Molecular Manufacturing and the Need for Crime Science

Deborah Osborne[*]

Buffalo Police Department, Buffalo, NY, USA

The anticipated emergence of molecular manufacturing (MM) within decades requires new conceptualizations about crime and new strategies to address it. The seeds of possible solutions are planted in the United Kingdom where formal policing began. These seeds are called "crime science".[1]

Early policing stressed that the principal duty of police was to prevent crime rather than detect it.[2] Crime science focuses on using science in creative and unprecedented ways to prevent crime.

What type of crime will occur in a world with MM? If the terrorist activities of this decade so far are indicators, it is likely that fundamentalist reactions to science will result in terrorist acts against scientists who threaten world order as we know it. This alone is cause for examining how we might prevent crime, as preventing crime is similar to preventing terrorism. Since much of the crime of the future will be enabled by new technology, it will be necessary to develop strategies to prevent the abuse of technology.

We use little science in policing *strategies* today, despite the enormous progress in technology in the past century. Tools have improved, but advanced strategies are rare. We use police cars instead of horse and buggies; citizens call 911 from cell phones and officers come running to almost every single request for police help; we have better weapons, better communications, and better transportation. Most of the time, however, we do not assess *why* police keep running to the same locations and dealing with the same problems.

Too often today, we look at crime incident by incident. In medicine, this would be like studying each individual virus case separately to find a way to combat that one particular infection. Finding practical ways to prevent, contain, and minimize crime by studying it in aggregations—as research scientists study strains of viruses—with objective measures and creative solutions: this is what policing in the world of the future will demand.

Only the most progressive agencies, very few in number, have a grasp of how to maximize the wealth of information made accessible by technology, to turn it into a resource for better

---

[*] E-mail: daosborne@adelphia.net.

[1] http://www.jdi.ucl.ac.uk/.

[2] http://www.met.police.uk/history/peel.htm.

Nanotechnology Perceptions **2** (2006) 151–153
Received 24 April 2006

policing. The status of information technology in the United States is a disaster, not only on the federal level (in the FBI), but also in most local law enforcement agencies—the first responders to crime and to terrorism.[3]

Fear of Big Brother and of losing civil liberties is not unreasonable, considering the capacity of existing technologies to monitor people. However, at least in policing, we are moving toward a more transparent society.[4] (The ability to track officers with GPS, and the ubiquitous surveillance cameras on police cars are examples of transparency in police work.) That said, the truth is that very little analysis of information on repeat offenders, on crime hot spots, on serial crimes—the very things the police are charged with knowing—exists today. In many cases, we do not need more intelligence or secret information to prevent crime and arrest dangerous offenders. We just need to learn how to analyze the information we already have.

In a world with molecular manufacturing, more information will become available in real time; thus, the capacity to create actionable information will grow, but its utility will benefit society only if the police know how to maximize information as a resource.

Because of the mystique and mythology surrounding police, as reflected on television and in movies, the ability of civilians to question police work is impaired. They believe the media version of how to be a good cop. The good cop always gets the bad guy, and this may be the mindset of most people for the post-MM world: who will be the enemies, and how can we defeat them? But perhaps these are the wrong questions.

Recently, at a national focus group in Washington on intelligence and crime analysis, Dr. Jerry Ratcliffe[5] cited a study showing that out of every 1000 crime occurrences (including the one-quarter of these that go unreported), only *four* persons are convicted of a crime. Even if this figure is not reliable across all policing jurisdictions, the reality is that our entire criminal justice system depends on catching a few bad people and locking them up rather than researching and funding measures to reduce the opportunities or motivations to commit crime.

How can crime science make a difference? Why does molecular manufacturing make it even more important?

Three core premises change the paradigm of "fighting crime."

The first premise is that criminal behavior and disorder are much more common than we realize, and that offenders are often very similar to you and me – in fact, they sometimes *are* you and me. How often have you gone over the speed limit? When you were a teen, did you break minor laws? The moral outrage at crime usually is reserved for the "other", the person who is not you. Crime science acknowledges habitual offenders and studies ways to prevent their crimes (as well as identifying those who should be fully prosecuted because of recidivist behavior). However, it also opens the curtain to reveal that crime is not always a battle of good against bad. MM in the hands of "good" people still may result in crime.

Acknowledgement of the potential "shadow" in each of us is a best practice when developing MM. While not something stressed in the emerging field of crime science, it is a view supported by Carl Jung:

---

[3] http://www.infoworld.com/article/05/03/21/12FEfbi_1.html.

[4] Brin, David (1998) *The Transparent Society: Will Technology Force Us to Choose Between Privacy and Freedom?* (Perseus Books Group).

[5] http://jratcliffe.net/.

"Unfortunately, there can be no doubt that man is, on the whole, less good than he imagines himself or wants to be. Everyone carries a shadow, and the less it is embodied in the individual's conscious life, the blacker and denser it is. If an inferiority is conscious, one always has a chance to correct it. Furthermore, it is constantly in contact with other interests, so that it is continually subjected to modifications. But if it is repressed and isolated from consciousness, it never gets corrected".[6]

The second premise in crime science is that crime occurs where there is opportunity, and that opportunity itself can be a cause of crime. Using a system approach to problem solving, designing MM with built in crime-prevention elements would be a best practice.[7]

The third premise is that existing criminal justice systems will *never* be good enough to deal with modern crime opportunities—and MM will certainly prove this premise correct.[8]

Although there are multitudes of criminal justice and criminology degree programs, little focus has been placed on the scientific study of crime prevention in universities and colleges. Those academics that have chosen to focus on this area often are marginalized by their peers. Obviously, because of the severity of the dangers posed by MM, preventing criminal activities is optimal when compared to reacting to their consequences. Academia must respond to this urgent need to bring a multiple-disciplinary approach to crime prevention, incorporating all the various sciences to this task. A serious examination of the efficiency and effectiveness of our current systems of policing, courts, and studies is necessary prior to the arrival of MM. This should lead to subsequent major reforms, dynamic in nature to adapt to a rapidly changing world.

Who will be policing the world when MM comes to be? Who do you want to be policing this world? How do you want it policed? In 2002, in the United States, police and detectives held 840,000 jobs and approximately 81% (680,400) were local-level law enforcers.[9] According the International Association of Chiefs of Police, based on facts from the Bureau of Justice Statistics, only 9% of local-level law enforcement agencies required their officers to have an associate's degree, and only 2% required them to have a bachelor's degree.[10]

Molecular manufacturing means we need to create a much better-educated police force. MM means we need to think in terms of built-in crime preventive measures—the prevention of opportunity for crime. MM means we need to rethink the emphasis on individual justice and begin a sincere quest to bring science beyond the thin blue line, before it is too late.

About the author:

Deborah Osborne, crime analyst and book author, was a remote Research Fellow for the Center for Strategic Intelligence Research at the Joint Military Intelligence College, Defense Intelligence Agency, 2004–2005. She holds a BA in Psychology and an MA in Social Policy from Empire State College, SUNY.

---

[6] Jung, Carl, "Psychology and Religion" (The Terry Lectures). Yale University Press, New Haven, 1938. In: Psychology and Religion: West and East (Collected Works, Vol. 11), p. 131.

[7] http://www.homeoffice.gov.uk/rds/prgpdfs/fprs98.pdf.

[8] http://www.jdi.ucl.ac.uk/downloads/crime_science_series/pdf/LAUNCHING_CS_FINAL.pdf

[9] http://www.bls.gov/oco/oco/160.htm.

[10] http://www.theiacp.org/faq.htm.