

## Introduction: Special Issue on Forensic Science

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We are pleased to have been given the opportunity to guest edit this issue of the *Canadian Journal of Police & Security Services* on the topic of *Forensic Science*. We received so many high-quality manuscripts for the special issue that the journal has permitted us to devote two issues to the topic. The articles encompassed in the two issues provide an excellent representation of the cutting-edge research being conducted at universities across the globe. Academic forensic science programs are becoming common-place in university departments and these programs are producing researchers and practitioners that will continue the technological advances that are beginning to revolutionize modern policing. We believe that *Canadian Journal of Police and Security Services* will provide an excellent outlet for this research, and hope that the two issues devoted to forensic science will encourage researchers and practitioners to publish their work in the journal.

The first issue devoted to forensic science encompasses four articles highlighting several key techniques and research topics in the field and focuses on drug detection and DNA analysis. The issue begins with a review of current DNA techniques by Greg Hampikian, including an overview of the history of DNA testing, current best practices, and the future of such analytic technology. This review begins with the basics of DNA and walks the reader through the entire process of the forensic applications of DNA, from collection to the many possible analytic methods through to its presentation in the courtroom.

In the second article, Simon Lewis and his colleagues discussing their recent research into the separation and detection of forensic specimens with an emphasis on drug detection. Advances in the areas of capillary electrophoresis and chemiluminescence offer more rapid analyses of highly efficient separations and higher sensitivity in the detection of trace amounts that previously would have been undetectable. In the future, it is hoped that advances such as these will be integrated into "lab-on-a-chip" devices which will allow for the analysis of these forensic

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# Introduction: Forensic Science

traces at the crime scene using miniaturized analytical instruments.

As noted above, the number of academic forensic science programs is increasing both in North America and abroad. In our final research article, Steve Lee discusses several teaching strategies that may be used at the undergraduate level, with emphasis on DNA instruction. Various innovative methods are presented including games, mnemonics, metaphors, analogies, poems and chants designed to engage the students in learning the many forensic science concepts. The evolution of forensic science programs, including the recent standardization of educational requirements, is also discussed.

Finally, Nicole Manley and Jose Almirall evaluate the performance of a walk-through trace drug detection portal that will soon be deployed at airports and train stations in the U.S. and elsewhere. This new technology provides reliable non-intrusive detection of concealed drugs, and is tested in concert with the identification of several interfering substances. The portal is shown to detect illicit drug compounds using ion trap mobility spectrometry which is also capable of detecting chemical warfare agents and explosives.

In addition, David Rose reviews a recent Canadian Supreme Court ruling in *Regina. v. S(A.B.)* regarding the use of warrants to obtain DNA from a suspect. While the Court upheld the constitutional nature of the issuance of such warrants, Rose discusses several key procedural issues that the criminal justice community should consider. Finally, Allison Curran reviews the book, *K9 Suspect Discrimination: Training and Practicing* by Adee Schoon and Ruud Haak (2002). This book addresses the history and current practice of the use of the powerful tool of human scent identification canines, a practice that is now commonplace in many European countries but still relatively rare in North America.

**KENNETH G. FURTON** received his Ph.D. in Analytical Chemistry from Wayne State University. He is currently a Professor in the Department of Chemistry and Biochemistry at Florida International University and founding Director of the International Forensic Research Institute where he conducts research on trace detection and the chemical basis of detector dog alerts to forensic specimens as well as providing expert testimony in these areas.

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