

Bloodstain Pattern Analysis **Third Edition**

**With an Introduction to
Crime Scene Reconstruction**



**Tom Bevel
Ross M. Gardner**

 **CRC Press**
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Practical Aspects of Criminal and Forensic Investigations Series

Bloodstain Pattern Analysis Third Edition

**With an Introduction to
Crime Scene Reconstruction**



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Editor's Note

This textbook is part of a series entitled “Practical Aspects of Criminal and Forensic Investigations.” This series was created by Vernon J. Geberth, New York City Police Department Lieutenant Commander (Ret.), who is an author, educator, and consultant on homicide and forensic investigations.

This series has been designed to provide contemporary, comprehensive, and pragmatic information to the practitioner involved in criminal and forensic investigations by authors who are nationally recognized experts in their respective fields.

Bloodstain Pattern Analysis Third Edition

**With an Introduction to
Crime Scene Reconstruction**

**Tom Bevel
Ross M. Gardner**



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Contents

Foreword	xv
Preface	xix
Acknowledgments	xxiii
Introduction	xxvii
The Authors	xxxi
1	
Bloodstain Pattern Analysis: Its Function and a Historical Perspective	1
The Function of Bloodstain Pattern Analysis	1
Historical Perspective of Bloodstain Pattern Evidence	2
Early Scientific References	3
Modern Works in Bloodstain Pattern Analysis	12
Summary	13
References	14
2	
Bloodstain Pattern Terminology	17
Referring to the Discipline	17
General Terms Relating to Bloodstain Pattern Analysis	18
Angle of Impact	18
(Arterial) Spurt/Gush	19
Atomized Blood/Misting	20
Blood into Blood Patterns	20
Blowback Effect	21
Capillary Action	21
Cast-Off Patterns	22
Clot	23
Contact Stain	24
Directionality	24
Directional Angle	24
Drip/Drip Trail	25
Expectorate Spatter/Blood	25
Flow	26
Fly Spot	27
Impact Site	27
Non-Spatter Stains	28
Origin/Area of Origin	28
Parent Stain	28
Pattern Transfer	29
Primary Stain	29

Ricochet Stain	30
Satellite Stain/Spatter	30
Saturation Stain	31
Shadowing/Ghosting/Void	31
Skeletonized Stain/Skeletonization	32
Smear	33
Spatter Stains	33
Spines	34
Swipe	35
Wipe	35
Summary	36
References	36
3 Bloodstain Classification	37
Classification vs. Overall Opinion	37
Classification vs. Definition	38
Why a Taxonomic Classification System?	39
A Taxonomic Classification System for Bloodstains	40
The Spatter Family	41
Category: Spatter	43
Category: Linear Spatter	43
Category: Spurt	44
Category: Cast-Off	46
Category: Drip Trail	47
Category: Non-Linear Spatter	49
Category: Impact Pattern	50
Category: Expectorate Spatter	52
Category: Drips	53
The Non-Spatter Family	54
Category: Non-Spatter	54
Category: Irregular Margin	55
Category: Gush/Splash	56
Category: Blood into Blood	57
Category: Smear	58
Category: Wipe	59
Category: Swipe	59
Category: Regular Margin	60
Category: Pattern Transfer	61
Category: Pool	61
Category: Saturation	62
Category: Flow	63
Complex Patterns	63
Bloodstain Pattern Analysis Decision Map	64
Altered Stains and the Decision Map	74
Practical Application of Taxonomy and Decision Map	74

Applying the Decision Map with Other Bloodstain Pattern Classification Systems	77
Low, Medium, and High Velocity	77
Spatter, Non-Spatter	81
Passive, Spatter, Altered	83
Passive, Transfer, Projected/Dynamic	83
Summary	85
References	87
4 A Methodology for Bloodstain Pattern Analysis	89
Scientific Method	89
A Practical Methodology for Applying Scientific Method	94
Step 1: Become Familiar with the Entire Scene	94
Step 2: Identify Discrete Patterns	96
Step 3: Classify the Patterns	99
Step 4: Evaluate Aspects of Directionality and Motion for the Pattern	101
Step 5: Evaluate Point of Convergence and Area of Origin	102
Step 6: Evaluate Interrelationships among Patterns and Other Evidence	103
Step 7: Evaluate Viable Source Events in an Effort to Explain the Pattern	103
Step 8: Define a Best Explanation Given the Data	105
Applying the Methodology in Different Environments	106
Active Scenes	107
Released Scenes	108
Cold Case Scenes	109
Summary	109
References	110
5 The Medium of Blood	111
Spatter Droplet Dynamics	112
Spatter Drop Dynamics on Impact	114
Contact/Collapse	115
Displacement	116
Dispersion	120
Retraction	121
Liquid-to-Liquid Impacts	122
Blood Behavior When Exposed to Different Mechanisms	123
Blood Dispersed through the Air as a Function of Gravity	124
Blood Dispersed from a Point Source	125
Blood Ejected from an Object in Motion	128
Blood Ejected in Volume under Pressure	129
Blood That Accumulates and/or Flows on a Surface	131
Blood Deposited through Transfer	132
Summary	132
References	132

6	Anatomical Considerations in Bloodstain Pattern Analysis	135
	MICHAEL FERENC	
	Introduction	135
	Blood Cells and Plasma	135
	Coagulation and Hemostasis	136
	The Circulatory System and Shock	137
	Non-Traumatic Causes of Bleeding	139
	Traumatic Pathology	142
	Firearm Injuries	142
	Sharp Force Injuries	144
	Blunt Injuries	145
	The Forensic Pathologist as a Resource	146
	The Author	148
	References	148
7	Determining Motion and Directionality	149
	General Sequence of Events	149
	Droplet Directionality	150
	Recognizing Blood Trail Motion	157
	Determining Motion from Wipes and Swipes	160
	Repetitive Pattern Transfers	162
	Flows	162
	Summary	163
	References	163
8	Determining the Point of Convergence and the Area of Origin	165
	Identify Well-Formed Stains in the Pattern	165
	Identify Directionality of the Stains	166
	Identify Point of Convergence for the Pattern	166
	Identify Impact Angles for the Stains	170
	Stain Measurement	174
	Combine the Information to Establish an Area of Origin	180
	Graphing Points of Origin	182
	Defining Area of Origin with the Tangent Function	183
	Three-Dimensional Evaluations of Area of Origin	185
	Stringing Scenes	185
	Forensic Software Applications	188
	How Many Stains Are Enough?	189
	Automation Efficiency or Precision — An Important Distinction	191
	Limitations in Area of Origin Evaluations	191
	Summary	195
	References	197

9	Evaluating Impact Spatter Bloodstains	199
	Methods of Description	199
	Understanding the Concept of Preponderant Stain Size	202
	Impact Droplet Size	205
	Pattern Configuration and Dispersion in Impacts	205
	Spatter Resulting from Gunshots	212
	Gunshot Spatter — Forward Spatter and Back Spatter	212
	Size Ranges of Gunshot Spatter	214
	Kinetic Energy, Wound Cavitation, and the Creation of Gunshot Spatter	215
	Double Shot Impact Events	215
	Gunshot Pattern Shapes and Dispersion	218
	Expectorate Blood	225
	Fly Spots	226
	Summary	227
	References	228
10	Understanding and Applying Characteristic Patterns of Blood	231
	Impact Patterns	231
	Cast-Off Stains	231
	Projected Blood — Spurt and Gush Patterns	237
	Expectorate Patterns	239
	Drips and Drip Trails	241
	Pattern Transfers	241
	Flow Patterns	247
	Pools	248
	Wipes, Swipes, and Contact	249
	Blood into Blood	251
	Altered Stains	253
	Voids	253
	Clotting	256
	Drying Time of Blood	257
	Dilution	258
	Summary	258
	References	259
11	Bloodstained Clothing Issues	261
	Applying Good Clothing Documentation Procedures	261
	Overcoming Poor Collection/Documentation Procedures	264
	Distinguishing Contact from Spatter on Fabric	265
	Directionality and Impact Angle Issues on Fabric	268
	Pattern Transfer Issues	271
	Clothing Documentation	271
	Summary	272
	References	274

12	Presumptive Testing and Enhancement of Blood	275
	CHARLENE MARIE	
	Presumptive Tests	275
	Benzidines	277
	Triarylmethanes	277
	Luminol	278
	Choosing a Reagent	279
	Genetic Testing Considerations	282
	Formulations	282
	Hemastix™	283
	Hemastix™ Procedure	283
	Preparing Phenolphthalein, Leucomalachite Green, and o-Tolidine	284
	Phenolphthalein Solution	284
	Leucomalachite Green Solution	284
	o-Tolidine Solution	285
	Testing Procedure Using Phenolphthalein, Leucomalachite Green, and the o-Tolidine Solutions	285
	Interpretation	286
	Searching for and Enhancing Latent Blood	286
	Leucocrystal Violet (LCV) Preparation	287
	Alternate LCV Reagent Preparation Method	288
	Fluorescin Spraying Solution Preparation	288
	Fluorescin in Alcohol Preparation	288
	Fluorescin in Water Preparation	289
	Luminol	290
	Reagent Preparation	290
	Alternate Reagent Preparation	290
	Safety Considerations	290
	Procedure for Using Luminol, LCV, and Fluorescin	291
	Protein Stains	291
	Photo-Documentation	292
	Interpretation	293
	Confirmation of Blood	294
	Immunoassay Confirmation of Blood	294
	Summary	294
	The Author	295
	References	295
13	Documenting Bloodstains	297
	The Function of Documentation	297
	Collection	298
	Bloodstain Pattern Photography	301
	Scene and Pattern Sketches	312
	Written Reports	314
	A Spatter Pattern Description/Conclusion	315

A Blood Pool Description/Conclusion	315
A Pattern Transfer Description/Conclusion	316
A Complex Pattern Description/Conclusion	316
Summary	317
References	317
14	An Introduction to Crime Scene Reconstruction and Analysis 319
Crime Scene Analysis and the Archeologist's Dilemma	320
A History of Crime Scene Analysis	323
The Correlation of Crime Scene Analysis to Behavioral Analysis	326
The Application of Scientific Method in the Reconstruction Process	328
Theory and Principles of Crime Scene Analysis	328
Locard's Principle of Exchange	330
Nicolas Steno's Principle of Superposition	330
Nicolas Steno's Principle of Lateral Continuity	331
Chronology	332
A Methodology for Crime Scene Analysis — Event Analysis	334
Putting the Pieces Together	343
References	344
15	Presenting Evidence 345
Understanding the Nature and Content of Daubert or Similar Challenges	345
<i>Daubert v. Merrell Dow Pharmaceuticals</i> , 113 S.Ct. 2786 (1993)	346
<i>Frye v. United States</i> , 293 F. 1013 (D.C. Cir. 1923)	346
U.S. Federal Rule 702	346
Responding to <i>Daubert</i> or Similar Challenges	346
What Is Bloodstain Pattern Analysis?	346
What Is the Purpose of a Bloodstain Pattern Analysis?	347
What Principles Apply to Bloodstain Pattern Analysis?	347
What Is the Methodology Used in Bloodstain Pattern Analysis?	347
Where Has Blood Pattern Analysis Been Accepted in Judicial Settings and within the Scientific Community?	347
What Scientific Studies Have Been Published in Peer Review Journals?	348
Are There Professional Associations That Recognize Bloodstain Pattern Analysis?	348
Is There an Identified Error Rate for Bloodstain Pattern Analysis?	348
General Concerns for Testifying	348
Maintaining Objectivity	349
Settling in and Establishing a First Impression	350
Understanding Cross-Examination	352
Using Demonstrative Aids in Court	354
Building Demonstrative Presentations Using Computer Resources	355
Bloodstain Pattern Analysis Software Applications	360
Summary	365
References	366

16	Experimentation in Bloodstain Pattern Analysis	367
	Considerations for the Design and Conduct of Experiments in Bloodstain Pattern Analysis	367
	Identify the Investigative Question	368
	Initial Observation and Information Gathering	369
	Identify Variables and Form a Hypothesis	369
	Design a Functional Experiment to Test Your Hypothesis	370
	Obtain Materials and Equipment	370
	Conduct the Experiment and Record the Data	370
	Analyze and Summarize Results	371
	State the Best Explanation	371
	Maintaining a Reality Check, Comparing against the Crime Scene	372
	Experimental Errors	372
	Pitfalls to Experimentation and Reconstruction Attempts	373
	Case Example 1— “Painted Fibers”	373
	Case Experiment 2 — An Odd Impact Spatter	375
	Case Experiment 3 — Spatter or No Spatter	377
	Experiments vs. Demonstrations	378
	Summary	378
	References	378
17	Dealing with the Risk of Bloodborne Pathogens	379
	Bloodborne Diseases	379
	Crime Scene Considerations	380
	Dealing with Accidental Exposures	381
	Packaging Biohazard Evidence	382
	Exposure Risks in Training and Experimentation	382
	Other Sources of Information on Managing Bloodborne Pathogen Risks	383
	Summary	383
	References	383
Appendix A:	Weight/Masurement Conversion Table	385
Appendix B:	Trigonometric Functions and Their Application in Bloodstain Pattern Analysis	387
	Accuracy, Precision, and Significant Digits	390
	References	391
Index		393

Foreword

Bloodstain Pattern Analysis with an Introduction to Crime Scene Reconstruction Third Edition in full-color by Tom Bevel and Ross M. Gardner is long overdue. This completely revised and enhanced edition is a practical and concisely written text. It is the most complete and comprehensive handbook to date from the perspective of the criminal investigator and forensic scientist on the subject of bloodstain spatter analysis.

The authors have provided the reader with an eloquent and practical guide for the analysis of bloodstain patterns and crime scene reconstruction based on many years of practical experience. Their original lab manual published over 24 years ago was entitled “*Bloodstain Pattern Analysis: Theory and Practice.*” This manual eventually became the framework for the first edition of ***Bloodstain Pattern Analysis with an Introduction to Crime Scene Reconstruction***, which challenged some of the subjective interpretation systems of bloodstain pattern assessments.

This new edition is based on a true taxonomy. The future of bloodstain pattern analysis will be based on description. Building on well-established classifications ideas in bloodstain pattern analysis (BPA) the authors have refined an objective classification system based on a taxonomic approach. ***Bloodstain Pattern Analysis with an Introduction to Crime Scene Reconstruction Third Edition*** is the basis for standardization of blood spatter analysis and establishes the need for universal rules that define this discipline by stressing the underlying scientific basis and how best to objectively apply this knowledge to cases in the field.

Ross Gardner first brought the idea of taxonomy to the attention of the SWGSTAIN GROUP in 2002. Bevel and Gardner introduce a new Chapter 3 to clarify and present a taxonomic classification system, which clearly describes the characteristics of different patterns. A taxonomy is simply a defined set of rules for classification. It establishes criteria against which the analyst can compare the scene stains to. The idea of taxonomy is derived from biology where organisms are classified by shared characteristics. These characteristics create a hierarchical relationship between the various groups. Although other authors have previously provided the hierarchy, Bevel and Gardner are the first to clearly describe the supporting characteristics for that hierarchy.

In addition to elucidating the classification system, the authors have included within the text, a full-color foldout of a Bloodstain Pattern Decision Map, which can be used for ready-reference in reaching a classification decision no matter what classification system they use. They also provide a detailed methodology for bloodstain pattern analysis, which is described in Chapter 4

Bloodstain Pattern Analysis with an Introduction to Crime Scene Reconstruction Third Edition provides specific details on Crime Scene Analysis/ Reconstruction in explaining a proven methodology involved in the process. This methodology is built upon scientific method and provides focus and structure to the analyst as they conduct the analysis.

The authors provide an excellent historical perspective to acquaint the reader with the significant chronology of the application of this technique. The authors provide excellent

information on distinguishing crime scene analysis from behavioral analysis and discuss the many considerations involved in the reconstruction of the crime.

Bloodstain Pattern Analysis with an Introduction to Crime Scene Reconstruction Third Edition explains the complex mechanics of blood spatter analysis with a new chapter which addresses the medical examiner and the anatomical issues related to bloodstain pattern analysis, which includes a discussion of blood and the circulatory system and the nature of bleeding associated with various traumatic and non-traumatic injuries. Other new chapters include bloodstain pattern analysis associated with clothing and fabric issues as well as a chapter that describes presumptive testing in detail. All of the existing chapters have been revised and updated to address taxonomy.

The most significant improvement in this third edition with the exception of the revised chapters is the inclusion of almost 400 photographs, three hundred and seventy of which are in full-color, which graphically illustrate the dynamics of bloodstain pattern analysis.

The authors bring over 50 years of practical experience to this text especially with their respective backgrounds in actual criminal investigations. Tom Bevel, my friend and colleague for many years, is a retired police captain from Oklahoma City, Oklahoma. Tom Bevel is the owner of TBI, LLC a forensic education and consulting company. He is also an adjunct professor in the Masters of Forensic Science program at the University of Central Oklahoma. Captain Bevel (Ret.) holds a master's degree in Criminal Justice and has extensive training in the area of criminal investigation both in the United States and Europe. Tom Bevel has numerous professional affiliations including; The Association for Crime Scene Reconstruction (ACSR, a distinguished member of the International Association of Bloodstain Pattern Analysts (IABPA), and the American Academy of Forensic Sciences. Tom has acted as a police consultant in over forty-six different states and eleven foreign countries. He has personally participated in more than 3300 criminal investigations in which bloodstain spatter evidence was the issue and has testified in numerous trials as an expert witness.

Ross M. Gardner, served for The United States Army Criminal Investigation Command (USACIDC) for over twenty-four years as a felony criminal investigator, served four years as a chief of police for a small suburban Atlanta police department.

He retired from public service in 2003. He holds a Master's Degree in Computer and Information Resource Management and has extensive training in the area of criminal investigation through the United States Military. He served as an adjunct professor for Central Texas College in the Police Science program. He is also certified as a senior crime scene analyst with the International Association of Identification and has published as a recognized expert in the field of bloodstain pattern analysis. Special Agent (Ret.) Gardner, who now consults in crime scene analysis, bloodstain pattern analysis and crime scene investigation, also has also has numerous professional affiliations.

He is the former president of the Rocky Mountain Association of Bloodstain Pattern Analysts (RMABPA) as well as the Association for Crime Scene Reconstruction (ACSR) and served as chairman of the education committee for both the RMABPA and the International Association of Bloodstain Pattern Analysts (IABPA).

In my textbook ***Practical Homicide Investigation: Tactics, Procedures, and Forensic Techniques Fourth Edition***, I point out that; "Solving homicides, especially those without witnesses are extremely more difficult to solve because your main witness, the deceased, is dead. One must develop the ability to "absorb" the crime scene, and be able to read the uncollectible nuances of the event." The classification and analysis of bloodstain patterns

within the crime scene oftentimes provides the investigator with the critical information to reconstruct the crime. Used properly, bloodstain pattern analysis can help establish specific events associated with the crime.

I personally believe that without practical scene experience there is a deficiency in crime scene reconstruction. Seasoned practice necessitates that the practitioner have that ability to “absorb” the crime scene, and be able to read the uncollectible nuances of the event. This is what we refer to as “scene experience” as opposed to a strict “laboratory” mentality. Tom Bevel and Ross Gardner both have this “scene experience” as well as the necessary knowledge to evaluate and apply the scientific methodology to the reconstruction process.

Bloodstain Pattern Analysis with an Introduction to Crime Scene Reconstruction Third Edition is a masterful blend of “Practice and Theory” with practical crime scene knowledge and the application of scientific methodology to the process of crime scene reconstruction. The new edition follows a logical path throughout the text, highlighted with excellent color examples starting with an explanation of what bloodstain pattern analysis is, the terms used, the basic classifications, a methodology for BPA and then a discussion of the various skills utilized in BPA. It is organized in such a manner to allow the reader quick and easy references into specific areas of blood spatter which includes the full-color foldout of the Bloodstain Pattern Decision Map.

Vernon J. Geberth, M.S., M.P.S.
Author of Practical Homicide Investigation
Series Editor

Preface

The goal of forensics and crime scene reconstruction is simply to seek the truth. The analyst has no other agenda. In pursuing this end, we revisit what we hope is a not too distant past and attempt to recreate the events that unfolded. This task is anything but simple and the tools employed are all of the forensic disciplines.

Each area of forensics provides insight and a glimpse back into this past. Each has its place in evaluating the aftermath of crime — the physical evidence. In the most classical sense, the majority of the forensic disciplines provide us knowledge as to the “who” of crime. Fingerprints, serology, and trace and fiber evidence all give us the ability to associate people or objects with a crime scene. Forensic pathology, on the other hand, has always been a primary link to the “what” of crime, providing insight to some of the events that occurred during the incident.

Bloodstain pattern analysis is a discipline that serves a significant role in answering the question of “what” happened. Used properly, bloodstain pattern analysis helps establish specific events associated with violent crimes. In this capacity, bloodstain pattern analysis acts as a critical bridge between classical forensics and crime scene reconstruction.

Although certainly not a young discipline, bloodstain pattern analysis is just beginning to recognize some of the universal rules that define it. We still see aggressive discussions between analysts over what they can or cannot infer from a specific stain. More often than not, these arguments consume our objectivity. These arguments lead us to a darker side of forensics, where subjective analysis reigns. To fight this tendency, our continuing goal must be to understand the discipline, its underlying scientific basis, and how best to objectively apply this knowledge to cases in the field. The investigator’s mission is to always illuminate the truth, not shroud it in shadows.

The authors of this book come to you from two distinctly different backgrounds, though both have a high level of experience in “on scene” crime scene evaluation. One is a career civilian law enforcement officer, and the other is a retired criminal investigator for the U.S. Army. Both are nationally and internationally respected in their fields. Two very different roads led them to the same destination. Interestingly enough, those roads crossed outside the city of London, at the Metropolitan Police Detective Training School. There both authors, although several years apart, attended the Scenes of Crimes Officer (SOCO) Course.

The British approach to scenes of crime is, at the very least, one of the most methodical in the world. The SOCO course teaches the students to understand and incorporate all forensic evidence in the evaluation of crime. It places responsibility for understanding the inter-relationship of that evidence on none other than a generalist, the crime scene investigator.

Perhaps then it is the SOCO course that serves as the wellspring of the authors’ shared passion and belief: conduct crime scene evaluations using a holistic approach. Inherent in this thought is that case resolution is critically dependent upon proper crime scene analysis. However, case resolution is not just a matter of proving someone guilty. The investigator