Forensic Investigation of Explosions

Explosions

Barry Fisher's Techniques of Crime Scene Investigation has long been considered the "bible" of the crime-solving profession, drawing from the author's 40-year career in forensic science, including his time spent as the crime lab director for the Los Angeles County Sheriff's Department. Now for the first time, his well-deserved expertise working out of the United Kingdom and Denmark present Fisher's Techniques of Crime Scene Investigation: First International Edition—the latest edition of a classic volume, now oriented specifically to an international audience. Maintaining the same format as the U.S. editions, the book focuses on international procedures, laws, and cases. The book's three-part structure highlights the importance of approaching the topic from three consecutive perspectives. The first is that crime scene investigation is a subdiscipline of forensic science, and thus the first section, entirely new to this edition, explores the forensic process and the basic principles and practices of crime scene investigation. The second perspective is that crime scene investigation is about identifying and recovering different forms of evidence, each with its own methods for identification, recovery, and analysis. To that end, the book discusses trace and impression evidence, establishing personal identity, forensic biology, and evidence associated with firearms, arson, and explosions. Lastly, crime scene investigation is ultimately about describing the location, modus operandi, time frame and sequence of events, identity of persons involved, and motive for different types of crime. Highlighting this focus, the final section presents chapters on the investigation of various crime scenarios, including those involving illicit drugs, sexual assault, burglary, motory vehicles, and homicide. The book closes with new appendices exploring the cutting-edge world of digital evidence. Enriched with hundreds of diagrams and color photos of actual crime scenes, this volume combines time-tested procedures with an international scope to provide an essential resource for investigators in Europe, Australasia, and Canada charged with solving crimes and bringing offenders to justice. William Tilstone talks about the book on the CRC Press YouTube Channel.

Aspects of Explosives Detection

Presents an alphabetical encyclopedia of the forensic science principles used in investigating crime scenes and suspects.

HR Management

In the Forensic Science Laboratory Now in its second edition, Practical Bomb Scene Investigation explores the investigative process that improvised explosive device (IED) specialists undertake at the scene of an explosion. Providing easy-to-understand step-by-step procedures for managing and processing a bomb scene, it enables investigators to find the evidence and then make sense of what is found. The book is not only a roadmap of knowledge on how to find and collect evidence, but also an instructional guide on how to safely and effectively assess the scene. New in this Edition: Information on detonation pressure and its effects on the body Instructions on how to collect additional information from the scene in order to provide an estimate of the explosives weight of the IED A glossary for a more in-depth understanding of the terms associated with explosives and the investigation processes A greatly expanded IED component identification chapter A chapter on how to expeditiously investigate a post-blast scene in a hostile environment Information on how to prepare an Investigative Report

Forensic Metrology

While one would hope that forensic scientists, investigators, and experts are intrinsically ethical by nature, the reality is that these individuals have morality as varied as the general population. These professions face complex ethical dilemmas every day, some with clear-cut protocols and others that frequently have no definitive answers. Since the publication of the first edition of Ethics and the Practice of Forensic Science, the field of forensic science has continued to see its share of controversy. This runs the gamut of news stories from investigators, lab personnel, or even lab directors falsifying results, committing perjury, admitting to fraud, to overturned convictions, questions about bias, ethics, and what constitutes an "expert" on the witness stand. This fully updated edition tackles all these issues—including some specific instances and cases of unethical behavior—and addresses such salient issues as accreditation requirements, standardization of ethical codes, examiner certification, and standards for education and training. The new edition provides: A new chapter on the "Ferguson Effect" faced by the criminal justice system The context of forensic science ethics in relation to general scientific ethics, measurement uncertainty, and ethics in criminal justice Ethical conundrums and real-world examples that forensic scientists confront every day The ethics and conduct codes of 20 different forensic and scientific professional organizations An overview of the National Academies of Science (NAS) recommendations and progress made on ethics in forensic science since the release of the NAS report Ethics and the Practice of Forensic Science, Second Edition explores the range of ethical issues facing those who work in the forensic sciences—highlights the complicated nature of ethics and decision-making at the crime scene, in the lab, and in the courts. The book serves both as an essential resource for laboratories to train their employees and as an invaluable textbook for the growing number of courses on ethics in criminal justice and forensic science curricula. Accompanying PowerPoint® slides and an Instructor's Manual with Test Bank are available to professors upon qualifying course adoption.

Forensic Explosion Seismology

In the Forensic Science Laboratory: A 21st Century Approach to Effective Crime Lab Leadership introduces the profession of forensic science to human resource management, and vice versa. The book includes principles of HR management that apply most readily, and most critically, to the practice of forensic science, such as laboratory operations, staffing and assignments, laboratory relations and high impact leadership. A companion website hosts workshop PowerPoint slides, a forensic HR newsletter and other important HR strategies to assist the reader. Provides principles of HR management that readily apply to the practice of forensic science Covers and emphasizes the knowledge necessary to make HR management in the forensic science laboratory effective, such as technical standards and practices, laboratory structures and work units, and quality system management Includes an online website that hosts workshop PowerPoint slides, a forensic HR newsletter and other important HR strategies
Forensic Science in Wildlife Investigations  The association of a suspect with the victim or crime scene through DNA evidence is one of the most powerful statements of complicity in a crime imaginable. No category of evidence has ever had the complete capacity to convict or exonerate a suspect and in the eyes of the public. With the discrimination of DNA and the variety of DNA markers now in regular use, the one thing keeping a third of all cases unsolved is the lack of human DNA evidence. However, the identification of polymorphic genetic loci in cats, dogs, plants, insects, bacteria, and viruses can provide the critical link between suspect and scene in the absence of human DNA. Non-Human DNA Typing: Theory and Casework Applications provides an introduction to the basic science underlying the emerging field of non-human DNA typing. It examines the use of non-human DNA evidence not just in homicide cases, but also in drug trafficking, poaching of endangered species, livestock fraud, and missing persons, as well as the identification of primary and secondary crime scenes. The book demonstrates the recognition, collection, and preservation of biological evidence at a crime scene, techniques of DNA fingerprinting, and DNA profiling. Using a wide variety of examples, applications, and case studies, the author describes the STR analysis of canine and feline samples, insects, and fungi, and their role as evidence in forensic science. Chapters consider the development of testing methods for animal evidence, soil DNA typing, and the use of DNA typing in wildlife investigations. A useful appendix includes an overview of the history of forensic serology and DNA. Combining science, case examples, legal decisions, and references, Non-Human DNA Typing: Theory and Casework Applications presents the forensic and legal applications of non-human DNA evidence for scientists, law enforcement, and attorneys.

Firearms, the Law, and Forensic Ballistics  The range of species that fall within the realm of wildlife crimes is extensive, ranging from fenns and orchids to bald eagles and great whales. Solving these crimes is rarely dependent on the testimony of witnesses or victims. An ever-increasing number of research groups are applying scientific tests to animal and plant studies alike. However, until now, whatever progress is available in this area has remained scattered through the literature. Forensic Science in Wildlife Investigations focuses on the developing test methods to combat wildlife crimes. In large part, these methods will be derived from research-based research. Edited by Adrian Linacre, a noted forensic researcher and one of the principal pioneers active in wildlife forensics, this book collects the work of the others working across the world with both plant and animal investigations. While the book contains valuable approaches that lab investigators can employ, the scientific material is written at a level that requires no more than a fundamental knowledge of biology. Any required scientific information is provided in separate boxes. Offering practical guidance, it helps investigators and lab technicians decide on best methods, including a determination of when basic microscopiy is sufficient, when DNA testing should occur, and what tests or combination of tests should be executed in a particular circumstance. The text illustrates how to identify the species and geographic region of origin of an unknown sample. Demonstrating the latest methods through real-world case studies, this volume provides the direction and practical advice needed by legal and police professionals seeking to gain the evidence needed to prosecute wildlife crimes.

Fisher’s Techniques of Crime Scene Investigation First International Edition Now in its second edition, Forensic Investigation of Explosions draws on the editor’s 30 years of explosives casework experience, including his work on task forces set up to investigate major incidents. Dr. Alexes Fisher, editor, and multidisciplinary approach to describing the critical role that internationally recognized experts who present the definitive reference work on the subject. Topics discussed include: The physics and chemistry of explosives and explosions The detection of hidden explosives The effect of explosions on structures and persons Aircraft sabotage investigations Explosion scene investigations Casework management The role of forensic scientists Analysis of explosives and their residues forensic pathology as it relates to explosives Presentation of expert testimony Aircraft and automotive explosive devices, as evidenced on buildings and vehicles This volume offers valuable information to all members of prevention and post-blast teams. Each chapter was written by an expert or experts in a specific field and provides well-referenced information underlying best practices that can be used in the field, laboratory, conference room, classroom, or courtroom.

30-Second Forensic Science This book discusses three major physical phenomena for active source seismology, namely underwater explosions, underground nuclear tests, and large-scale on-surface chemical explosions. In particular, contributors consider how to use the technologies and applications in active source seismology and seismo-acoustics, rather than the theoretical approach for the resolution of the forensic explosion seismology in the light of an application for defense sciences. The volume also presents seismological investigations of discrimination between earthquakes and man-made explosions.

Encyclopedia of Forensic Science This edited collection brings together many of the world’s leading experts, both academic and practitioner, in a single volume handbook that examines key international issues in the field of hate crime. Collectively it examines a range of pertinent areas with the ultimate aim of providing a detailed picture of the hate crime ‘problem’ in different parts of the world. The book is divided into four parts: An examination, covering theories and concepts, of issues relating to definitions of hate crime, the individual and community impacts of hate crime, the controversies of hate crime legislation, and theoretical approaches to understanding offending. An exploration of the international geography of hate, in which each chapter examines a range of hate crime issues in different parts of the world, including the UK, wider Europe, North America, Australia and New Zealand. Reflections on a number of different perspectives across a range of key issues in hate crime, examining areas including particular issues affecting different groups, the increasing influence of the Internet, and hate crimes in the context of war. It offers a strong international focus and comprehensive coverage of a wide range of hate crime issues, this book is an important contribution to hate crime studies and will be essential reading for academics, students and practitioners interested in this field.

Forensic Investigation of Clandestine Laboratories Ethical Standards in Forensic Science seeks to address the myriad practices in forensic science for a variety of evidence and analyses. The book looks at ethics, bias, what constitutes an expert in the field—the practitioner and to the court system—as well as the standards of practice as purported by the top forensic organizations. Coverage addresses evidence collection, chain of custody, real versus “junk” science, the damage questionable science can cause to a discipline and the law, casework, testing methods, report writing, and expert witness testimony in civil and criminal cases in a court of law. The authors’ background in engineering provides a unique perspective on a variety of evidence and testing methods. As such, in addition to coverage the range of evidence and topics cited in the 2009 National Academy of Sciences (NAS) Report, they address numerous challenges that have been specifically in forensic engineering cases—their specific area of expertise. Numerous case example are provided to illustrate the inherent danger of bias, inexact science, or expert witnesses taking dangerous and harmful liberties on the stand. Students, lawyers, and professionals in all forensic disciplines will find this a refreshing and accessible approach to elucidate the problem and offer suggestions for reform and change for the good of the entire profession.
the classic book, serving as an indispensable reference to crime scene technicians, laboratory forensic scientists and microscopists, students in police, forensic, and justice science programs.

Introduction to Data Analysis with R for Forensic Scientists Forensic science includes all aspects of investigating a crime, including: chemistry, biology and physics, and also incorporates countless other specialties. Today, the service offered under the guise of "forensic science" includes specialties from virtually all aspects of modern science, medicine, engineering, mathematics and technology. The Encyclopedia of Forensic Sciences, Second Edition is a reference source that will inform both the crime scene worker and the laboratory analyst of each other's points of view. Written by leading scholars and detectives, each article is peer reviewed to establish clarity, accuracy, and comprehensiveness. As reflected in the specialties of its Editorial Board, the contents covers the core concepts, methods and techniques employed by forensic scientists - and applications of these that are used in forensic analysis. This 4-volume set represents a 30% growth in articles from the first edition, with a particular increase in coverage of DNA and digital forensic evidence. An international team of over 250 contributors provides an international perspective. The second edition features a 2-member editorial board, half of which are internationally based includes over 300 articles, approximately 10pp on average Each article features a) suggested readings which point readers to additional sources for more information, b) a list of related Web sites, c) a 5-10 word glossary and definition paragraph, and d) cross-references to related entries in the encyclopedia. Available online via SciVerse ScienceDirect. Please visit www.info.sciencedirect.com for more information

This new edition continues the reputation of the first edition, which was awarded an Honorable Mention in the prestigious Dartmouth Medal competition for 2001. This award honors the creation of reference works of outstanding quality and significance, and is sponsored by the RUSA Committee of the American Library Association

An Investigation Into the Forensic Analysis of Current and Emerging Organic Explosives Now in its Third Edition, Practical Bomb Scene Investigation explores the investigative process that improvised explosive device (IED) specialists undertake at the scene of an explosion. Providing easy-to-understand, step-by-step procedures for managing and processing a bomb scene, it enables investigators to find the evidence and then make sense of what is found. The book is not only a roadmap on how to find and collect evidence and assess the scene, but also provides instruction on identifying the bombmaker’s signature through latent print, DNA, explosive residue, metallurgical, and toolmark examination and forensic analysis.

Forensic Science and Laboratory Technics This text has been shaped by the editor’s experiences on task forces set up to investigate major explosions incidents and related civil and criminal proceedings. Chapters cover methods, applications, quality control, and significance of forensic chemistry, aircraft sabotage investigation, forensic pathology, and presentation of expert testimony. Contributions are descriptions of explosives and explosive chemistry, early investigative procedures, and the procedures carried out at the scenes of gas explosions in buildings. Experienced professionals from industry, government, and the medical and legal professionals provide accounts of the developments and techniques in each of their subject areas.

Fundamentals of Forensic Science FORENSIC SCIENCE: ADVANCED INVESTIGATIONS is part of a comprehensive course offering as a second-level high school course in forensic science, a course area in which students have the opportunity to expand their knowledge of chemistry, biology, physics, earth science, math, and psychology, as well as associate this knowledge with real-life applications. This text builds on concepts introduced in FORENSIC SCIENCE: FUNDAMENTALS & INVESTIGATIONS, as well as introduces additional topics, such as arson and explosions. Following the same solid instructional design as the FUNDAMENTALS & INVESTIGATIONS text, the book balances extensive scientific concepts with hands-on classroom and lab activities, readings, intriguing case studies, and chapter-opening scenarios. The book’s exclusive Gale Forensic Science eCollection database provides instant access to hundreds of articles and Internet resources that spark student interest and extend learning beyond the book. Comprehensive, time-saving teacher support and lab activities deliver exactly what you need to ensure that students receive a solid, complete science education that keeps readers at all learning levels enthused about science. This two-book series provides a solution that is engaging, contemporary, and specifically designed for high school students. Instructors can be confident that the program has been written by high school forensic science instructors with their unique needs in mind, including content tied to the national and state science standards they are accountable to teaching.

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Nuclear Forensic Analysis, Second Edition Detection and quantification of trace chemicals is a major thrust of analytical chemistry. In recent years much effort has been spent developing detection systems for priority pollutants. Less mature are the detections of substances of interest to law enforcement and security personnel in particular explosives. This volume will discuss the detection of these, not only setting out the theoretical fundamentals, but also emphasizing the remarkable developments in the last decade. Terrorist events have blown out of the cities (Tadmor 103 in London) and attacks on U.S. and over London and Madrid) emphasize the danger of concealed explosives. However, since most explosives release little vapor, it was not possible to detect them by technology used on most organic substances. After PanAm 103 was downed over Scotland, the U.S. Congress requested automatic explosive detection equipment be placed in airports. This volume outlines the history of explosive detection research, the developments along the way, present day technologies, and what we think the future holds. - Written by experts in the field who set out both the scientific issues and the practical context with authority - Discusses and describes the threat - Describes the theoretical background and practical applications of both trace and bulk explosives detection

The Routledge International Handbook on Hate Crime This Second Edition of the best-selling Introduction to Forensic Science and Criminalistics presents the practice of forensic science from a broad viewpoint. The book has been developed to serve as an introductory textbook for courses at the undergraduate level—for both majors and non-majors—to provide students with a working understanding of forensic science. The Second Edition is fully updated to cover the latest scientific methods of evidence collection, evaluation, and analytic techniques, and the thinking behind the analysis results to an investigation and use in court. This includes coverage of physical evidence, evidence collection, crime scene processing, pattern evidence, fingerprint evidence, questioned documents, DNA and biological evidence, drug evidence, toolmarks and firearms, arson and explosives, chemical testing, and a new chapter of computer and digital forensic evidence. Chapters address crime scene evidence, laboratory procedures, emergency technologies, as well as an adjudication of both criminal and civil cases utilizing the evidence. All coverage has been fully updated in all areas that have advanced science since the publication of the last edition. Features include: Progresses from introductory concepts—of the legal system and crime scene concepts—to DNA, forensic biology, chemistry, and laboratory principles Introduces students to the scientific method and the application of it to the analysis to various types, and classifications, of forensic evidence The authors’ 90-plus years of real-world police, investigative, and forensic science laboratory experience is brought to bear on the application of forensic science to the investigation and prosecution of cases Addresses the latest developments and advances in forensic sciences, particularly in evidence collection. Offers a full complement of instructor’s resources to qualifying professors includes full pedagogy—including learning objectives, key terms, end-of-chapter questions, and boxed case examples—to encourage classroom learning and retention Introduction to Forensic Science and Criminalistics, Second Edition, will serve as an invaluable resource for students in their quest to understand the application of science, and the scientific method, to various forensic disciplines in the pursuit of law and justice through the court system. An Instructor’s Manual with Test Bank and Chapter PowerPoint® slides are available upon qualified course adoption.
Forensic Investigation of Explosions, Second Edition

While gun design has undergone only minimal change over the centuries, investigative tools surrounding firearm use have grown significantly in sophistication. Now in its third edition, Firearms, the Law, and Forensic Ballistics has been updated to reflect recently published research and new technology developed since the last volume.

Beginning with

Introduction to Forensic Science and Criminalistics, Second Edition Clandestine lab operators are not the mad scientists whose genius keeps them perched in the laboratory contemplating elaborate formulas and mixing exotic chemicals. In fact, their equipment is usually simple, their chemicals household products, and their education basic. Most of the time the elements at the scene are perfectly legal to sell and own. It is only in the combination of all these elements that the lab becomes the scene of a criminal operation. Forensic Investigation of Clandestine Laboratories guides you, step-by-step, through the process of recognizing these illegal manufacturing operations. Then it shows you how to prove it in the courtroom. In non-technical language this book details: How to recognize a clandestine lab How to process the site of a clandestine lab How to analyze evidence in the examination laboratory What to derive from the physical evidence How to present the evidence in court The identification and investigation of a clandestine lab, and the successful prosecution of the perpetrators, is a team effort. A collaboration of law enforcement, forensic experts, scientists, and criminal prosecutors is required to present a case that definitively demonstrates how a group of items with legitimate uses are being used to manufacture an illegal controlled substance. Providing an understanding of how the pieces of the clandestine lab puzzle fit together, this book outlines the steps needed to identify and shut down these operations, as well as successfully prosecute the perpetrators.

Encyclopedia of Forensic Sciences [Truncated abstract] The use of Improvised Explosive Devices (IED’s) to cause terror, damage property or take life is a common occurrence as a result of their ease of procurement and proven effect. The complex forensic investigation process undertaken to determine the explosive(s) involved requires knowledge of the properties of explosive materials and the analytical methods available for their identification. The term explosive can be defined as a solid or liquid substance, alone or mixed with one another, which are in a metastable state and are capable, for this reason, of undergoing a rapid chemical reaction without the participation of external reactants such as atmospheric oxygen (1). Alternatively an explosive can be defined as a substance capable of producing the four requirements of an explosion; that is, capable of producing gas, capable of producing energy, with both occurring rapidly and all in a self sustaining reaction (2). For an explosive to be of practical value it must be stable under anticipated storage conditions, it must burn, explode or detonate only when required, be sufficiently sensitive to be initiated as requested and the initiation stimulus should be small compared to the output of the explosive (3). The explosive must also be capable of doing work on its environment, which in the case of military explosives, be capable of converting the products of its exothermic decomposition into kinetic energy of the air in a blast wave, a rocket, a bullet or a shell etc. (3)

Nonhuman DNA Typing Now in its second edition, Nuclear Forensic Analysis provides a multidisciplinary reference for forensic scientists, analytical and nuclear chemists, and nuclear physicists in one convenient source. The authors focus particularly on the chemical, physical, and nuclear aspects associated with the production or interrogation of a radioactive sample. They consolidate the fundamental principles of nuclear forensic analysis, all pertinent protocols and procedures, computer modeling development, interpretational insights, and attribution considerations. The principles and techniques detailed are then demonstrated and discussed in their applications to real-world investigations and casework conducted over the past several years. Highlights of the Second Edition include: A new section on sample analysis considerations and interpretation following a post-detonation nuclear forensic collection New case studies, including the most wide-ranging and multidisciplinary nuclear forensic investigation conducted by Lawrence Livermore National Laboratory to date Expanded treatments of radiologic dispersal devices (RDDs) and statistical analysis methodologies The material is presented with minimal mathematical formality, using consistent terminology with limited jargon, making it a reliable, accessible reference. The broad-based coverage provides important insight into the multifaceted changes facing this recently developed science.

Forensic Engineering Investigation Written by experts for the general audience, this A-Z presentation covers all aspects of forensic science from its beginning to its central place in modern law enforcement.

Illustrated Guide to Home Forensic Science Experiments "This textbook presents the forensic methods used to analyze physical evidence along with the scientific principles that are its underpinnings. It is designed for students without a background in science, however students will learn the core principles behind the forensic method which will lead them to be better forensic professionals"--

Forensic Chemistry Humanity’s most appalling crimes are solved by experts presenting painstakingly gathered evidence to the court of law. Investigators rely on physical, chemical and digital clues gathered at the scene of an incident to reconstruct beyond all reasonable doubt the events that occurred in order to bring criminals to justice. Enter the forensic team, tasked with providing objective recognition and identification and evaluating physical evidence (the clues) to support known or suspected circumstances. Far from the super-sleuths of fiction, the real-life masters of deduction occupy a world of dogged detection, analysing fingerprints or gait, identifying traces of toxins, drugs or explosives, matching digital data, performing anatomical dissection, disease diagnosis, facial reconstruction and environmental profiling.

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