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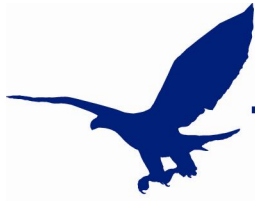
Offender Profiling

By Ian Kirke LLB (Hons), MSc, Cert Ed.

Is geographical profiling hype or hope?

Introduction

““You will not apply my precept,” he said, shaking his head. “How often have I said to you that when you have eliminated the impossible, whatever remains, *however improbable*, must be the truth? We know that he did not come through the door, the window, or the chimney. We also know that he could not have been concealed in the room, as there is no concealment possible. When, then, did he come?”” (Sherlock Holmes Quotes 2006). According to the advocates of geographical profiling the concluding sentence would have Sherlock Holmes ultimately identifying the locality of where the offender resided. Surely even the World renowned Baker Street detective would have balked at this fantastic claim? However, this review will critically assess this investigative profiling tool that proclaims to reverse engineer the very commission of crime to the proximity of the doorstep of the ne’er-do-well. Although a somewhat extraordinary claim it is contended, based on the civil liability of claim, that geographical profiling, on balance, provides more hope than hype. This declaration will be edified by reference to the development of this discipline, an overview of relevant processes and a number of case studies. A comprehensive conclusion will then seek to marry up the strands of evidence together in an effort to support the notion that geographical profiling is more primary than piffle.



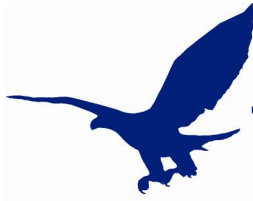
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Geographical profiling: Hype or hope?

At an academic and contemporary level geographical profiling is delineated as “an information management strategy for crime investigations that analyses crime site information to determine the most probable area of offender residence” (Rossmo, 2000, p. 259). Although probably seen as a recent addition to the crime investigation arsenal the profiling of offenders and their residency can be traced back many hundreds of years. For example, from the 1400's to the 1700's witches were identified by reference to the following criminal profile, “Elderly female beyond child bearing range; Poor; Lives on edge of town; Displays knowledge of herbal medicines; Mark of the Devil (insensitive spot); Steals men's potency causing impotence in the surrounding areas; Collects a great number of male members and keeps them in a birds nest or box” (Cyriax, O. (1993)).

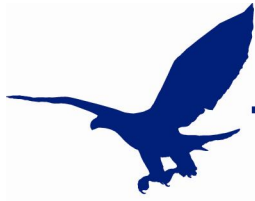
According to Canter (2003) geographical profiling, within the context of a respected diagnostic approach, was developed in 1980 during the Yorkshire Ripper enquiry when the Police approached Stuart Kind (a leading forensic biologist) who adapted mapping techniques that he had learnt as a navigator in the Royal Air Force together with the locations, dates and times of the Ripper murders to produce a profile that suggested, quite correctly, that the offender (Peter Sutcliffe) lived somewhere between Shipley and Bingley. “Sutcliffe was arrested within two weeks of Kind's report. Kind later helped research into how Sutcliffe evaded the police for five years. Its recommendations - including the need to develop computers for major



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investigations - were used to improve detective work.”(Peter Sutcliffe, The Yorkshire Ripper (2003)). “In the mid-1990s, more sophisticated models for predicting an offender’s home address were developed, building on the work of Brantingham and Brantingham (1981) and other studies of offender travel behaviour (e.g., Rhodes and Conly, 1981). As summarized in Rossmo (1999), key results of these studies include: Most crimes occur in relatively close proximity to the offender’s home, crime trips follow a distance-decay function, with the number of crime occurrences decreasing with distance from the offender’s home, juvenile offenders exhibit less mobility than adult offenders and patterns in crime trip distances vary by crime type.” (Rich, T., Shively, M. (2004)). Key computer based solutions include CrimeStat (“CrimeStat is a spatial statistics program for the analysis of crime incident locations, developed by Ned Levine & Associates.” (CrimeStat® III (2007)) , Dragnet (Developed by David Canter) and Rigel (“A system for Geographic Profiling designed to support serial crime investigations by prioritizing suspects and addresses, and enabling the investigators to focus their resources on specific locations.” (ECRI (Profiling) (2008)) and although based on differing decay functions they nonetheless produce similar outcomes in that a grid is created over the crime scene areas and computation calculates the odds of where the offenders residence is likely to be located. Although such software applications have proved immensely popular with law enforcement agencies across the globe researchers have, since the beginning of the new millennium, looked at alternatives to the computer based solutions including training investigators to predict the same processes based on a series of

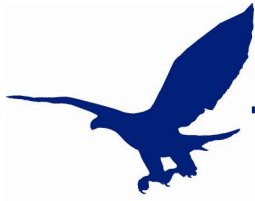


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fundamental rules. At a theoretical level, these studies are based on a growing body of research that illustrates that people use simple cognitive judgements and experience to make precise conclusions (Gigerenzer & Selton (2001)). In a nutshell geographical profiling allows investigators to identify suspects by drawing a comparison between where they actually live and the forecasted location of the offenders abode. Limited research into the potential fallibility of such systems has nonetheless produced encouraging evidence, suggesting that the police search parameters can be reduced by a staggering ninety percent (Canter et al. 2000).

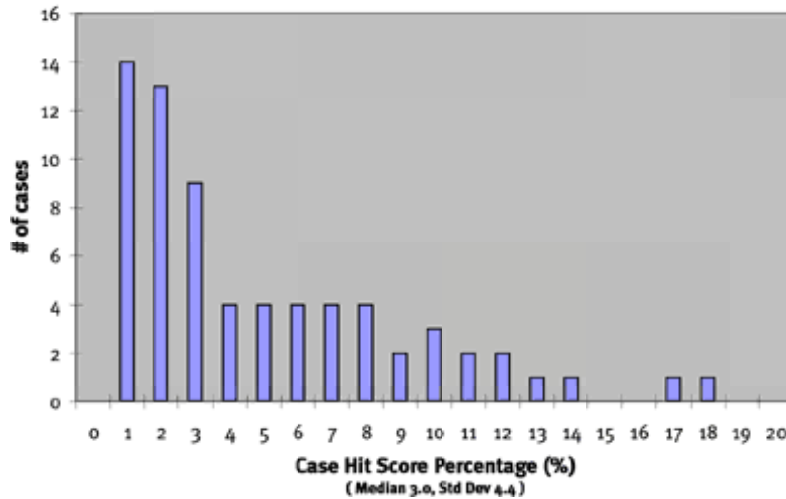
Environmental Criminology Research Incorporation (ECRI), developers of the Rigel software system, discloses a 'hit rate' that in 2008 produced an outstanding success ratio. "The result of a Geographic Profile is a description of an optimal search process. A search that starts in the highest (i.e. most probable) area and works outward is more likely to find the offender's residence sooner than a random search process. Search efficiency is therefore an indicator of the performance of the Geographic Profiling model, and can be measured by determining the proportion of the total hunting area covered before the offender's residence is encountered. This ratio is referred to as the "hit score percentage". The smaller this number, the better the focus of the geographic profile. The actual size of the region it represents is called the search area. The following map shows the Hit Scores of 70+ actual cases with a calculated median of 3.0% and a standard deviation of 4.4%."



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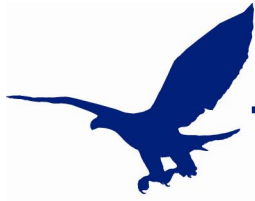
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Hit Scores



(ECRI (hit scores) (2008))

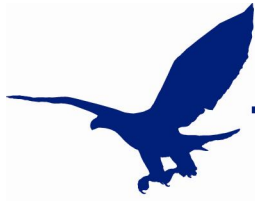
It is arguable that one has to be somewhat suspicious of the claims of a supplier albeit given the intelligence that Dr. Kim Rossmo (Chairman of the Board and Chief Scientist) heads up operations coupled with the impressive global client list creates, it is submitted, an air of authenticity. The following four case studies, courtesy of ECRI display an incredible degree of success. “Operation Lynx was the largest police manhunt in Britain since the Yorkshire ripper case. The police had DNA, and a partial print. The DNA was not on their national database, and the print fragment was too small to search via AFIS. The Criminal Investigative Analysis suggested that the offender was more likely to have robbery or fraud in his background than sex crimes. The greater Leeds population is several million people so police identified those police stations that fell into the area of highest probability in the Geographic Profile, 3.3% (21 sq. miles). They then hand compared prints from all robbery/fraud criminals they had on file with the partial print. A match occurred



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in the second police station on the list, and DNA confirmed the suspect as the rape offender. Ontario Provincial Police (OPP) were investigating a series of over 80 burglaries in a cottage community near Midland, Ontario. Investigators had numerous suspects for these crimes. Using the Geographic Profiling, investigators were able to focus the investigation on a small area of the community. Surveillance was conducted on the one suspect who lived in the peak profile area and sufficient evidence was gathered to result in an arrest. The offender was subsequently charged with numerous (50) offences and stolen property recovered. His residence was located in the top 0.06% of the total area of the crimes (an area less than 100m x 100m). In Operation Tornado Police from several jurisdictions were seeking a common offender in a series of robberies of financial institutions throughout central England. The older white male, simulating a weapon, had struck 32 times between September of 1996 and June of 1998. The victimized banks were in small towns and villages spread over some 20,000 square kilometres. Geographic Profiling aided investigators by directing the search for the offender's residence on an area of 2,015 sq. km (10.3% of the area under consideration) and helped in focusing a CrimeWatch appeal to the general public. A resulting tip from the public lead to the offender, who lived in the village of Buxton (within that 10.3% area) being arrested and charged with multiple counts of robbery. A series of 35 cases of sexual assaults, including completed rapes with latex clothing's as well as apparently stupid attacks or attempted rapes between July 1996 and January 2001, was investigated by the Recklinghausen police in Germany. All crime sites were located in the town of

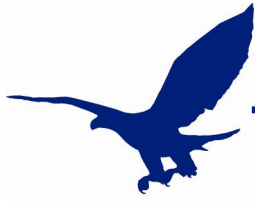


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Marl, a city with approximately 30,000 inhabitants, right in the industrial area of the Ruhrgebiet. Of these offences, 28 had been linked by the profiling unit of the Landeskriminalamt in Düsseldorf. In 2000 Detective Sergeant Neil Trainor, Geographic Profiler with the NCOF in Bramshill, UK, was asked for supporting the German investigators with a geographic profile. The expected hit score of approximately 3% of the total hunting area (58.73 sq. km) pointed out the likelihood of the offender's residence within an area of 1.42 sq. km. A DNA mass screening finally led to the offender who had lived with his mother (within the 3% hit score area) until 1998 and then moved to a house at the edge of the area." (ECRI (cs) (2008))

The counter claim is robustly argued by, amongst others, Laurence Alison, Craig Bennell, and Andreas Mokros of the University of Liverpool and David Ormerod of the University of Hull who maintain that, "Most approaches to offender profiling depend on a naive trait perspective, in which the task of predicting personality characteristics from crime scene actions relies on a model that is nomothetic, deterministic, and nonsituationist. These approaches rest on two basic premises: behavioral consistency across offenses and stable relationships between configurations of offense behaviors and background characteristics. Research supports the former premise but not the latter. Contemporary trait psychology reveals that this is probably due to the fact that Person x Situation interactions have an effect on offense behavior. When profiling reports rely on a naive trait approach, such reports should be used with caution in criminal investigations and not at all as



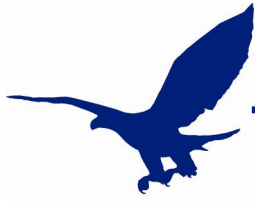
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evidence in court until research demonstrates its predictive validity.” (Alison et al, P.115 (2002)). The American Unabomber case is perhaps a good example of this hypothesis where the FBI profile of the suspect (Ted Kaczynski) was, it is contended, abysmal. Of all the profile criteria, including abode, the FBI were correct on only two parameters: Kaczynski was white and a loner (Skeptics Dictionary (2002)).

As Managing Director of a UK based risk consultancy (Training For Success) I have personally spoken to ex-offenders, especially those convicted of violent crimes such as armed robbery. It is submitted that the following passage, written by an ex-offender only adds weight to the deduction that geographical profiling is a useful addition to the investigators toolkit. “There's an old saying within the criminal fraternity, ‘Don't shit on your own doorstep’. Though this tends to be true at the beginning of your criminal career, it seems to be less adhered to as you become more confident (not getting caught) as this creates a sense of invincibility. (‘C.I.D are a bunch of useless wankers they'll never catch me’). I would now like to explain what motivated my choice of certain locations to commit crimes in. Accessibility: How far I have to walk or do I need a driver? Area Knowledge: How well do I know the area? Do I feel comfortable here? Knowledge of escape routes? Am I known here? Benefits: Likelihood of crime being successful? Damage limitations (weighing up the risk of being caught against financial gain). Here is a brief example of an actual crime that I committed to put the above considerations into context. It

was decided that we would travel by car to a destination 120 miles away from

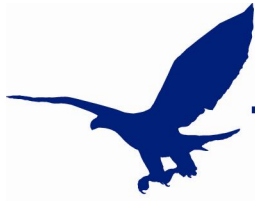


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where I lived because the area was known to me personally as I had vacationed there for many years as a child. I considered it a soft target because I had extensive personal knowledge of the area and the policing level was almost non-existent, which minimised the risk of being caught. (In other words we had a right result). The above is an exception to the rule as most of my crimes were committed within a 50 mile radius of where I lived. The reason for this being purely accessibility and local knowledge of the area. During the latter part of my criminal career my offences became closer to home and more reckless with less consideration for the risks involved. By this point I truly believed I wouldn't get caught shitting on my own doorstep. I was wrong!" (Ghalmi, K, personal E-mail communication, June 8th, 2008).

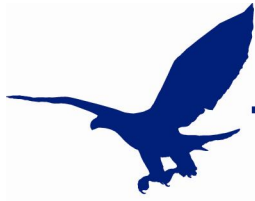
System retailers, researchers and criminals may have their own viewpoints albeit the investigator is the primary customer. To complete the circle of analysis this review incorporates the views of a senior British police investigator who was asked to reflect upon the merits of the process. "You have asked me to comment on the use of geographic profiling (GP) and my opinion as to its worth and success in criminal investigations. I was involved in the use of a GP just over 10 years ago, following a major investigation into a linked series of violent stranger rapes in Maidenhead / Burnham (Berkshire / Buckinghamshire borders, UK). The offender had an identical modus operandi (MO) but was very careful (apart from one occasion) to leave minimal forensic opportunities. As a result the Crime Faculty at Bramshill recommended the use of a qualified GP and offender profiler. I cannot remember his name but I



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can find out if necessary. He stated that the offender would live within a 2.5 mile radius of the offences. He based this largely on the Geographic's of the offences and scenes and the likely confidence the offender would have in his own territory. As the inquiry broadened the offences moved over 5 miles away and at this point we doubted the conclusions of the GP as the offences did not form a pattern. As we later discovered, the suspect moved home during the attacks which made the GP correct in his predictions. In this case he was very accurate and had we had the Sex Offenders Act and register we would have located him sooner. Sadly we had to wait for him to make mistakes which he eventually did. As an accredited Senior Investigating Officer I would not rely solely on GP. It is, however, a valuable tool in setting investigative boundaries and strategy. Clearly on its own it would have very limited evidential value. I would use it again though. Hope this helps. Chris Ward, Superintendent Crime and Operations, Thames Valley Police, Berkshire East BCU." (Ward, C, personal E-mail communication, May 25, 2008). The nuance of doubt about the effectiveness of this tool is edified somewhat in existing Association of Chief Police Officers (ACPO) policy, "(5.5.) Although Behavioural Investigative Advice is considered viable and useful, it has not been scientifically validated and therefore is subject to much debate about the effectiveness and accuracy of the different approaches of an individual advisor. This can be seen in the use of Advisors by the defence, and the ensuing conflict in court between opposing expert opinion. (5.6.) In considering the use of a Behavioural Investigative Advisor a balance needs to be drawn between the benefits such advice could bring and the potential problems." (Kent Police 2007).

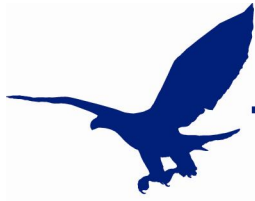


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Conclusion

The identification of offenders from their DNA, fingerprints or clothing fibres is perhaps much easier to grasp than the abstract notion of identifying an offenders neighbourhood by analysing patterns of offending. It may have a tinge of science fiction and maybe ridicule will always be a constant companion, as evidenced by the collaborative work of Alison, Bennell, Mokros and Ormerod. Geographic profiling does not purport to establish the offender's exact address. The present software systems will not spit out 1 Acacia Avenue, Any Town, Somewhereshire at the press of a button. However, it does stack the odds more favourably in the investigators corner by narrowing the field of enquiry. This can reduce timescales considerably thereby preventing further crime and protecting vulnerable members of the public. The case studies alluded to in this review provide, it is contended, irrefutable evidence that geographic profiling has provided an enhanced level of detection in cases whereby multiple crimes are committed by the same offender. Arguably these serial offenders are amongst the group of criminals that perpetually fuel the public's perception of the fear of crime. Karim Ghalmi, the ex-offender, provides subtle evidence too that supports the ideal that the some offenders are driven by instinct and, to a degree, predictable behaviour which can be measured and ultimately computed within the context of local geography. Doubters of the success of such mathematical assistants are right to keep the pressure on such systems as fundamentally they are only as good as the raw data that is fed into them. Human beings can be very subjective

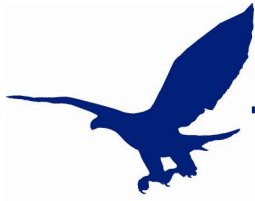


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and one has to give credit to the immense pressure that investigators are sometimes under to solve serial cases, especially those that harm members of the public. A good example of this observation was during the Yorkshire Ripper enquiry that, as discussed earlier, was ironically one of the pivotal drivers of geographical profiling and the effect that it had on the then Assistant Chief Constable of West Yorkshire Police, George Oldfield. "George Oldfield's personal obsession with the case was further compounded by the mocking tape which was released to the public in June 1979. He viewed it as a "personal challenge" and a "him against me" case. In August 1979, Oldfield suffered a heart attack and had to be ordered to take sick leave at the height of the ill-fated Ripper tape investigation. Oldfield was finally totally removed from the case in 1980 and replaced by James Hobson." (The Yorkshire Ripper (2008)).

This review set out to prove, on balance, that geographical profiling provides more hope than hype and it is submitted that the case for hope has been proved with room to spare. It is perhaps evidence of how mainstream geographic profiling has now become as conceivably the most notorious domestic murder enquiry is being subjected to the process. "Modern crime-fighting techniques have thrown new light on the possible true identity of London serial killer Jack the Ripper. Academic Dr Robin Bryant has applied "geographical profiling" to the east London locations of the horrific 1880s murders in a bid to pinpoint where the Ripper himself may have lived. The tentative results will fuel debate among Ripperologists because they appear to

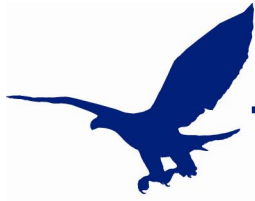


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undermine a theory that the Ripper was a Polish Jew which - until now - had been touted as the most likely solution to the unsolved crimes.” (The Press Association (2008)).

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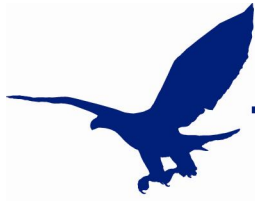
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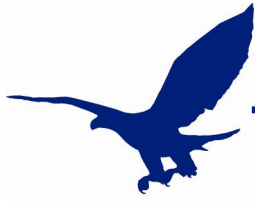
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