioner Zaccardelli:

On behalf of the Members of the National DNA Data Bank Advisory Committee, I am pleased to present to you the second Annual Report of the Committee.

During the past year, the Committee has met on three occasions and during that period, has monitored the progress of the Data Bank. I am pleased to report that the Committee has been very impressed with the accomplishments of the Data Bank and its placement as one of the leading centres of police science and technology in the world.

Elsewhere in this Annual Report, the Committee has made specific recommendations for your consideration and these include our concerns regarding the holding of non-designated samples at the Data Bank and the perceived conflict between the financing of the Data Bank and the federal/provincial and territorial agreements that the RCMP has entered into. You have previously drawn to the attention of the Solicitor General, and the Minister of Justice and Attorney General, the importance of updating DNA regulations and legislation and we would like to reconfirm the necessity of such actions. Furthermore, it is our observation that the Data Bank continues to function at only a percentage of the available capacity and we have recommended that this situation be monitored closely.

A component of our report, page 18, includes some brief data on the Data Bank. Specifically, we have attempted to demonstrate the tremendous growth of the Data Bank from its first year of operation through its second year. Notwithstanding this progress, however, we believe that this data only represents 'the tip of the iceberg' as the sample input into the Data Bank will continue to multiply and with the resultant increase in feedback to police agencies for their investigative work.

On behalf of the Committee, one of our members, Dr. Frederick R. Bieber, a world-renowned authority in the bio-medical area, has prepared an in-depth commentary on several aspects of DNA technology and its

application and this, too, is included in our Report, as Appendix A.

Our efforts to set up our own web page on the internet are now complete and the public may find information about the Committee at:

www.rcmp-grc.gc.ca/dna_ac/index_e.htm

and, at the same time, concerns over privacy and/or legislative matters may be brought to our attention and we will keep you informed about such matters.

As we complete our second year as an independent committee, we would be remiss if we did not recognize the invaluable assistance and cooperation that we have received from many directorates within the RCMP and, specifically, the personnel of the Data Bank. Furthermore, representatives from the Department of Justice Canada and Solicitor General Canada have been regular contributors at our meetings and we have valued their input.

I can assure you, Commissioner, that all original members of our Committee remain in place and are pleased to have the opportunity to contribute our advice and counsel to you during these early years of the Data Bank. We look forward to the challenges ahead as the Data Bank continues in its role as a valuable tool within the Canadian criminal justice system.

Respectfully yours,

Richard A. Bergman,
Chairperson

Mandate of the Advisory Committee

The Committee was established pursuant to Section 12 of the DNA Identification Act through the annexed Data Bank Advisory Committee Regulations. The Regulations were enacted on May 8, 2000, several months before the proclamation of the DNA Identification Act and the DNA Identification Regulations, which occurred on June 30, 2000.

The establishment of an Advisory Committee was recommended by the Standing Senate Committee on Legal and Constitutional Affairs in its Sixteenth Report (December 8,1998) wherein the need for an independent advisory committee was deemed necessary to contribute to the effective and efficient operation of the Data Bank by providing expert advice to the RCMP Commissioner.

Appointments to the Committee were made by the Solicitor General of Canada.

The composition of the Committee was to include a Chairperson, a Vice-Chairperson, a representative of the Office of the Privacy Commissioner and other members with expertise in the police, legal, scientific and academic communities.

The Committee functions as an independent body to assist the Commissioner in ensuring that the Data Bank operates in compliance with the legislation and regulations. In addition, it reviews the methods used to issue notifications, transmit information and convey and store samples. Other functions of interest include sampling processes and sample integrity, scientific integrity, genetic privacy, analytical procedures, international information sharing protocols, sample re-analysis and the DNA profile format itself.

In accordance with the Regulations, the Committee reports annually to the RCMP Commissioner.

Members and Structure of the National DNA Data Bank Advisory Committee

RICHARD A. BERGMAN
Chairperson

Deputy Commissioner
RCMP (ret'd)

Police Community Representative

Following 35 years of distinguished service with the RCMP, Richard Bergman retired from active police service in 1997. During his career, he served in Manitoba, Saskatchewan, British Columbia, Ontario and Atlantic Canada. Among his many significant career appointments, he served as Commanding Officer of the RCMP in Manitoba, the Director, RCMP Forensic Laboratories, Deputy Commissioner, National Police Services, and Deputy Commissioner, Atlantic Region. It was under his direction as the Director of Forensic Laboratories that the RCMP initiated their DNA program.

Mr. Bergman graduated from the University of Saskatchewan in 1972 with a B.Sc. (Honours) and a M.Sc (Biochemistry) in 1974. He is also a graduate of the Career Assignment Program, Government of Canada.

Mr. Bergman is a member of a number of professional associations, and the recipient of several distinguished awards. He has published and co-authored publications relating to legal, police and science issues.

DR. GEORGE R. CARMODY
Vice-Chairperson

Associate Professor of Biology

Carleton University
Ottawa, ON.

Population Biology Specialist

Beginning an eminent career in academia upon graduation from Columbia University (Chemistry), Dr. Carmody completed his Ph.D. in Zoology from the same institution. Subsequently, he was a postdoctoral fellow in population biology at the University of Chicago, a senior fellow (genetics) at the University of Nottingham, and a visiting researcher and professor at the National Institute of Environmental Health Sciences at the University of Hawaii and the University of Texas.

Since joining Carleton University in 1969, Dr. Carmody has been an Assistant Professor, Associate Dean of Science, Chair, Integrated Science Studies, and is currently an Associate Professor of Biology.

Dr. Carmody is a member of several professional societies, has participated in the publication of a plethora of scientific documents, testified in numerous DNA related court cases in Canada, and during his distinguished career, has presented briefings at numerous lectures and seminars throughout North America. Dr. Carmody is recognized in the scientific and legal communities as an outstanding expert in population genetics and statistics as applied to forensic applications.

DR. FREDERICK R. BIEBER

Associate Professor of Pathology

Harvard University
Boston, Mass

Bio-Medical Ethics Specialist

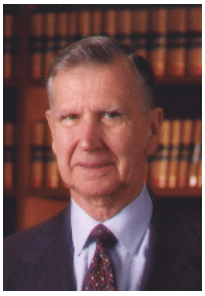
Dr. Bieber has a B.A. (State University of New York), a M.Sc.(University of Rochester), and a Ph.D. in human genetics (Medical College of Virginia). Dr. Bieber also completed postdoctoral fellowships in Medical Genetics at the Massachusetts General Hospital and Harvard Medical School and in Pathology at Brigham and Women's Hospital in Boston. He is licensed and certified with a number of American genetics and genetics-related Boards. Dr. Bieber holds a number of academic appointments and is currently an Associate Professor of Pathology at Harvard Medical School, a medical geneticist at Brigham and Women's Hospital, a consultant in Pediatrics at Massachusetts General Hospital, and a consultant in Pathology at Children's Hospital in Boston.

Dr Bieber holds a number of professional positions such as being a member of the DNA Advisory Board, Federal Bureau of Investigation. He is a recipient of numerous academic and public service awards and honors for his academic achievements. Most recently Dr. Bieber was awarded a Distinguished Service Award by the Massachusetts District Attorney's Association for his many contributions to public safety throughout the Commonwealth over the past ten years.

HON. PETER CORY, Q.C.

The Osler ADR Centre
Toronto, ON.

Representing the Law



After 57 years of loyal and dedicated service to Canada and its legal system, Hon. Cory retired in 1999 from the Supreme Court of Canada to take up his current position with the Osler Alternative Dispute Resolution Centre in Toronto, Ontario. Following three years of service during World War II as a Royal Canadian Air Force bomber pilot, Hon. Cory graduated from Osgoode Hall Law School in 1950 and served with a legal firm for a number of years before being appointed to the Supreme Court of Ontario High Court in 1974, the Ontario Court of Appeal in 1981, and the Supreme Court of Canada in 1989.

Hon. Cory is a member of numerous renowned associations and clubs, and is currently the Honourary Colonel of 426 Operational Training and Transport Squadron in Trenton, Ontario.

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GISÈLE CÔTÉ-HARPER, O.C., Q.C.

Professor, Faculty of Law
Laval University
Sainte-Foy, Quebec

Human Rights Specialist

Gisèle Côté-Harper graduated with a BA and an LL.L. from the Université Laval and an LL.M. from Harvard. She is currently a Barrister and a Professor in the Faculty of Law at Université Laval where she teaches Substantive Criminal Law, Criminal Procedure and Evidence.

Professor Côté-Harper was a long-time member of the Canadian Human Rights Tribunal, of the Quebec Human Rights Commission, and the Public Complaints Commission against the RCMP. She also served as a member on the U.N. Human Rights Committee.

Gisèle Côté-Harper has been a member of the Board of Directors of the Canadian Institute for International Peace and Security and, as well, served as a co-rapporteur on the creation of an international institute for the development of human rights and of democratic institutions. Following this, she was, for six years, the Founding Chairperson of the Board of Directors of the International Centre for Human Rights and Democratic Development.

Professor Côté-Harper was appointed Queen's Counsel in 1987. In 1995, the United Nations Association of Canada recognized her contribution as a legal expert on national and international human rights issues by awarding her the Lester B. Pearson Medal. In 1998, she was named Officer of the Order of Canada and she received the Quebec Bar Medal.

A distinguished author, Professor Côté-Harper now sits on the Board of Directors of the Inter-American Institute for Human Rights in Costa Rica and on the Board of Directors of the Pearson Peacekeeping Centre. She also acts as a member of the recently created International Commission on State Sovereignty and Intervention.

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DR. WILLIAM S. DAVIDSON

Dean of Science
Simon Fraser University
Burnaby, B.C.

Medical Genetics Specialist

After graduating with a degree in Biochemistry in Edinburgh, Scotland, Dr. Davidson completed his doctorate at Queen's University in Kingston, Ontario. Following various fellowships and visiting professor appointments in the United States, he settled at Memorial University, until 1999, where he advanced from assistant professor to acting Dean of Science. Thereafter, he was selected for his current appointment as the Dean of Science at Simon Fraser University.

Dr. Davidson has participated in and authored a significant number of research papers and articles, and is a member of many influential national and international medical genetics-related groups and institutions.

He supervised a number of graduate students at Memorial University, and continues to pursue this endeavor at his current assignment. Dr. Davidson has lectured widely throughout Canada and the international scientific community.

P. JULIEN DELISLE

Executive Director
Office of the Privacy
Commissioner of Canada
Ottawa, ON

Representing the Privacy Commissioner of Canada

Mr. Delisle is from Jonquiere in the Saguenay/Lac St Jean Region. He studied at the University of New Brunswick and at Saint-Thomas University in Fredericton, New Brunswick and has a degree in French Literature.

Mr Delisle has extensive experience in the human rights field at both the provincial and federal levels. He joined the Office of the Privacy Commissioner of Canada in 1985 and has been the Executive Director since 1991.

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DR. RON FOURNEY

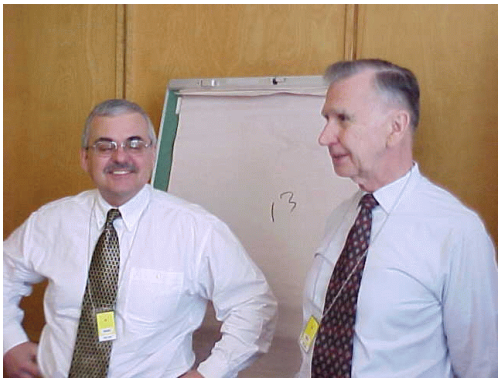
Officer in Charge
National DNA Data Bank
RCMP
Ottawa, ON

Representing the National DNA Data Bank

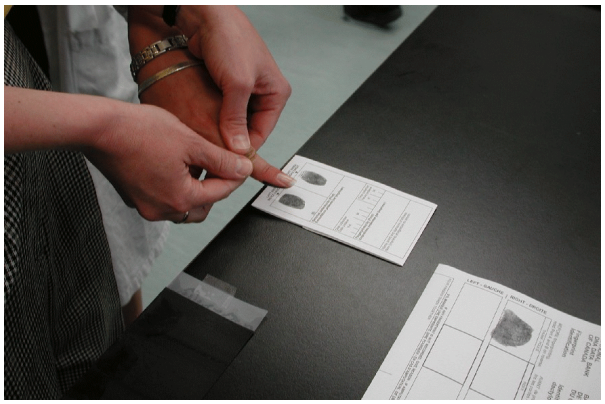
Dr. Fourney received his Ph.D. in Biochemistry and conducted post-doctoral studies in molecular basis of cancer predisposition as a National Cancer Institute of Canada and Alberta Cancer Board Research Fellow. He jointed the RCMP as a civilian member and molecular genetics specialist in 1988.

Dr. Fourney is a founding member of the RCMP DNA program and has been instrumental in the development and implementation of forensic DNA typing for Canada. He represents the RCMP on numerous national and international committees tasked with the development of DNA identification methods for forensic human identification. He was the project director for the implementation of the National DNA Data Bank that recently opened in June 2000. He has also played key roles in numerous investigations including organization and management of the SR111 DNA Typing task force for the DNA identification of the victims of the Swissair Flight 111 aircraft disaster. He has continued his interest in enhancing forensic DNA technology and has specialized in fluorescent Short Tanden Repeat detection analysis, robotic automation and comprehensive strategic planning for DNA data banks. Dr. Fourney is closely involved with the privacy and security issues of DNA human identification and was a key content expert in the design of the Canadian DNA Data Bank Legislation.

Currently, Dr. Fourney is Officer in Charge of Canada's National DNA Data Bank and manages a research team which explores new DNA technologies. He is a member of the editorial boards for The Journal of BioTechniques and The Journal of Forensic Sciences, advisor to the International Journal of Legal Medicine and has a cross appointment as an adjunct professor in the Department of Biology, Carleton University (Ottawa-Carleton Institute of Biology).



The Committee held its first meeting of 2001-2002 on **April 26-27, 2001**, in the Commissioner's Boardroom, RCMP Headquarters, Ottawa. Commissioner Giuliano Zaccardelli honoured the Committee with his presence and words of gratitude and encouragement for the work of the Committee. The Commissioner particularly stressed the importance of both science and technology in police work and felt that 'science' must be made just as important as the development of police technology. The independence of the Committee was extremely important, in the viewpoint of the Commissioner, and he urged the members to use their expertise to encourage the introduction of new scientific developments in policing.

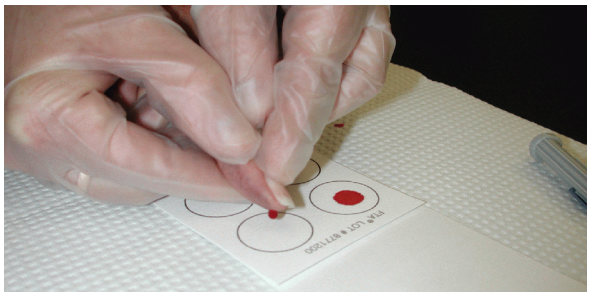


At this meeting, members Dr. Fred Bieber and Dr. George Carmody, reported on their on-site project visit to the Data Bank, made several recommendations for the enhancement of the efficiency of the Data Bank, and gave very favourable feedback regarding the thoroughness and care that had been taken in designing and implementing the Data Bank.

The Committee felt it important, at this meeting, to review the criteria for match notification for the Convicted Offender Index. The 'loci' on the DNA strands and the specific regions of differences that affords discrimination known as 'alleles', were reviewed.

Discussion also centred around the identity of siblings and the legal and privacy/ethics concerns of reporting back to investigators potential leads to relatives.

The "National DNA Data Bank of Canada - Project Closeout Report, April 2001" was presented to the Committee and this included the generic project life cycle, costing, lessons learned, the Data Bank organization, CODIS, STaCS, sample processing, match inventory report, statistics, partnerships, collaborations about intellectual properties and accreditation. The Committee was pleased to note that the project finished on time and within budget.



Department of Justice Canada representatives reviewed, with the Committee, a number of issues including: challenges to the DNA legislation; the manner in which the judiciary was exercising its discretion to make DNA Data Bank orders; some conflict perceived with the Young Offenders Act; training of the judiciary and shortcomings in this area; legislative changes and the timing for such; and, amendments to the regulations and mandatory review of the legislation.

The status of international agreements, as called for under DNA legislation, was detailed for the Committee including interpol/reciprocal agreements; bi-lateral agreements e.g. FBI; and, specific agreements in place when countries send profiles to Canada and when Canada sends profiles to foreign agencies.

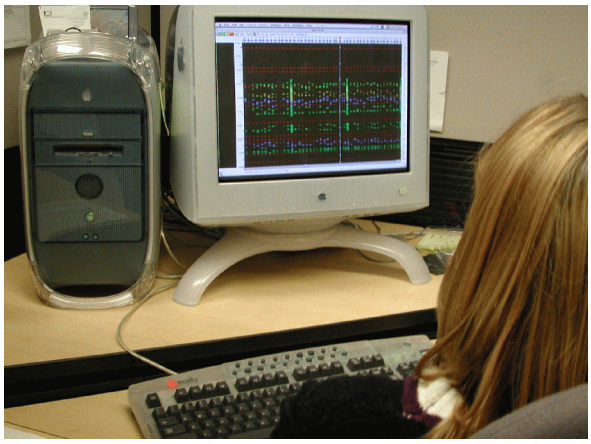
The second meeting of the year was held in Toronto on **November 5-6, 2001**, in conjunction with the 48th Annual Meeting of the Canadian Society of Forensic Science and included participation in a special DNA Workshop.

This meeting included discussion concerning the Committee web site wherein it was agreed that the web site would be a component of the RCMP web site but a sub-heading would be included to reflect the independence of the Committee.

As an ongoing Agenda item, the Committee received a further report on the progress of the Data Bank and were pleased with the continual achievements being made in all facets of the Data Bank operation. The Committee also discussed the apparent disparity between the filing of crime scene profiles between Ontario and Quebec and the breakdown between primary and secondary offences. Matters such as Judges orders, the legislation, the Privacy Act, and Judges discretion to order or not to order a sample taken, were also reviewed with the representatives of the Department of Justice Canada.

At this meeting the Committee was brought up to date on the rationale behind Bill C-36, the anti-terrorism legislation. The Bill added 12 new terrorism related offences to the list of primary designated offences that will be eligible for DNA data bank orders or authorizations as well as inclusion in the crime scene index. As well six secondary designated offences that relate to terrorist acts have been changed to primary designated offences.

A special guest at this meeting was the Crime Laboratory Analyst Supervisor of the DNA Database, Florida Department of Law Enforcement, who presented the Committee with an historical perspective and the current status of the DNA Database in Florida. One aspect emphasized several times in the presentation was the significant jump in the numbers of identified suspects since the inclusion of burglary in the offences from which persons in Florida are required to provide a sample.

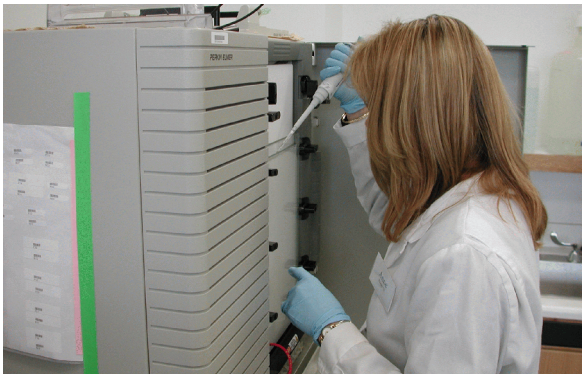


The Committee was equally interested in the data reported by the Forensic Science Service (U.K.) which indicated that 45 percent of those involved in serious crimes of violence were also involved in B&E's, hence the reason for the inclusion of B&E profiles in the Crime Scene Index (U.K.).

The third meeting of the year was held in Ottawa, **February 8-9, 2002.** In order to clarify a number of issues where the Committee lacked information, this meeting brought together several representatives from various directorates within the RCMP, the Department of Justice and Solicitor General Canada.

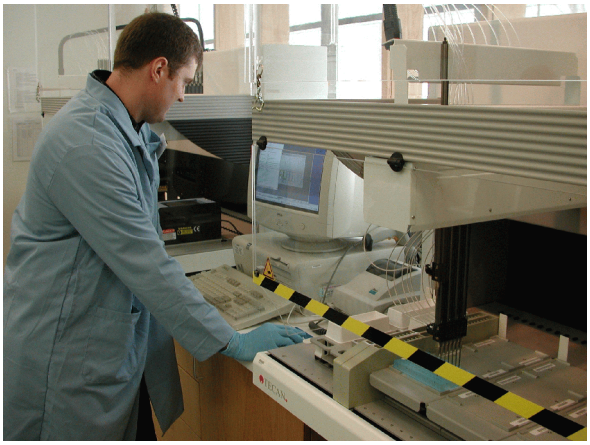
At this meeting the Committee paid tribute to four Committee members who had made noteworthy accomplishments since the last meeting. Honourable Peter Cory, Q.C., had completed the "The Inquiry Regarding Thomas Sophonow", The Investigation, Prosecution and Consideration of Entitlement to Compensation, for Manitoba Justice and Gisèle Côté-Harper, O.C., Q.C., played a significant role in the

publication of "The Responsibility to Protect", Report of the International Commission on Interventions and State Sovereignty, International Development Research Centre. Dr. Frederick Bieber and Dr. George Carmody had served as members of the "World Trade Center Kinship Analysis and Data Analysis Planning Panel", U.S. National Institute of Justice, a group of distinguished professionals involved in the aftermath of the events of September 11, 2001.



Following the presentation of the Data Bank update report, the Committee was concerned that the Data Bank was receiving only about 50% of the samples from primary offense convictions which statistics indicate should have been going into the Data Bank.

The data element that received the primary attention of the Committee was the number of court ordered samples received by the Data Bank (93) for offences that did not fall within the statutory requirements for processing. The Orders fell within two groups. First, those that clearly fell outside the purview of the authorizing legislation. To retain the samples associated with these Orders would violate privacy rights. Second, those that did not appear to meet the statutory requirements but might possibly do so if further explanations and clarifications had been given. The Committee recommended that the Commissioner authorize the O i/c of the Data Bank to process these Orders in the following manner. In the case of an Order that clearly did not meet statutory requirements, the sample would be returned to the police officer who submitted it.



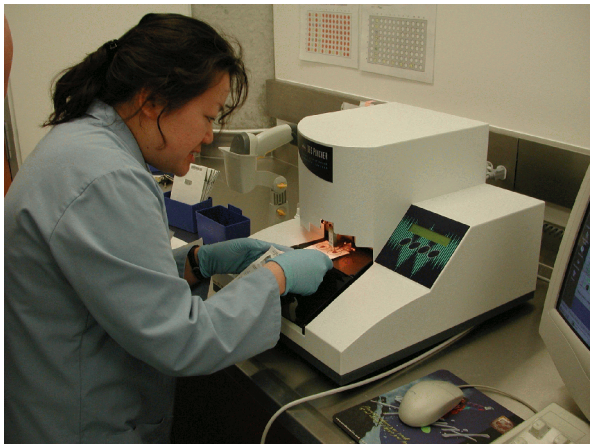
The accompanying letter would explain that the Order could not be accepted because it did not comply with statutory requirements. Further, the letter would suggest that the officer notify the Judge who issued the Order as well as associated Crown and Defence counsel. In the case of Orders requiring further explanation and clarification, a letter would be sent to the police officer who submitted the sample. The letter would indicate that the Order could not be accepted without further clarification. The letter would also indicate that the Order and material would be retained for a period of 60 days after which they would be returned to the officer unless a satisfactory explanation had been given or steps had been taken to challenge the finding of inadequacy.

The Committee were also informed about plans for developing several new components for the Data Bank, i.e., a mass disaster module, an automated approach for sample DNA analysis for some casework, kinship analysis integration with CODIS and a proficiency testing and training module for the STaCS program to enable more efficient use of the Data Bank and decrease downtime during the training of new personnel. To clear up several misunderstandings about the ongoing financing of the Data Bank, the Committee had requested that RCMP Financial Management make a presentation dealing with the funding issues related to the Data Bank.

The Committee was assured that any funding deficit would not have a negative effect on the operations of the Data Bank as any shortfall will be made up, now and in the future, from the service line (FLS), the

business line (NPS) or corporate finance (RCMP), in that order.

At this meeting the Committee also received an explanation of the "Canada-Contract Provinces Agreement on Biology Casework Analysis" and the two additional agreements with Quebec and Ontario. These Agreements established provincial/regional monitoring committees which then established policies under which FLS accepts exhibits and samples of bodily substances obtained voluntarily and under DNA warrants for secondary designated offences for biology casework analysis. This provision affects the number of secondary designated offences submitted to FLS and consequently Crime Scene Index Profiles.



The Committee benefited by a presentation detailing the reorganization of the FLS Directorate, the primary objective being to improve service delivery to clients, this project getting underway as a result of the recommendations of the Auditor General's April 2000 report and the plans to more efficiently handle the growing demands upon the RCMP forensic laboratories. A key component of the changes involves a re-definition of the laboratory system as "one laboratory with six delivery sites" rather than six separate full service laboratories. The new service delivery model, featuring Case Receipt Units (CRUs) and Evidence Recovery Units (ERUs), will be implemented in several laboratories. Under this model, the O I/C of the Data Bank has increased responsibilities for Data Bank and Directorate research functions.

Officials of the Department of Justice Canada brought the Committee up to date with recent rulings pursuant to Section 487.055 of the Criminal Code (the retroactive scheme in the DNA Data Bank legislation) and, as well, informed the Committee that they and the Department of the Solicitor General of Canada were developing a consultation document through which the Department of Justice would consult Canadians on possible amendments to the present DNA legislation.

Following a recommendation by the Committee, a new B&E unit will be established in FLS Edmonton. The unit will provide a national service for B&E cases from the contract provinces. The unit will employ a more automated approach to sample processing in order to increase the population rate of the Crime Scene Index. The Committee was impressed with the FLS Directorate action on this issue in view of the linkages between B&E profiles and more serious sexual and violent profiles.

The funding issue discussed above continued to interest the Committee as it attempts to identify a number of potential rate limiting steps in the processes associated with collecting, analysing, processing court orders and entering data into the Data Bank. While this issue needs to be studied in some considerable depth, the Committee was of the opinion that the several factors are collectively either directly or indirectly responsible for DNA profile contribution rates to the Data Bank reaching only 50% of original predictions.

At each meeting the Committee receives data on the current status of information being gathered for the Data Bank. In other sections of this Annual Report, concern has been expressed that the Data Bank is not receiving the number of samples expected in either the Convicted Offender Index or the Crime Scene Index and steps have been suggested to resolve this problem.

The following table provides the operational performance statistics for the Data Bank from the official opening on June 30, 2000 to March 31, 2002.

Results	*2000-01*	*2001-02*	*Totals*	*% Inc.*	*Ref.*
Samples Received	*6216*	*13137*	*19353*	*211*	*1*
Collection Kits Deployed	*55015*	*28407*	*83422*	*51*	
In CODIS (Convicted Offender Index)	*4945*	*14881*	*19826*	*301*	
In CODIS (Crime Scene Index)	*1631*	*3070*	*4701*	*188*	
Forensic Hits (Offender to Crime Scene)	*10*	*183*	*193*	*1830*	
Forensic Hits (Crime Scene to Crime Scene)	*5*	*11*	*16*	*220*	
Conviction Matches	*21*	*254*	*275*	*2660*	*2*
Offender Duplicates	*25*	*204*	*229*	*816*	
Different ID's	*3*	*6*	*9*	*200*	*3*
Sample Rejections	*71*	*149*	*220*	*210*	*4*
Non-designated offence	*56*	*54*	*110*	*96*	*5*

Notes: *1. Blood-18795; Hair-41; Buccal-517. Currently receiving about 300-400 samples per week.*
2. Where a new convicted offender sample matches a previous casework sample for which they were convicted.
3. Same DNA, different individuals, i.e. twins
4. Sample rejections: 55-biological sample inadequate; 43-wrong kit; 3-no order;
3-fingerprints not suitable; 110-non-designated offence; 6-other.
5. Non-designated (spelled out from #5, above) - sample not in accordance with legislation

Financial Report

Advisory Committee Budget Allocation for the Fiscal Year 2001-2002		$50000
Meeting Costs		
April 26, 27, 2001, Ottawa	$17035	
November 5-6, 2001, Toronto	13621	
February 8-9, 2002, Ottawa	15395	
Total - all expenditures	$46051	
Balance		$3949

Notes:
1. All expenditures were in accordance with the regulations of the Treasury Board of Canada.
2. Expenses do not include the cost of the Secretariat services, shared with another Committee, and covered by the Assistant Commissioner, Forensic Laboratory Services.

Future Challenges

Notwithstanding the significant progress that the Data Bank has made within a relatively short time frame, the Committee remains fully aware that much remains to be done to ensure the ongoing effectiveness and efficiency of the Data Bank.

To this end, the Committee has set the following objectives for the year 2002-2003.

1. To carry out an evaluation of the Sample Tracking and Control System (STaCS).

2. To monitor the effectiveness of the Data Bank in contributing to a reduction of the crime rate in Canada for violent offences and, following this, to compare Canadian crime reduction data to that of other jurisdictions.

3. To visit a U.S. facility where a Data Bank has been in operation for a considerably longer period than that of the RCMP, such as the FBI, with a view to preparing a comparative analysis of the two facilities.

4. To influence the publishers of “Martin’s Annual Criminal Code” which would see the inclusion of a tabular format for the identification of primary and secondary offences within the Criminal Code, thus bringing about a significant informational tool for the judiciary.

A Commentary by Dr. Frederick R. Bieber
Associate Professor of Pathology, Harvard University

In a practical sense, banking of DNA samples and DNA profiles existed before the interest in forensic DNA registries. These repositories of human tissue or DNA include the heel-stick blood cards obtained in the first days of life from all live born infants in many countries. These heel stick cards are collected for genetic disease screening by Ministries or Departments of Health, to allow prompt identification and timely treatment of severe, but treatable, inherited metabolic and genetic disease. Furthermore, hospital pathology departments around the world routinely archive paraffin-embedded tissues from surgical biopsies and from autopsy studies conducted for diagnostic and prognostic testing. These tissue blocks are often retrieved from storage for retrospective DNA-based interrogation after the DNA has been extracted from the deparaffinized tissue. Several states have offered parents the chance to prepare and keep blood spot cards on their children and other family members, storing a blood spot on filter paper, a lock of hair, etc. in a way allowing future DNA testing should the child be lost, runaway, or otherwise displaced. It is the practice of the entire U.S. military to obtain and store fingerstick blood samples on special paper for later use as modern-day military “dog tags”.

Forensic DNA Data Banks

Many nations, besides Canada, have either statutory legislation or regulations providing for obligatory DNA banking of blood or saliva samples from those convicted of certain felony crimes. For example, federal and state legislation is in force covering all U.S. States, federal territories, buildings, the U.S. military and the District of Columbia. Other countries, including Great Britain, have regional or national DNA data banks containing the profiles of offenders or of crime scene evidence.

Under the provisions of the enacted legislation, blood or other tissue samples are obtained for DNA extraction and multiple genetic loci are typed. Typing results (multi-locus DNA profiles) are stored in a computerized database for future comparison to DNA profiles from evidentiary samples from unsolved crimes (crime scene index samples). Similarly, profiles from unsolved crimes can be compared to those in the databank of known offenders (offender index). Similar to the Data Bank, in the U.S., individual states are able to search their DNA data against those in a central national index at the FBI. In the U.S., this whole system, known as CODIS, is designed to link offenders or unsolved cases to one another and thus can identify possible suspects in neighboring or distant jurisdictions.

Since the inception of the U.S. CODIS network and the various state-operated DNA data banks, hundreds of case-to-case or case-to-suspect "hits" (i.e., DNA matches) have been reported, with one U.S. state (Florida) now reporting several new "hits" each week. Given the well-known high degree of criminal recidivism, particularly in sexual-assault cases, DNA data banks hold promise for identification of more perpetrators than would be possible without such coordinated efforts.

In consideration of how effective is DNA database searching in the criminal justice system, it is important to consider that costs be measured not simply by the number of so-called matches or "hits", but also in the many benefits from exonerations or DNA eliminations. Indeed, the elimination of someone as a suspect based on DNA profiling results can save hundreds, if not thousands, of hours of wasted investigative time and removes uninvolved parties from unnecessary intrusion from law enforcement personnel.

The Matter of Siblings

Siblings typically share one or both parents. Thus, in the case of full-siblings, it would be expected that sharing of DNA profiles would occur much more commonly than among unrelated persons. This expectation is supported by data collected on sibling and non-sibling DNA profiles in the U.S. Comparing the DNA profiles of full siblings indicates the expected higher degree of allele sharing and locus identity compared to unrelated individuals (Bourke, Ladd, Bieber). These data demonstrate that full siblings born to unrelated parents can have identical STR profiles at as many as nine loci. In a quality control search of a U.S. data base, one pair of inmate brothers was recently discovered to share identical DNA profiles at ten STR loci (their parents are closely related). These observations in siblings have important implications for forensic geneticists, as it becomes important to consider the matter of brothers in cases in which complete multi-locus DNA profiles are not obtained (e.g. due to DNA degradation). Also, in a search of a DNA data bank, a high degree of allele sharing can provide an important investigative lead (i.e. possibly implicating a brother) even in the absence of a complete profile match of crime scene evidence against the profiles of convicted offenders.

The Future of Forensic DNA Profiling: The Genetic Eyewitness

New Technology

Advances in biotechnology will continue to change and improve the array of laboratory methods used for forensic identification. With regard to DNA profiling, profiling of Single Nucleotide Polymorphisms (SNPs), use of micro-array technology for mass screening of hundreds of loci, and development of robotics will reduce the costs in time and labor needed to perform this testing. These new methods, along with development of miniaturized kits, would allow exciting applications of forensic DNA profiling for use in the field (e.g. at the crime scene). These advances will allow DNA extraction, profiling, and searching a database of known offenders without delays sometimes encountered with existing methods.

Backlog of Unsolved Cases

Despite the remarkable capabilities of modern crime laboratories, fiscal imperatives often prevent optimal use of forensic DNA profiling of searching the existing data banks. For example, in individual cases funding shortages typically limit the number of evidentiary exemplars from being thoroughly examined. What effect this has on the result of individual cases is unknown. In old unsolved cases, this lack of DNA extraction obviously precludes the DNA profiles from being entered into the crime scene index. Because of these funding and staff shortages, searching the DNA profiles against the

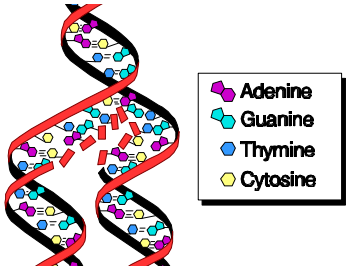
profiles obtained from other solved or unsolved cases, or against the profiles of known offenders, cannot performed. Thus, many unsolved or cold cases languish in the archives of crime labs, waiting for that tenacious investigator, committed forensic scientist, or concerned family member to reactivate the case. In some nations, federal funding has allowed for some backlog reduction to be accomplished, but other factors prevent such action in many cases.

This is indeed unfortunate in light of the recidivistic nature of many offenders. Moreover, the powerful exculpatory power of DNA profiling and the possibility of exoneration remind us of the need not to ignore certain cases in which DNA profiling was never performed.

Several practical matters account for the tremendous backlog in working old unsolved cases that might benefit from modern DNA analysis. The first is a shortage of qualified examiners in the crime labs. Even though advances in computer robotics and sample tracking software has eliminated many hours of tedium in the handling and processing of samples, the initial examination of evidence, selection of which exemplars to test, and the interpretation of results requires highly skilled individuals, whose work will be scrutinized in the courts. Second is the fact the evidence storage in many labs may prevent successful extraction of DNA years later. Once adjudicated, case crime scene evidence is very often stored properly in crime labs or police storage facilities under carefully controlled conditions. However, storage practices are highly variable and sadly key evidence that may have been untested may be more haphazardly stored in less than ideal conditions, or even discarded, preventing current or future technologies from being applied in retrospective analysis. Very recently some U.S. states have proposed legislative changes require that all evidence that might contain DNA be stored indefinitely.

Deoxyribononucleic acid (DNA) is a long, double-stranded molecule that looks similar to a twisted rope ladder or double helix.

Sometimes referred to as the blueprint of life, DNA is the fundamental building block for a person's entire genetic makeup. When sperm and egg unite, equal amounts of DNA from each parent combine. This combined DNA determines that person's characteristics.



DNA is found in virtually every cell in the human body. A person's DNA is the same in every cell. For example, the DNA in a man's blood is the same as the DNA in his skin cells, semen, saliva, and the roots of his hair.

DNA is a powerful tool for identifying individuals because it is highly discriminating. Each person's DNA is unique to them. Identical twins are the only exception as they share the same DNA.

Using modern technology, a person's DNA can be extracted from a small biological sample, such as a few drops of blood. This sample can be analyzed, creating a DNA profile that can be used in much the same way as fingerprints are used to identify a person.

A known DNA profile, drawn from an identified biological sample, can be compared to another unknown DNA profile drawn from a different biological sample. If the profiles match, the two samples come from the same person. If the profiles do not match, the samples come from different people.

DNA collected from a crime scene can either link a suspect to the evidence, or eliminate a suspect. It can also identify a victim through DNA from close relatives. Evidence from one crime scene can be compared with evidence from another to link to the same perpetrator whether the crime took place locally, across the country, or around the world.

The DNA molecule is also very stable. This means usable DNA can often be found on evidence that is decades old.

The stability of the DNA molecule when combined with the discriminating features of each individual's DNA, and the accuracy of current DNA analysis techniques, make DNA evidence a valuable and reliable forensic tool.