



TETRADYN

*(Applied Science in BioThreat Protection,
Monitoring, & Emergency Response Systems)*

Emerging Developments in Preventive Criminal Analytics

An Integration of Behavioral Analysis, Profiling, Violent Criminal Apprehension, and Forensic Technologies with New Advances in Pattern Recognition, Identification, and Prediction

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DRAFT Version

Keywords: Abductive reasoning, abduction, anomaly detection, behavioral analysis, criminal behavior, forensics, kidnapping, pattern recognition, prediction, sexual predator, terrorism, violent crime

Prospective Main Audience: Law enforcement (fed/state/local), investigative professionals, forensic scientists and technicians, public safety education specialists focused upon violent pre-meditated crimes targeting children, women, and other traditionally-viewed vulnerable members of the general population, counter-terrorism investigators.

Note: This is an informal “white paper” draft; a future version will be expanded and include more footnotes, references, and a bibliography.

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GENERAL METHODOLOGY **Error! Bookmark not defined.**

SUPPORTIVE EXCERPTS **Error! Bookmark not defined.**

APPENDIX 1 **Error! Bookmark not defined.**

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APPENDIX 3 **Error! Bookmark not defined.**

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INTRODUCTION

Changes and adaptation in countermeasures to criminal activity of virtually any sort seem to take longer to become assimilated into the society, and specifically into law enforcement and investigative processes, than the changes and adaptation by criminals. This is particularly evident in the case of violent and predator-type crimes, into the most generalized category of which I will also place terrorism and hate crimes, since they often share some elements of behavior and planning in common.

The very basics of behavioral analysis and profiling have a history that dates back to at least the 19th century and the work of persons like Dr. Thomas Bond in London. The evolution of the National Center for the Analysis of Violent Crime (NCVAC) and its main components (BAU, ViCAP, CASMIRC) took place over decades, with foundations in the contributions of such scientists and other professionals as James A. Brussel (1950's), Patrick Tooley (1970's), and early challenges such as the Susan Jaeger murder case.²

The work of professionals such as David Canter and others in the United Kingdom was also getting underway and gaining receptivity in the mid-1980's and the confluence of legislative changes (e.g., PACE ("Police and Criminal Evidence Act") in the UK) plus the advent of widespread and high-speed computer and database use have all contributed to the growing successes in solving crimes and apprehending criminals. However, as with most tools in life, we are dealing always with the classic "two-edged sword" and by this I refer to the advances in methodology and especially technology by criminals, particularly the internet and web, and also the fact that we face presently a situation where there are significantly larger populations, dramatically increased mobility, especially for the young in our populations, significantly increased growth in terrorism and hate criminal activity, significant increases in child abuse of all sorts (not only sexual), and an overburdened law enforcement community that is further burdened at present (2008-present) by budgetary constraints, staff reduction by attrition, retirement, and voluntary severance, and a host of other complicating factors.

In my work, which has led thread-like through theoretical and mathematical physics and biophysics into extensive application-focused research and development for both sensing, detection and diagnostics of chemicals and biological substances, and also modeling and prediction of anomalies and patterns that can be applied to individuals, small cells or cadres, and larger groups, there has emerged an insight and understanding that all of this work can have value for what I believe is the next stage in the type of work undertaken by law enforcement agencies, forensic and medical examination centers, public legal departments, and other officials who have mandates and vocations for not only preserving law and order but providing, to the best of our abilities, a sustainable and reduced-stress environment for our populations and their communities.

As in the practice of medicine, there are times and tools for reactive treatment, and for preventive, wellness-oriented action. My focus in this very informal and short briefing is upon the ways in which advances from the medical, biological, and environmental fields, involving early warning, prediction, detection, diagnosis and response for different biological, chemical or radioactive agents, can be applied to improving both our responsive investigations into certain classes of criminal behavior as well as our preventive, prophylactic actions that will reduce such crimes from being committed. {FULL PAPER AVAILABLE UPON REQUEST}

² Montana, June, 1973. The actual profile-intensive investigations leading to apprehension of the killer begin in early 1974.