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## Police Science: Toward a New Paradigm

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### Executive Session on Policing and Public Safety

This is one in a series of papers that will be published as a result of the Executive Session on Policing and Public Safety.

Harvard's Executive Sessions are a convening of individuals of independent standing who take joint responsibility for rethinking and improving society's responses to an issue. Members are selected based on their experiences, their reputation for thoughtfulness and their potential for helping to disseminate the work of the Session.

In the early 1980s, an Executive Session on Policing helped resolve many law enforcement issues of the day. It produced a number of papers and concepts that revolutionized policing. Thirty years later, law enforcement has changed and NIJ and Harvard's Kennedy School of Government are again collaborating to help resolve law enforcement issues of the day.

Learn more about the Executive Session on Policing and Public Safety at:

NIJ's website: <http://www.ojp.usdoj.gov/nij/topics/law-enforcement/executive-sessions/welcome.htm>

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### Summary

We believe that a radical reformation of the role of science in policing will be necessary if policing is to become an arena of evidence-based policies. We also think that the advancement of science in policing is essential if police are to retain public support and legitimacy, cope with recessionary budget reductions, and if the policing industry is to alleviate the problems that have become a part of the policing task. In this paper, we outline a proposal for a new paradigm that changes the relationship between science and policing. This paradigm demands that the police adopt and advance evidence-based policy and that universities become active participants in the everyday world of police practice. But it also calls for a shift in ownership of police science from the universities to police agencies. Such ownership would facilitate the implementation of evidence-based practices and policies in policing and would change the fundamental relationship between research and practice. It would also increase the prestige and credibility of police science in the universities. We think that bringing the universities into police centers and having the police take ownership of police science will improve policing

and ensure its survival in a competitive world of provision of public services.

### **Introduction: The Disconnect Between Science and Policing**

Over the last two decades, the police have innovated at a rapid pace, developing new practices and policies that have reformed and changed the policing industry (Weisburd and Braga, 2006a). The police, who were once considered conservative and resistant to change, have become a model for criminal justice systems experimentation and innovation. The police have pioneered the development of new relationships between criminal justice and the public in community policing. They have crafted new strategies of crime control, introducing problem-oriented policing, hot spots policing, pulling levers policing and a host of other new strategic innovations, including the introduction of new technologies such as automatic number/license plate reading, automatic fingerprinting systems and DNA testing. The police also have experimented with new management methods in programs such as Compstat, and have integrated the new technologies into crime prevention and control through innovative crime analysis approaches such as intelligence-led policing (Ratcliffe, 2008) and with new methods of describing data such as computerized crime mapping.

In their efforts to innovate and change over the last two decades, the police have often enlisted the help of academics and researchers. In the development of Compstat in New York City, for example, academic research not only helped to define why new approaches were necessary (Bratton, 1998; Bratton

and Knobler, 1998), but police scholars like George Kelling were enlisted to help identify and refine promising police practices. Intelligence-led policing is strongly linked to academics who have called for use of advanced statistical and analytic tools in dealing with crime problems, and many police agencies have sought to enlist researchers to help them develop such tools (Peterson, 2005; Ratcliffe, 2002; 2008). Hot spots policing has its origins in basic academic research, and has been the subject of systematic scientific evaluation (Braga, 2001; Sherman and Weisburd, 1995; Weisburd, 2005). More generally, police-researcher partnerships have been a prominent feature of the policing landscape over the last two decades, and it is no longer surprising to see researchers in police agencies.

But having noted the advances in the relationship between research and practice in policing, we think it reasonable to say that despite progress, there is still a fundamental disconnect between science and policing. By “science” we mean the broad array of methods and technologies that police have confronted over the last half century. This includes advances in forensics, such as DNA testing, digital fingerprinting and other technologies meant to improve detection and identification. It also includes social science, which often has been neglected by the police, but has begun to play an increasingly important role over the last few decades both in terms of advancing crime analysis and in evaluating and assessing traditional police practices and new innovations in police strategies. By science we also mean the advancement of the use of scientific models of inquiry such as problem-oriented policing. In our paper, we will argue that

despite the advances made in the use of science in policing and in the leadership and management of policing, science has yet to move to center stage.

For example, most police practices are not systematically evaluated, and we still know too little about what works and under what conditions in policing (National Research Council [NRC], 2004; Weisburd and Eck, 2004). Indeed, the evidence-based model for developing practices and policies has not been widely adopted by police agencies. Today, as in past decades, strategies developed in police agencies are generally implemented with little reference to research evidence. Despite some examples notable for the ways in which they depart from conventional practice (e.g., hot spots policing; see Weisburd and Braga, 2006b), the adoption of police innovation has tended not to have a strong relationship with science.

Evidence-based policing (Sherman, 2002) is not the rule, and we think it is not an exaggeration to say that most police agencies have little interest in using scientific methods to evaluate programs and practices. A CEPOL<sup>1</sup> study of police research in European police agencies found that only five out of 30 countries showed a “high” value accorded to police science research. In contrast, in nearly half the countries, research was seen as being of “low” value. The CEPOL study categorized low value through two characteristics: little or no demand from police for research and police training being conducted without reference to scientific or academic knowledge (Hanak and Hofinger, 2005).

Even police practitioners who are committed to using scientific evidence recognize that the present state of practice makes a sophisticated use of science difficult in many police agencies (Jaschke et al., 2007; Neyroud, 2008; Weatheritt, 1986). Often, the introduction of research develops serendipitously — from a “bright idea” of police practitioners or researchers rather than through systematic development of knowledge about practice. There is often little baseline data from which to define an innovation, and the outcomes that are examined are usually restricted to official data measured over very short periods. Most studies of innovations are based on very simplistic methodologies, focus on implementation rather than design, and often fail to address key issues around transferability or, equally crucial, sustainability (Weatheritt, 1986). Based on an assessment of whether the idea worked, innovative police leaders try to diffuse the idea more widely in their agencies, and across agencies, without adequately having researched what the real effect was. Despite some notable exemplars, even in many innovative police agencies, innovation is more a symbolic activity than a real scientific activity.

Most police agencies do not see science as critical to their everyday operations. Science is not an essential part of this police world (Hanak and Hofinger, 2005; Jaschke et al., 2007). At best it is a luxury that can be useful but can also be done without. This can be contrasted with fields like medicine and public health and, to a lesser extent education, which have come to view science as an essential component of their efforts to provide public services (Shepherd,

2007). We recognize that the job of policing includes unique features that cannot be easily compared to other applied sciences, and that models drawn from other applied sciences, especially medicine, would have to be substantially altered to be appropriate for police science. Nonetheless, we think there are important lessons to be learned from the penetration of science into other areas of practice.

For example, can one imagine medicine today without the large infrastructure of research that stands behind medical practices and public health policies? Science is valued both by medical practitioners and by ordinary citizens. Indeed, the manipulation of science by large drug companies and others that want to increase demand for their medical products and services illustrates the value of science more generally in medical practice. In policing there is — as Jonathan Shepherd, a recent recipient of the Stockholm Prize in criminology and originally a medical researcher and practitioner has remarked — a problem with the “credibility of social science research” (Shepherd, 2007). The police do not see social science as essential to the work of police agencies. A perfect illustration of this can be found in the content of core police education and training. As Janet Chan and her colleagues’ study of learning the art of policing illustrates, there is little concern with either scientific evidence or evidence-based policing (Chan, Devery and Doran, 2003). In turn, police science is often ignored even when the evidence is unambiguous. Take for example the continued application of programs like Drug Abuse Resistance Education (D.A.R.E.) that have been shown to be ineffective but continue to be supported and implemented by police

agencies (Clayton, Cattarello and Johnstone, 1996; Rosenbaum, 2007; Rosenbaum et al., 1994).

It is not just the application of social science that has missed its mark in policing. A recent National Academy of Sciences report on forensics expresses significant concern regarding the identification and application of science in such areas as fingerprint identification and forensic odontology (NRC, 2009). The report argued that the police were too willing to rely on experts and were not critical enough in the evaluation of the underlying science of these technologies. It also highlighted that the expert scientists were failing to objectively identify the underlying weaknesses in the technologies applied. And there is also a strong relationship between the weaknesses of applying the scientific method to forensics and a lack of acceptance of social science in policing. The police, as we discuss below, have long been interested in how new technologies can be harnessed to advance police work. Yet, the police have seldom sought to evaluate how these new technologies affect policing, and more importantly whether and how they make the police more effective (Morgan and Neyroud, forthcoming). Compare this approach to the adoption of new technologies and advances in agriculture and in medicine (Gomez and Gomez, 1984; Hunink et al., 2001; Sunding and Zilberman, 2001; Weinstein et al., 2003). These innovations are not adopted widely without careful evaluation of their impacts. Such scientific evaluation is rare in policing (see Roman et al., 2009, for an important exception).

One consequence of the lack of value of science in much of the policing industry is that there is

little advocacy of such science in government. Medical research in the United States receives more than \$28 billion a year in government funding (National Institutes of Health, 2008). In the United Kingdom, medical research receives more than £600 million (\$981 million) of government funding annually (House of Commons, 2008). Research on dental care in the United States has a federal budget of more than \$389 million per year (National Institute of Dental and Craniofacial Research, 2007). Education research received \$167 million in the United States in 2009 (U.S. Department of Education, 2009). However, the National Institute of Justice (NIJ), the primary U.S. funder of research in criminal justice, had a total budget of only \$48 million in fiscal year 2009 and a budget for research and evaluation (in which its policing division is located) of only \$13.7 million.<sup>2</sup> The primary funder of crime research in the United Kingdom, the Home Office, has a budget for research of only £2 million (\$3.3 million) (Home Office, 2008). Although there is evidence that police associations such as the International Association of Chiefs of Police (IACP) and major city chiefs have objected to cuts in research budgets in the past, we do not think that such efforts have been consistent or sustained. This can be contrasted with the vocal and intense responses of the police to reductions in police numbers and equipment (Galloway, 2004; Koper, Maguire and Moore, 2001).

We began this paper by focusing on the responsibility of policing to step up its use and ownership of science. However, we also think that the academic support for policing has, for the most part,

failed to meet the needs of policing. Indeed, to focus only on the police industry when noting the disturbing absence of a large infrastructure for science in policing neglects the failure of academic police scholars to make themselves relevant to the everyday world of the police. Academic research is generally divorced from the dynamics of policing. The police operate in a reality in which decisions must be made quickly, and issues of finance and efficiency can be as important as effectiveness. But academic policing research generally ignores these aspects of the police world, often delivering results long after they have relevance, and many times focusing on issues that police managers have little interest in.

Real issues in policing often have little salience in the halls of universities. In medicine, clinical involvement is seen as an important part of the research enterprise, and clinical professors are well integrated into medical science. But in policing, academics would be unlikely to advance in universities if they nested themselves in police agencies to address specific problems such as burglary or car theft, and it is rare for clinicians to have an active research role in universities.<sup>3</sup> As such, the everyday problems of policing have little status in the universities. In return, in general, the police have tended not to insist on graduate and post-graduate educational and professional standards, or at least have been discouraged from doing so by police unions and other interested political forces, and this has distanced the police even further from academia (Carter and Sapp, 1990; Roberg and Bonn, 2004).

We believe that a radical reformation of the role of science in policing will be necessary if policing is to become an arena of evidence-based policies. We also think that the advancement of science in policing is essential if police are to retain public support and legitimacy and if the policing industry is to alleviate the problems that have become a part of the police task. Below, we outline a proposal for an approach that would radically alter the landscape of science in policing. We begin by assessing the current situation and the present role of science in police agencies. We note the important advances over the last few decades but also the limitations of present approaches. Finally, we focus on proposals for a new paradigm that changes the relationship between science and policing.

This paradigm demands that the police adopt and advance evidence-based policy and that universities become active participants in the everyday world of police practice. But it also calls for a shift in the ownership of police science from the universities to police agencies. Such a shift would allow police science to become an integral part of policing and in this way would enable the development of evidence-based approaches for the identification of effective and cost-efficient practices and policies. This is essential if the science of policing is to provide evidence that its practices improve public safety. It is also essential if policing is to gain legitimacy and secure investment in an increasingly skeptical world of public services in which the competition for public finance is growing ever more acute (Ayling, Grabosky and Shearing, 2009).

## **The Present Reality: The Failure to Own Science and Its Implications**

Science in policing has a long history as it relates to forensic evidence and police laboratories for analyzing such evidence. Police focused early on the use of blood analysis, gunshot residues and pathology in improving investigations. These tools were developed in collaboration with traditional science, mostly medical science, and are being continued with the development of DNA testing and other new investigative approaches.<sup>4</sup> Police communications and geographic information systems are other areas where science has influenced policing and continues to change the nature of police operations. And there is no question that technologies related to the use of force such as weapons or vests to protect police officers have benefited from the involvement of science in the policing world.

In many ways, the use of such traditional science as DNA testing and the development of bullet-resistant vests and less-lethal weapons provide an important model for science in policing. Police agencies have embraced these technologies, and the federal government has often provided significant funding for their development. Nearly the entire NIJ budget in the last few years has reflected such developments, with DNA testing being the single most prominent federal investment in research that has been carried forward by the agency (NIJ, 2008). The same could be said for the U.K. government which invested heavily in the “DNA expansion program” from 1999 to 2007 (Williams and Johnson, 2008). What some might call “hard sciences” — the sciences of engineering, biotechnology and medicine

— have developed rapidly in policing and have been widely accepted by the policing industry. At the same time, a recent National Research Council (2009) report on the use of forensic evidence suggests that even in this area of science, the police have often failed to use an evidence-based model in which standards are developed with clear scientific criteria.

The adoption of technology by police agencies has been a type of “black box” — police have accepted such technologies but have generally not assessed or evaluated them. They bring in new equipment or new technologies because they work in theory but know little about how to use such technologies so that they work best. For example, despite major investment in DNA testing, there has been to date only one large field trial on the impact and cost-effectiveness of DNA evidence on police investigations and that trial was limited to property crime (Roman et al., 2009). Do new weapons make policing safer or more effective? Will DNA testing be cost-effective for the average police agency? Can automobile vehicle locator systems be used to increase the value of police patrol? These questions, which seem so obviously central to the question of adoption of new technologies, are seldom examined in policing. The police, in this sense, have often been reactive to the technologies that are brought to them and have seldom played a role in developing those technologies to enhance the effectiveness and efficiency of policing. And as the NRC report makes clear, in many areas, the police have accepted claims of scientific credibility with little skepticism.

One area where this involvement is greater is crime analysis. Most larger police agencies now have crime analysis capabilities that include not only simple tabular statistical description but also more sophisticated algorithms for identifying concentrations and patterns of crime, often relying on geographic information systems and spatial statistics. Most police chiefs can now quickly obtain answers regarding the distribution of crime across time or space, and most have come to expect that such data will be used to do something about crime. In this sense, science in crime analysis has become an integral part of police agencies (Weisburd, 2008). In the U.K. in particular, a number of partnerships have been developed between universities and the police as illustrated by the National Intelligence Model (Grieve et al., 2008). But it is important to note that in most police agencies there are still problems achieving integration between crime analysis and the everyday world of policing, and still less involvement between scientific work in universities and the work of crime analysis in policing.

Compare this with laboratories in major university hospitals where the skills of scientists are not only cutting-edge but are also integrated into a larger world of science. Major university hospitals expect their scientific staff to be conducting research that is published in the best scientific journals. They encourage them to look for new “discoveries” in their clinical work, and to follow standards set by national scientific bodies. Police departments do not, on the whole, encourage their scientific staff to publish in scientific journals in criminology; indeed, they generally



discourage them, sometimes citing the fact that adverse results might damage the reputation of the department.<sup>5</sup> Science in this sense is not a part of large policing centers. The implication of this is that the scientific quality of crime analysis units is often relatively low.

It might be argued that police do not have the resources to develop science of this type in their agencies. Of course, one reason for this is that police do not place a high priority on science, and thus there is little support for funding for police science on the part of government. It might be argued as well that this challenge is being overcome in policing with the development of police-researcher partnerships. Such partnerships have played a role in raising the profile of science in police agencies and in bringing new technologies and skills, especially in crime analysis. The roots of police-researcher partnerships go back to the 1970s with the relationship of the Kansas City Police Department, Mo., to the Midwest Research Institute. The New York City Police Department (NYPD) also had an early collaboration with the Vera Institute of Justice. The Vera Institute-NYPD collaboration can be seen as a model not only because of the serious research that was conducted but also because the police invested in this partnership over a long period by providing the Vera Institute with a yearly grant for technical assistance (Bloom and Currie, 2001).

The Vera Institute model is unusual; partnerships are more commonly a product of funding by state or federal agencies. The 1990s saw an explosion of such funding opportunities, and the research partnership model became a common part of the policing landscape. The origins of

these partnerships supported by government can be found in the early 1990s when then Director James Stewart of NIJ funded a series of collaborations in which police agencies and researchers both received funding to enhance research on the police (Garner and Visher, 2003). The Drug Market Analysis Program, which led to a series of experimental studies of anti-drug strategies, introduced collaborations in Jersey City, N.J. (Weisburd and Green, 1994; 1995), Pittsburgh (Olligschlaeger, 1997), Hartford, Conn., San Diego, and Kansas City, Mo. (Herbert, 1993). Importantly, these programs not only aided the police in the development of innovative strategies such as hot spots policing, they also produced a series of high-quality research products about what works in policing (Taxman and McEwen, 1998).

The partnership model was further reinforced with the U.S. Crime Bill of 1994 and the creation of the Office of Community Oriented Policing Services in 1994. Following upon earlier successes, the federal government now began to fund an array of different types of partnerships between police and scholars, paving the way for the acceptance of research in police agencies and recognition of the importance of policing as a focus of academic study. It became common to visit police agencies and see criminologists “in the building.” Many agencies began to rely on the advice of scholars and looked to researchers to help them develop and assess programs. Police scholarship developed at a quick pace with the number of articles on police science growing rapidly in this period (NRC, 2004). More importantly, the study of policing by police scholars became a field of greater interest with many more scholars participating.

In the United Kingdom, partnerships between the police and researchers also began to have influence in the everyday world of policing. Ken Pease's groundbreaking Home Office research on repeat victimization in Kirkholt and Manchester showed how scientific evidence could change police practices, in this case by recognizing that a recent victim is very likely to be victimized again (Pease, 1991). The diploma/masters in applied criminology at Cambridge, which included practice-based research, was required for senior law enforcement managers for a brief period in the late 1990s.

Although the 1990s saw a developing relationship between academic police researchers and the police, the role of science in police agencies did not fundamentally change during this time. The police-researcher partnerships generally were not sustainable after the large influx of federal funds declined. Simply put, the partnerships did not establish themselves as critical enough to the policing mission for the police to take on the partnerships on their own. As such they were arguably nice to have but could be done without. Science had not established itself through the partnerships, perhaps in part because the partnerships themselves often did not produce good science or science very relevant to police agencies. For most police agencies and academic researchers, the partnerships were an opportunity to increase resources for doing what they traditionally did. With some important exceptions we note below, neither the police nor academics really took ownership over these collaborations. Rather the police offered scholars the prospect of doing

research with the support of federal dollars, and researchers offered police consultation services paid for by the government.

Throughout this period, the science of police research remained a province of the universities and not police agencies. By this we mean that the questions asked generally had their origins in the questions of researchers, and not necessarily in the needs of the policing industry. The ownership of such research was not in the agencies that were the sites for its development, but in the academic institutions and among the academic researchers that sponsored them. Importantly, some of these projects, like the Drug Market Analysis Program, developed police practices in response to police and government definitions of critical problems. The pulling levers approach (Kennedy, 2006) developed by Harvard University's Kennedy School is a more recent example of this important trend. However, more common is the perception of many police that the real beneficiaries of such research programs are the researchers and not the police. And why they would not they feel this way, considering that the research findings are often disseminated long after the sites have lost interest in the questions asked and usually after new administrators that have little contact with the original research are in office? Indeed, the need for academics to publish in peer-reviewed journals that are at best remote for most practitioners and in a style that is not readily transferable to the policing workplace has meant that much useful research might just as well have been buried in a time capsule.

Finally, a deeper and more fundamental reason for the disconnect between police science and police practitioners lies in the fundamentals of police education and training. As we have suggested above, science is normally not central to police education and training. Neither CEPOL's recent survey (Hanak and Hofinger, 2005) nor Janet Chan and colleagues' seminal study of student officer training (Chan, Devery and Doran, 2003) shows much evidence of a professional and evidence-based approach to learning. Although it may be critical for police officers to have a good working knowledge of the law, that this is to the exclusion of a good working knowledge of the theory and evidence for its effective practice strikes us as a major factor in the failure of science to establish itself in policing. Moreover, the limited progress of police to create accredited standards for education prior to joining the force and throughout the careers of police officers has reinforced the realities of policing as a "blue collar job" (Reiner, 2000) rather than a profession supported by a credible corpus of knowledge. This, in turn, has further distanced police from the importance and relevance of police science.

### **The Costs of Failing to Own Police Research**

Our discussion so far suggests the extent to which the police have so far failed to take ownership of police science. Even in the case of technology, the police have, on the whole, been reactive to science and have allowed outside institutions to dictate what science would tell them. As a consequence, policing often remains outside the sphere of evidence-based policy. Although it is fair to say that there are limitations to the evidence base, we would suggest the police do not tend to place such

evidence as the central rationale for policy decisions. We think this may have serious consequences for policing in the future. Such consequences are already evident in the growing financial crisis that is facing many policing agencies (Gascón and Foglesong, 2010). Policing is becoming increasingly expensive as a public service, and without a scientific base to legitimize the value of police, it is likely that public policing will face growing threats from other less costly alternatives, like private policing, or that many police services now taken for granted will be abandoned (Bayley and Nixon, 2010). Without scientific evidence and a more scientific approach, police are going to be increasingly vulnerable to politicians and advocates pressing either populist approaches or budget reductions in favor of other services that are able to present better evidence-based business cases for public investment.

A reality in which the police see little value in academic research is also a reality in which there will be few serious scientists who are interested in or know about the police. This is to some degree natural, since it would be surprising if large numbers of scientists at the top of their profession became interested in the police at the same time that there was little prospect for serious scientific research on the police. There is today, compared to other major public services, little funding for research on policing, and this means that young scientists will be unlikely to see policing as an area of study with promise. This is a vicious cycle: a lack of priority accorded to science translates into limited investment and kudos attached to police science and, in turn, into limited opportunities and career prospects for scientists interested in policing research.

An interesting implication of these trends for academic criminology more generally is that police science is a relatively low-status area of specialization within the discipline of criminology and criminal justice. Policing journals are generally of lower quality as compared with the main journals in the field, and whatever their quality, they are ranked among the lower status outlets for academic papers.<sup>6</sup> It is ironic that an area of study with tremendous policy importance and with significant implications for public health and safety remains an area of low academic status in the scientific discipline in which it sits. But in a sense this is not surprising, because scientific study of policing is not integrated nor valued in the police world, and accordingly it has not gained advantage from what would seem its most important strength — its potential as a policy science.

Perhaps the most important cost of the present reality is that there is a gap between scientific research and clinical practice. Jonathan Shepherd (2004:15) argues that “[l]ike policing, medicine is both an art and a science. But the extent to which police services are based on scientific evidence of effectiveness is much lower than in medicine, where there are more than 300,000 references to field experiments and more than 4,800 published reviews.” Shepherd’s statement is if anything overly conservative, since there are only a handful of reviews of scientific evidence in policing and at most a few dozen experimental field trials.<sup>7</sup> Clinical practice in policing has little scientific guidance and though much more is known today than in earlier decades (NRC, 2004; Weisburd and Eck, 2004), what is most striking about policing

is that we know little about what works, in what contexts, and at what cost. Does it make sense for an industry that spends \$43.3 billion a year in the U.S. alone on personnel, equipment and infrastructure (Hickman and Reaves, 2006) to spend less than \$10 million a year on research? Does it make sense for large police agencies that have budgets of many billions of dollars to have no budget for the development of research on what the police do? One might argue that the cost of research should not be borne primarily by local police agencies, but it seems to us unreasonable that such agencies that are equivalent to large medical centers do not see themselves as responsible for advancing and testing their practices in a scientific framework.

### **Toward a New Paradigm: Police Ownership of Police Science**

How can we move police science to a central place in the policing industry? What is required for policing to become an evidence-based profession? Our answer to these questions is surprisingly simple, but we suspect it will nevertheless be challenging for both police practitioners and academic researchers. For police science to succeed the way science has in other professions, it must move from the outside to the center of policing. Scientific research must become a natural and organic part of the police mission. Science must become a natural part of police education, and police education must become based in science. Science in policing must answer questions that are critical to the police function, and it must address problems that are at the core of policing and address the everyday realities that police face.

The answers of science must be timely for the police. Though science at times cannot be rushed, it is also true that a science that fails to produce answers in a timely fashion cannot be relevant to a profession that works in the real world.

Police science must “make the scene” and become a part of the policing world. Police involvement in science must become more generally valued and rewarded. For that to happen, the policing industry must take ownership of police science. Police science is often irrelevant to the policing world today because it is not part of the policing enterprise but something external to it. To take ownership the police will have to take science seriously, and accept that they cannot continue to justify their activities on the basis of simplistic statistics, often presented in ways that bias findings to whatever is advantageous to police. We accept that this is not a straightforward challenge. As Sir Ronnie Flanagan (2008) identified in his review of policing in the U.K., policing is a high-risk environment and operates in a highly political context, in which reporting failures or presenting complex results can be uncomfortable territory. Both authors have experience of debates with chiefs about the difficulties of embarking on scientifically researched pilots that may report adverse results. But would a director of a major medical center be comfortable arguing against additional research on a major public health problem like Sudden Infant Death Syndrome because it might show that present treatments in the hospital were ineffective? If not, why should the continuation of a large public program to reduce crime not be considered similarly? As Joan McCord (2003) has observed, major social programs can

have not only positive impacts but also lead to serious harms, just as treatments in public medicine.

The police must see science as integral to their mission both because it can help them to define practices and programs that have promise, and because it can allow them to assess such innovations in terms of how well they work, and at what cost. Evidence-based practice is becoming a key component of public institutions in medicine, education and government (Sackett et al., 2000; Sanderson, 2002; Slavin, 2002). In this regard, education provides a particularly instructive example for the policing industry. Education, like policing, operates in a world of decentralized and independent agencies. And before the turn of the 21st century, large education programs were seldom subjected to evaluation, and there was little federal investment in high-quality experimental field trials (Cook, 2001). However, in fiscal year 2009, just seven years after the establishment of the Institute of Education Sciences in the U.S. Department of Education, the federal budget for high-quality research reached \$167 million, with a fiscal year 2010 request for \$224.2 million (U.S. Department of Education, 2009). Evidence-based science has grown exponentially in education. We see no reason why such growth would not be possible in policing. We would argue that if the police choose to invest in the evidence-based science movement, they would enhance the value and reputation of the profession in the public sphere.

In this context, it is reasonable for the police to expect that government will play a key role in developing police science. One missing component of police science today is large public research

institutes that can play the leadership role in advancing research about police practices. In the 1970s, the government and foundations in the U.S. developed such institutions as the Police Foundation, the Police Executive Research Forum, and the research arm of the International Association of Chiefs of Police. But, whatever the many successes of these institutes in the development of police science, they cannot take on the central role of government entities such as the National Institutes of Health or the Institute of Education Sciences. There is clearly a need for a large government agency that would play a central role in police science. Such an agency could also provide much needed guidance as to standards for police agencies, license and accredit police practice, require continuous professional development, and perhaps most importantly hold agencies that continue to use ineffective or harmful practices accountable. The National Police Improvement Agency (NPIA) in the U.K. has been following this approach for its first three years, suggesting that our idea is not far-fetched. However, its emergence has not been without friction, and the new coalition government has decided to phase the agency out, sharing its functions with a range of new bodies. It is yet to be seen whether the progress made can be sustained through transition and through budget cuts.

But such an agency could not on its own create the kind of police science we are talking about, especially in the U.S. where policing is decentralized across thousands of independent agencies. For an elite and relevant police science to develop, police agencies will also have to take

clear ownership over police science. This means that police agencies will have to prioritize science, and in doing so they will have to include science in agencies and advocate for science in government. To what extent do police executives today see their role as advocating for increased funding for police science? Is it common to see police executives on Capitol Hill or in national parliaments demanding larger budgets for police research? It is not, in part because police executives generally do not see police research as a key part of their responsibility. They have tended to see academics and universities as responsible for advocating for research. Of course, from the perspective of government, there is little reason to give money for police science if police practitioners do not themselves prioritize such science and its application to practice.

There are some good examples which lend support to our arguments. There are already indications of agencies that are taking the lead in this aspect of ownership of police science. In the San Bernardino Valley in California, for example, police chiefs have banded together to seek public support for an evidence-based research center in their communities that would conduct reviews of scientific evidence for the agencies and conduct evaluations of new programs. In Redlands, Calif., Chief Jim Bueermann has hired an in-house criminologist and invested in master's-level criminology for key middle managers. Commissioner Ramsey, in Philadelphia, has commissioned Temple University to conduct field trials on hot spot patrols. In the U.K., three police agencies, Manchester, West Midlands and

Staffordshire, funded by NPIA, have embarked on randomized control trials of key aspects of practice. These are key developments but they are still too reliant on innovative chiefs and government support. Government support for police research is as critical to police science as federal support of medical research is to medicine. But recognition of the value of police science also means placing it on the list of financial priorities of police agencies.

For this police science to succeed it must be a “blue chip” science. Universities must become an important part of police infrastructure. It is instructive to remember that hospitals were not always integrated with major university centers. Indeed, in the early 19th century the integration of universities and hospitals was a major innovation. Tenon (1788) pioneered this innovation by pointing out that hospitals were like butcheries and that medical training and research needed to be brought into the medical centers.<sup>8</sup> Note that innovators did not remove medical research from the hospital, but rather sought to bring the “universities into the hospitals” (Bonner, 2000). In this same sense we must bring the universities into police centers. Again, there are important examples of such programs already developing.<sup>9</sup> In Providence, R.I. (with John Jay College of Criminal Justice) and Alexandria, Va. (with George Mason University), new partnerships between police and researchers are developing that build on the university medical center model and that have been initiated by the partners rather than federal funding agencies.

A more general indication that such trends have already begun can be found in the Universities’

Police Science Institute at Cardiff University in the U.K. The Institute, according to the press release at its founding, represents a “collaboration between South Wales Police, Cardiff University and the University of Glamorgan with the aim of increasing professionalism in the police service. It is the first institution of its kind, integrating police research, policy and operations” (Cardiff University, 2007). Although time will tell whether these new university medical center models will be successful, they represent an element of the trend that we are suggesting is necessary to advance police science. We think more generally that there should be “clinical professors” of policing, and even of police specialties like burglary or homicide investigations. There should as well be “practitioner-scientists” who are supported by and located in police agencies. But this would mean that the universities would have to value police practice and reward scholars for advancing such practice, and police agencies would have to accord greater recognition to science and reward police officers involved in science.

Another change that will likely have to occur if the paradigm we are advocating is to succeed is that training of police and police researchers will need to take place, at least in part, at university policing centers. In medicine, practitioners and researchers are trained in the same university teaching hospitals. Jonathan Shepherd argues that a major impediment to the development of crime science is the fact that practitioners have little understanding of science, and scientists little understanding of practice (Shepherd, 2001; see also Feucht and Innes, 2009). He advocates for a major change in education for police and police researchers and the

introduction of a university hospital model for policing. We think this proposal has much merit and would play a major role in putting police research in police agencies so that it is connected to the real world of policing. Of course, there are significant impediments to such a model. Many police agencies still only require a high school degree for employment. Even though there has been a call for decades for a bachelor's requirement in policing both by scholars and police executives (Carte and Carte, 1973; Carter and Sapp, 1990; Roberg and Bonn, 2004), the resistance of police unions will make it difficult to implement this change generally anytime soon. Again, we think it short-sighted on the part of unions to resist a college education requirement, both because the new realities of policing demand greater education and because the relatively higher salaries of young police officers make their educational requirements inconsistent with those in other professions.

But more generally, the movement of at least some components of police science education into police agencies would facilitate the changes we are suggesting. The police and police scientists must have shared understandings not only of the realities of police work but also of the requirements of evidence-based policy. It is difficult to develop a high level of police science when police officers generally have limited understanding of what science is and what it requires and, most importantly, how they should assess the judgments of science against their professional intuition. Similarly, when academic researchers have no real understanding of the everyday

problems of police and the realities of policing, it is hard to imagine that they will develop valuable research about policing or research that is translated into practice in the policing world. In short, we need to see the development of the sort of shared academic-practitioner infrastructure that is an accepted part of medicine and education: websites and publications that are jointly used by and contributed to by academic and practitioner users; a culture of continuous professional development, supported by accreditation, that encourages practitioners to engage with the evidence and contribute more of their own; rewards and recognition in policing that showcase high-quality evidence-based practice; and the role of chief scientific officer, broader than forensics and embracing all aspects of the application of science to the development and deployment of policing.

Finally, there is no question that the measures of success of police agencies will have to be changed if police science is to be accorded a high priority within the police. Today, there is limited pressure on police executives to show that their policies and practices are evidence-based. Compstat represents perhaps the only major management innovation in policing that succeeded even in part in putting outcomes, and especially crime outcomes, at the center of evaluation of performance in policing. Although Compstat was not evidence-based, it was performance-based and was widely adopted across American police agencies. The development of Compstat argues strongly that the police as an industry do care about showing that their practices work. The shift



we are suggesting would place science as a key component of such evaluation.

Our vision of the changes from the current to our new paradigm can be summarized in the table below.

Instead of being incidental to change and development in policing, we envisage science at the heart of a progressive approach to policing. From the very beginning, recruits to the organization would be inducted and trained within a scientific framework. Although knowledge of the law is a critical component of effective policing, our recruits would understand the evidential base not only of legislation but also of the most effective strategies to harness the law for the betterment of society. They would learn that, as professional police officers, there would be a constant expectation that they would contribute to the expansion of knowledge through their own research and field

experimentation, an expectation strongly reinforced by an informed and committed leadership that understands that knowledge drives improvement in policing, just as it provides better medicine, teaching and forensic provision. Throughout their careers, our officers would be constantly exposed to the challenge of excellent teaching from police universities, at which the very best of their number would hold posts as clinical professors. The constant cycle of learning and improvement would be supported by the commitment of a significant percentage of the organization’s budget, in the firm and committed belief that excellence is a product of knowledge and constant, systematic challenge and research.

We would, equally, expect a seismic shift in the world of universities and the academic infrastructure supporting policing. As the police move up a gear and prioritize science, we would expect to see police science move up the academic league.

**Changing to a Science-Based Policing Paradigm**

	<b>Old Paradigm</b>	<b>Science-Based Policing</b>
Education and training	Based around legal knowledge and work-based learning.	Founded in science, linking scientific knowledge with practice and continual professional development.
Leadership	Leaders see science as useful when it supports initiatives, but an inconvenient truth when it does not.	Leaders both value science and see it as a crucial part of their own, their staff and their agencies’ development and essential to the agencies’ efficiency, effectiveness and legitimacy with the public.
Academic-police relationship	Separate and distinct institutional and professional structures.	University police schools combining both teaching and research, with strong institutional links and personnel exchange with local police agencies.
Development of practice	Practice develops by individual initiatives and political mandates.	Practitioners and agencies are committed to constant and systematic research and evaluation of practice.
Investment in research	A limited national and local or individual commitment to evaluating specific initiatives.	A committed percentage of police spending devoted to research, evaluation and the development of the science and research base which is framed within a national (and possibly international) strategy to build the knowledge base over the medium to long term.

The next generation of police scientists would contain many practitioner-academics, with the first “clinical professors” of policing paralleling their colleagues in medicine. We would expect the rapid development of the tools of translation to ensure the knowledge developed through scientific research is persistently disseminated into practice. George Mason University’s Evidence-Based Policing Matrix (<http://gemini.gmu.edu/cebcp/Matrix.html>) and NPIA’s Police Online Knowledge Area (<http://www.npia.police.uk>) are early standard bearers of such approaches. But we would also expect that the next generation would publish their findings in an accessible form in publications of NPIA, NIJ, IACP, the Police Executive Research Forum and the Police Foundation in tandem with submission to peer-reviewed academic journals.

### Conclusions: Owning Police Science

We have argued in our essay for the importance of the adoption of the norms of evidence-based policy in policing and of the police taking ownership of police science. Such ownership would facilitate the implementation of evidence-based practices and policies in policing, and would change the fundamental relationship between research and practice. It would also fundamentally change the realities of police science in the universities. We believe that such a change would increase the quality and prestige of police science. It is time to redefine the relationship between policing and science. We think that bringing the universities into police centers, and having the police take ownership of police science will improve policing

and ensure its survival in a competitive world of provision of public services.

### Endnotes

1. The European Police College (<http://www.cepol.net>), which is an agency of the European Union and based at Bramshill in Hampshire, U.K., is cosituated with the National Leadership campus of the National Police Improvement Agency.

2. Author’s personal communication with Thomas E. Feucht, Executive Senior Science Advisor, National Institute of Justice, Feb. 3, 2010. It is important to note that this amount represents a significant increase in funding compared with prior years (e.g., in fiscal year 2006 only \$10.7 million was spent on social science research).

3. The idea of “embedded researchers” has recently been advanced by Joan Petersilia, a leading corrections researcher in California. Professor Petersilia was called upon by Governor Schwarzenegger to reform the correctional system through a new role as Special Advisor for Policy, Planning and Research. She argues that it is critical for criminologists to become nested in the correctional system if they are to create change (Petersilia, 2008).

4. In the United Kingdom, the rapid growth of forensics came after the 1962 report of the Royal Commission on Police.

5. One of the authors is the editor of the *Oxford Journal of Policing*, which is committed to encouraging practitioners to publish on their work.

6. *Policing: An International Journal of Police Strategies and Management* is the only policing journal to receive an impact factor score from Thomson's Social Science Citation Index. It ranks 27th out of 29 criminology and penology journals.

7. The authors could identify only 22 randomized experiments related to policing. (See also <http://gunston.gmu.edu/cebcp/Matrix.html>.)

8. The authors are indebted to Jonathan Shepherd for pointing to Tenon's observation.

9. There are also examples of earlier attempts to develop such models (e.g., see Weiss and McGarrell, 1997).

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