

# Maryland State Police Forensic Sciences Division



MD-IBIS PROGRESS REPORT #2

Integrated **B**allistics **I**dentification **S**ystem

September, 2004

John J. Tobin, Jr.  
Director

EXECUTIVE SUMMARY  
MD-IBIS PROGRESS REPORT #2

The additional year of study requested in the initial report on the status of the MD-IBIS (*Maryland-Integrated Ballistics Identification System*) Program has just concluded. Basically the same situation exists that was prevalent a year ago; however, some other issues of negative consequence have been illuminated.

Continuing problems include the failure of the MD-IBIS to provide any meaningful hits. There have been no crime investigations that have been enhanced or expedited through the use of MD-IBIS. Traditional methods proved to be the pathway to solution. Guns found to be used in the commission of crime again are not the ones being entered into MD-IBIS. The Program has been in existence four years at a cumulative cost of \$2,567,633.

The status of the sister system to MD-IBIS, the New York State Combined Ballistic Identification System (CoBIS) was reviewed. This system has compiled almost 80,000 cartridge case profiles into their database. The result however is the same as Maryland. There have been no hits reported by CoBIS. The fact that two systems performing the same function and yet have no results indicative of performance in the manner for which the systems were designed is significant. The annual budget request for CoBIS is approximately \$4 M.

Two additional concerns have been found to be of concern. Both affect the integrity of the heart of the Program - the database. Test fired cartridge cases from handguns sold in Maryland after October 1, 2000 were supposed to be included with the gun when it was shipped from the manufacturer. At least one incident was detected in which a gun dealer was actually doing the test fires himself and then submitting them to the MD-IBIS. This procedure lacks any safeguard to quality assurance and thus makes the integrity of the database suspect. Secondly, imaging biases demonstrated by the Lab Technicians who scan the digital images of the cartridge cases into the database are more diverse than the experts who use the criminal search side. The larger the diversion, the greater will be the likelihood of a non-match.

Since June of 2003, four blind proficiency tests have been submitted through MD-IBIS. Of the three that have been reported back, the results have been inconclusive or no hit realized. The Program simply has not met expectations and does not aid in the Mission statement of the Department of State Police.

It is recommended that this Program be suspended, a repeal of the collection of cartridge cases from current law be enacted and the Laboratory Technicians associated with the Program be transferred to the DNA Database Unit.

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This is the second progress report on the status of the MD-IBIS (*Maryland-Integrated Ballistics Identification System*). The first was presented in September of 2003. The bottom line of that report stated, "No investigative tool is absolutely perfect or will function as anticipated during every use; however, availability of such equipment to open case files with the potential for thousands of records, searchable in minutes rather than a lifetime, provides a powerful weapon in law enforcement's arsenal against crime."<sup>1</sup>

The purpose of this evaluation is to review the MD-IBIS Program in the light of the above "bottom line," its intended mission, the Vision for which the project was designed, and the economic impact on the other programs within the Forensic Sciences Division (FSD).

The Mission of the MD-IBIS Program was aligned with one of the main goals of the Department of State Police (DSP), i.e., to provide for a safe community for the citizens of Maryland. The "safe community" goal would be accomplished by expediting criminal investigations involving handguns where spent cartridge cases are left at the crime scenes.

The cartridge case(s) found at a crime scene would be scanned into the MD-IBIS and run against a database of known references. The reference base consists of manufacturers' submitted cartridge cases from the sale of handguns after October 1, 2000. This is known as an RBID (Reference Based Imaging Database). Additional information on the operation and background are included in Part I of the 1st Report.

The Vision of the MD-IBIS Program was to have it fully performing in three to five years. This was to include the amassing of some 30,000 database images per year. This projection fell and was embarrassingly overstating. The actual acquisition of cartridge case numbers was about 36% of the estimation. The main reason for this drop-off appears to be from the reduction of handgun sales in Maryland after the passage of the law. Again, this was covered in the 1st Report.<sup>2</sup> The rate of submission is still the same a year later. The "Stretch Goal" of this Vision was to establish an analogous system in the area of a manufacturer's RBID as that which has been demonstrated by the federal NIBIN System on the criminal side and allow allied agencies in the State of Maryland possessing firearms identification capabilities the ability to use the system externally. This extended Vision has not come to fruition. It has failed in this context.

What has been accomplished by MD-IBIS to this point?

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<sup>1</sup> Maryland-IBIS (Integrated Ballistics Identification System), September 2003, John J. Tobin, Jr., p. i

<sup>2</sup> Ibid, pg. 2

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The MD-IBIS Program has collected and imported 43,729 cartridge cases into the system as of 9/7/04. It has incurred 208 criminal investigations leading to six (6) "hits" or matches. It should be reiterated at this point that MD-IBIS does not make the match. It provides a means of narrowing the field of search. The examination by a competent Firearms Examiner on a known versus questioned basis provides the actual conclusion of a match. The estimated cumulative cost of the MD-IBIS Program to date is \$2,567,633. The cost per "hit" value is \$427,939 or approximately \$60 per gun sold. None of the "hits" have been used in a criminal trial and five (5) of the six (6) "hits" did not work according to the manner in which the system was designed. It actually functioned in reverse. The gun was already present. Although these hits may be interpreted by some as being in line with the Mission of the DSP, the Vision accomplishment and cost effectiveness of the Program has not been demonstrated. The MD-IBIS Program has not lead to the solution or expediency of an investigation that could not have been accomplished from other traditional sources.

The major strategies (recommendations from 1st Report ) that were presented to improve the performance of the Program were as follows:

- A) MD-IBIS must continue for a longer period.
- B) Provide a means for local law enforcement agencies to search MD-IBIS.
- C) Do not enact new legislation for the inclusion of long guns into MD-IBIS.
- D) Image two (2) cartridge cases rather than one, then average.
- E) Establish a research project to test the validity of the California Study.
- F) Change technologies for firearm identification.

The first recommendation has been completed. The Program was extended an additional year from last September producing two (2) additional hits. This brought the overall total up to six (6).

In regards to Recommendation #2, the ability of local law enforcement agencies to query MD-IBIS from the field has failed. The RBI or field device which would allow external acquisition of the MD-IBIS was a failure. It was returned to the manufacturer and a reimbursement was paid.

In regards to Recommendation #3, no additional legislation was passed. This would have only compounded the matter further. Because the legislation was not passed, the Program ran for another year without any significant changes that would have distracted from the ultimate conclusion - the Program doesn't work according to it's Vision.

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In regards to Recommendation #4, this was not accomplished because there were no funds available to test the validity of some of the problems noted in the California Study.<sup>3</sup> Therefore, this project was not performed. In an ideal situation it would have answered the question as to whether or not significant changes occurred in a new firearm as to render it unidentifiable after several thousand rounds had been fired from it. This became an incidental point in the "big picture" of things.

No additional technology upgrades have been installed in the MD-IBIS since the last report that would increase the instrument's ability to perform at a more successful search rate.

In addition to the above strategies employed to further review and evaluate MD-IBIS, a series of blind proficiency tests were given. The tests were designed to test the ultimate purpose of the Program. The double blind tests (unknown to examiners and supervisors) began in July 2003. The basic design of the tests were to emulate actual situations involving the finding of spent cartridge cases at crime scenes and submit them to the Forensic Sciences Division Firearms/Toolmarks Unit for examinations. Guns known to be included in the MD-IBIS Database were test fired and the cartridge cases collected. These cartridge cases were submitted as evidence in bogus criminal cases. There have been four blind proficiency tests submitted to date. There were no "hits" associated with any of the submitted proficiency tests.

The design of the proficiency test was detailed by the Director, Forensic Sciences Division, but the dates of submission were without his knowledge. The preceding was done to remove unintended bias from the test. Furthermore, the design incorporated Quality Assurance (QA) parameters that might otherwise have not been determined by the submitters.

After the submission of the 1st Report, the fact that the blind proficiency test had been submitted were made known to the Director, but the results were not; however, based on the fact that no "hits" were reported to the Director on the weekly statistics report, it was assumed that the results were negative or inconclusive. Therefore, further inquiry to why results on these proficiency tests were not "hits" was undertaken.

A new variable was examined, i.e., the capturing of the cartridge case images by laboratory technicians versus that of a qualified examiner. The question being asked was, "Does the Laboratory Technician, who has no formal training as a Firearms Examiner, possess sufficient ability to image the cartridge cases the way that a trained, competent Firearms Examiner would?" The supervisor of the Firearms/Toolmarks Unit is of the

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<sup>3</sup> Feasibility of a California Ballistics Identification System Assembly Bill 1717 (Hertzberg) (Stats. 2000, Ch. 271), Attorney General Bill Lockyer, Calif.D.O.J, Jan. 2003

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opinion that there could be a difference.<sup>4</sup> This difference could interfere when a search is performed. The search is performed by the Firearms Examiner who images the evidentiary cartridge casing. The personal imaging biases of the examiner and those of the Laboratory Technician could increase the likelihood of a low identity quotient (probability of a match). The California Study stated that, "Current imaging systems required trained personnel, ideally a Firearms Examiner, for entry searching and verification." The use of technicians typically results in higher numbers of false positives that need to be optically confirmed.<sup>5</sup>

This issue was originally discussed in the early planning of MD-IBIS. Laboratory Technicians were chosen as a cost saving measure.

Another issue, this one dealing with the authenticity of the submitted cartridge casings, became known when a gun dealer was found to be submitting his own test firings. A total of 222 test firings had been submitted by this dealership.<sup>6</sup> This type of submission again raises the question of the integrity of the database. If there can be no guarantee that the imaged cartridge casings imported to MD-IBIS originated from the handgun of record, the database is at least flawed. At a maximum, it would be worthless. The question then becomes, "Are there other instances such as this in the database?" The answer to this is beyond the control of the Forensic Sciences Division to determine. The validation of reference data of the known items (manufacturer's cartridge casings) in a RBID is absolutely germane to the credibility of the database. This is the second instance in which reference standards of disputed quality have been submitted to the MD-IBIS. The first was discussed in the 1st Report.<sup>7</sup>

The State of Maryland is not alone in its effort to image cartridge cases from new handgun sales. In a small parallel situation, the State of New York created the Combined Ballistics Identification System (CoBIS). Implemented on March 1, 2001, the system is identical to the MD-IBIS. The equipment is also supplied by Forensic Technologies, Inc. of Canada. As of 8/1/04, the CoBIS System has collected and imaged 77,194 handguns at a cost in excess of \$14 M. There have been "O" hits registered.<sup>8</sup> The system has been queried 203 times in three years for criminal investigations. Additionally, it has been

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<sup>4</sup> Personal communication from Mr. Joseph Kopera, Firearms/Toolmarks Unit Supervisor.

<sup>5</sup> California Study, Executive Summary, page 1-1

<sup>6</sup> Personal communications referencing cartridge casings submitted by Maryland Small Arms Range.

<sup>7</sup> Ibid, p. 8

<sup>8</sup> Internet Ref. [www.ocshooters.com/reports/COBIS.html](http://www.ocshooters.com/reports/COBIS.html).

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reported that the system is routinely bypassed due to known flaws.<sup>9</sup> The cost of operation for this system is far in excess of that in Maryland. Budget requests for CoBIS has been \$4 M for each of the FY 01-02 and FY 02-03.<sup>10</sup> (APPENDIX A)

In a documented report by Mark Freburg, one of the essential flaws of the system is that a high percentage of the guns used for crimes are transported illegally from other states.<sup>11</sup> This situation is also realized in Maryland. The guns used in crime commission are not like those being imaged into MD-IBIS. Additionally, a federal law suit was filed in April 2004 in U.S. District Court seeking to overturn the New York law as a violation of the 2<sup>nd</sup> Amendment. (APPENDIX B)

Problems continue to abound in both Programs; however, the following are specific problems that continue to plague the MD-IBIS:

- ▶ Crime guns not being entered.
- ▶ Failure of remote systems to query MD-IBIS.
- ▶ Database flaws resulting in uncertainties of correlation of submitted cartridge casings with manufacturers' handguns.
- ▶ Personal bias of Lab Technician's imaging firing pin and breech face impression versus personal bias of Firearms Examiner's in scanning criminal side.

There appears to be no way to rectify these problems within a reasonable amount of time. Therefore, the following recommendations are offered for the MD-IBIS Program:

1. The Program be discontinued and "moth balled" keeping the database and ancillary equipment. The Program can be used as an in house program for criminal investigations until hardware fails and exorbitant repair costs shut down the Program. It should be noted that the theory upon which MD-IBIS operates is sound. Digital imaging and comparisons can be very accurate and have been proven to be so. The variables around the science need to be reduced.
2. Legislation needs to be enacted to remove the imaging requirement from the current law. If cartridge casings are continued to be collected, the DSP will be held noncompliant in the next Department audit.

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<sup>9</sup> Internet Ref. [www.scopeny.org/pressCoBIS.html](http://www.scopeny.org/pressCoBIS.html).

<sup>10</sup> Memo from Senator George Mariarz to George Rogero, Jan. 30, 2003.

<sup>11</sup> Internet Ref. [www.outdoors.net/site/news/news.apex](http://www.outdoors.net/site/news/news.apex)

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3. Personnel and funds should be transferred to the DNA CODIS Database Program. This is a mandated program that is in dire need of personnel and fiscal-resources. The difference between this program and the MD-IBIS Program is that the database has undergone a rigorous quality assurance protocol and that it has produced 165 "hits."

### CONCLUSION:

The bottom line of this report is that the MD-IBIS System has failed to demonstrate the "bottom line" of the 1st Report. The MD-IBIS Program, for all its good intentions, has not proven to be a time saving tool for the Firearms Examiner or an investigative enhancement to the criminal investigator. It has simply failed in the Mission and Vision concepts originally established for the Program. Fiscal resources for the MD-IBIS Program would be well spent in other Forensic Sciences Division programs, i.e., CODIS and MAFIS, proven to be of value to the law enforcement community.



APPENDIX A

*Orange County NY Shooters A site focused on Orange County NY With Local & State Gun, Firearm and Handgun rules and New York gun laws. How to get a handgun license and local Gun Stores, Gun Ranges, People, Clubs, Gunshows, Hunting & Shooting related events.*

CLICK HERE TO VISIT THE HOME PAGE OF:

[OCShooters.com](http://OCShooters.com)

[CLICK HERE TO E-MAIL ME](#)

## CoBIS or GUN DNA

### Report:

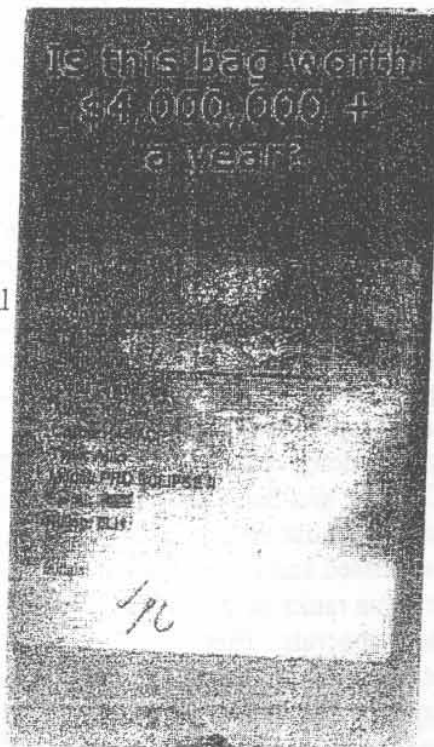
A waste of millions of dollars, a waste of police manpower.

## CoBIS or Gun "DNA" Watch

DATE	# OF GUNS	CHANGE	MONEY SPENT	# OF GUNS CONNECTED TO A CRIME
8/1/04	77,194	2,249	\$14,000,000 +?	0

## DEFINITIONS

1. **CoBIS OR Combined Ballistic Identification System.** A system where the shell casing of a bullet, (or brass) from a fired round is supplied by a gun manufacturer in an approved container shipped with a new handgun that is shipped to the NY State Police when the gun is sold or if the new handgun is shipped to the Federal Firearms License holder, the FFL takes the gun to the State Police Lab to be test fired and the lab keeps the shell casing and the fired bullet. The shell casing is scanned into a computer data base to be compared against shell casing recovered from a crime location. This program has NO success in NY while costing \$4,000,000 to start and an estimated \$4,000,000 a year to maintain or an average cost of about \$200 per legal gun. CoBIS only collects information from legal guns that are new and have not been linked to a crime and the size of the data base in New York alone is in 10s of thousands of guns and will, within the first 3 years included almost 66,000 data files with almost 22,000 new handguns being added each year.
2. **IBIS or Integrated Ballistics Identification System.** IBIS is a computer identification system that correlates and matches projectile and shell casing ballistic evidence. It is capable of



comparing both shell casings and projectiles recovered at crime scenes to weapons/evidence retrieved later. IBIS only collects information from guns or shell casings or projectiles that have been used in a crime or are illegal guns. It has been very successful even though the total data base is only several thousand data files but all of them have been used in a crime.

3. **NIBIN Program** or National Integrated Ballistic Identification Network. The ATF's nationwide ATF Ballistics Fingerprinting Program known as NIBIN requires participating federal, state and local law enforcement officers to collect bullets and shell casings from crime scenes, bring them to trained technicians to take a microscopic digital picture of the ballistic fingerprint, and have the ballistics fingerprints entered into the IBIS computer database (Integrated Ballistic Identification System).

The NIBIN Program is expressly restricted to the ballistic imaging of data associated with crime guns. As of May, 2002, the NIBIN Program has collected 119,369, ballistic images of firearms evidence across the country. Since its implementation in 2000, the IBIS computer database has generated at least 4,429 "hits" or matches of ballistics evidence from different crime scenes. (Or a 3.7% success rate. At that rate NY should have had 1,113 hits so far. It has had "0".)

WEB LINK <http://www.NIBIN.gov> and <http://www.atf.treas.gov/nibin/missing/index.htm>

## LINKS

- [NY State CoBIS index.](#)
- [Forensic Technology Incorporated \(FTI\)](#)
- [HOW DOES BALLISTIC FINGERPRINTING WORK? Click for a brief animated lesson!](#)
- [Firearms ID.com](#), This is a great web site with lots of good info.
- [The Sight 1911-A1](#), Here are some useful resources in countering the "ballistic fingerprinting" lies

## NY State Law

In 1999, Gov. Mario Pataki had passed and signed several gun laws. These laws were written without any input from any one in the NY State shooting community or any debate or research. They were all passed as feel good measures so that Gov. Mario Pataki could appear later at a Million Mom March along with Sen. H\*\*\*\*\* R\*\*\*\* C\*\*\*\*\* and Sen. UpChuck Schumer and talk about the gun control laws he had passed and appeal for votes from the anti-gun ranks normally the domain of the Democrats. These laws were introduced in the last 3 days of the state legislative session using special powers the Governor has and were passed with



no hearings, debate and in fact, many members did not have time to even read the legislation. While many would have supported most of the laws, because no one who was knowable about firearms was consulted, all of the laws contain minor problems that have a major impact that make most of the sections of the new law unacceptable.

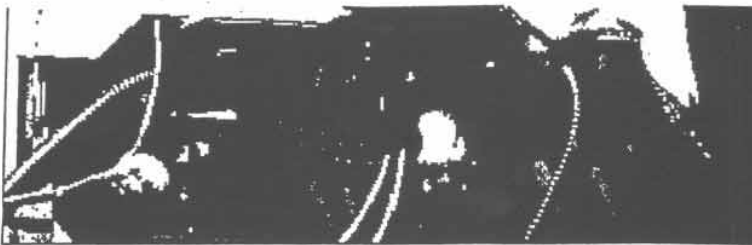
**SECTION 4, BALLISTIC IDENTIFICATION DATA BANK** is the section that started the NY State CoBIS program. Funded with an initial \$4,000,000, additional funding has been \$4,000,000 a year but some cost are hidden in the yearly NY State budget so the true cost of the program can not be determined. The program started on March 1, 2001 and about 2,568 guns are added each month on average but that number ranges from a little over 1,100 to over 4,353 in some months. It cost almost \$200 a gun to add the information to the data base and in the first 3 years of the program **NOT ONE GUN** has been linked to even one crime, much less solved a crime.

Even the value of a matching a gun to a crime is unknown. Because this matching technique has never been used in a court, no one can say that a match could be used as evidence in a case. The only hope would be that when the police trace a gun to a person then that person would still have the gun, (that had not been altered,) and the gun could then be tested and the results from that test used as evidence in a trial. Even if the match was accepted, it would be almost impossible to prove the "chain of custody" that would be required for the evidence to be accepted in court.

Other problems that would have to be dealt with even if the criminal does not alter the gun to change the marking is what is to prevent a criminal from using reloaded brass? That shell casing would have the marks from two or more guns. What is to prevent a criminal from going to a range and picking up fired brass and planting it at a crime?

## The Future

After the first three years it has to be obvious to everyone that this program is a failure and a waste of money. One can only wonder how many crimes could have been solved if the money and thousands of State Police man hours had been used to solve real crimes involving real criminals instead of keeping track of data of legally owned guns owned by licensed gun owners that might, some day be used in a crime involving a random shooting where the only link between the crime and the gun is the fired brass. Even with the total failure of this program, the anti-gunners are pushing to expand the program to include all rifles and shotguns and the bullet from guns that do not automatically eject the fired brass.



*At a news event, March 12, T/Lt. Mark S. Heller (H-CoBIS) shows Gov. Pataki how the Division's new Combined Ballistic Identification System captures, stores and compares details of bullets and cartridges. (Photo by NYSP Photo Unit)*

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## WHAT DOES THE NY CoBIS PROGRAM COST?

The following is an e-mail that I got from Senator Maziarz' office :

1/30/03  
George,

Here is the information you requested from me on CoBIS:  
Info as of 10-24-02

Guns test fired by the NYS Police: 5,528

Shell casings from manufacturer's sent to the NYS Police: 25,762

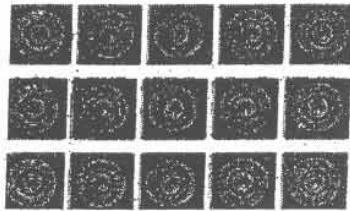
Number of manufacturer's complying to NYS CoBIS (Nationwide): 48  
Amount of Money Budgeted for CoBIS:  
\$4 million for FY '01-'02, 30 new positions were added to the NYS Police.  
\$4 million for FY '02-'03  
FY '03-'04 has not happened yet but funding levels will probably stay the same.  
I received this information from the New York State Police, XXXXXX-XXXX

If you have any other questions please let me know. I hope this information is helpful to you.  
Sincerely,

Gary J. Rouleau  
Senator George D. Maziarz  
62nd, R-C-I Senatorial District  
518-455-2024

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## The California Final Report



### Feasibility of a California Ballistics Identification System Assembly Bill 1717 (Hertzberg) (Stats. 2000, ch. 271) Report to the Legislature Attorney General Bill Lockyer California Department of Justice January 2003


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#### PRELIMINARY REPORT 10/5/02 CLICK HERE FOR THE REPORT IN PDF FILE

On October 5, 2001 the California Department of Justice released a report titled: TECHNICAL EVALUATION: FEASIBILITY OF A BALLISTICS IMAGING DATABASE FOR ALL NEW HANDGUN SALES.

SUMMARY: Automated computer matching systems do not provide conclusive results. Rather a list of potential candidates are presented that must be manually reviewed. When applying this technology to the concept of mass sampling of manufactured firearms, a huge inventory of potential candidates will be generated for manual review. This study indicates the this number of candidate cases will be so large as to be impractical and will likely create logistic complications so great that they cannot be effectively addressed.

## OCShooters.com Newsletter Articles

 [CoBIS, aka "Gun DNA" programs a big waste. 10/02](#)

#### SECTION 4, BALLISTIC IDENTIFICATION DATA BANK

## OTHER ARTICLES

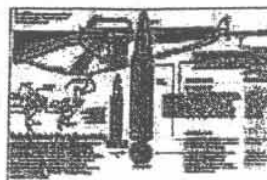
### LINKS TO ARTICLES WITHOUT FACTS AND INFORMATION

- Statement by Sarah Brady on the Sniper Shootings, 10/8/02  
LINK: <http://www.bradycampaign.org/press/release.asp?Record=429> (Please note that article states that "We have already seen the usefulness of ballistic tests in definitively linking six of the eight shootings to the same firearm." This quote relates to the IBIS program, not any existing CoBIS type program. Also "assault rifles" referred to in this article has nothing to do with the discussion. It is irrelevant what type of firearm the killer is using. In fact some bolt action rifles or handguns would be the best choice. Does it matter more what gun is being used or what type of car, van or truck is being used? If we find out that a white Dodge van is being used should we pass a law to ban white Dodge vans except for the police or say that all white Dodge vans must have a gas tank less than 5 gallons?)
- SCHUMER: ATF STUDY PROVES EFFICACY OF GUN FINGERPRINTING; BUSH MUST ACT NOW TO BACK NATIONAL BALLISTIC FINGERPRINT SYSTEM, October 18, 2002  
(Note that Sen. UpChuck Schumer is comparing IBIS that works with CoBIS that does not work.)

### LINKS TO ARTICLES WITH FACTS AND INFORMATION

- Ballistic Imaging: Not Ready for Prime Time, Policy Backgrounder No. 160, April 30, 2003 by David B. Kopel., & H. Sterling Burnett, Ph.D. for the NATIONAL CENTER FOR POLICY ANALYSIS.
- Ballistic Fingerprinting vs. Citizen Homeland Defense, Miguel A. Faria Jr., M.D., Oct. 21, 2002
- "Ballistic Fingerprinting" -- The Maryland Example: Costing Taxpayers Without Benefiting Law Enforcement, NRA Fact Sheet, Posted: 10/21/2002
- Pink Pistols Say Media's Sniper Reporting Off-Target
- New tool for gun opponents
- TRACKING FIREARMS, October 18, 2002, NewsHour with Jim Lehrer, PBS (And before you rush into it, you sit down and you figure the cost and you figure the benefits. And you say what would we do with the money if we didn't spend it on this.)
- Ballistics Fingerprinting: A Waste of Time, BusinessWeek, 10/24/02,
- THE FANTASY OF GUN FINGERPRINTS, By STEVEN MILLOY, NYPOST.COM, October 28, 2002
- Gun 'fingerprinting' plan raises privacy fears, By Ron Franscell, Denver Post Staff Writer, October 29, 2002 Imagine this: To make it easier to solve future crimes, the federal government collects every American man, woman and child's fingerprints, DNA and handwriting and stores them in an enormous national database.

[CLICK HERE TO SEE LARGER PICTURE](#)



[CLICK HERE TO SEE A LARGER PICTURE](#)

(This picture contains errors.)

### **Gun DNA and the Rev. Martin Luther King Jr. connection**

**This is part of an article: Ballistic 'fingerprint' database isn't foolproof tool, experts say  
System unable to account for stolen firearms, wear  
[CLICK HERE FOR THE WHOLE ARTICLE](#)**

"Bullets are made from a variety of metals, including lead, copper and steel. Many leave plating, or metal residue, in the gun barrels as they pass through. Sometimes this can cause slight changes inside the barrel, which over time changes the markings on the bullets that are fired, Robinson said. "You have wear, use and abuse. When you fire a gun you're rubbing two metals together over high pressure and over high heat, and that's going to change things," he said.

Robinson was part of a team of ballistics experts that in 1997 analyzed the Remington 30.06 rifle that police believe was used in the assassination of the Rev. Martin Luther King Jr. Despite 18 test firings and use of high-powered microscopes, the team could not match the rifle with the bullet that killed King, Robinson said. The 18 test bullets each had different types of markings. "Every test bullet was different because it was going over plating created by the previous bullet," he said.

Robinson and others also pointed out that even when a gun can be tracked, it may not identify a suspect because it could have been stolen from the original owner."

### **FROM FOX NEWS: How Reliable Is Ballistic Fingerprinting? Friday, October 18, 2002 By Steven Milloy**

The sniper spree in the Washington, D.C., area has spawned calls for "ballistic fingerprinting" of firearms. Sen. Charles Schumer, D-N.Y., announced he would introduce legislation for a national program. The Brady Campaign to Prevent Gun Violence told The Washington Post that ballistic fingerprinting would have "solved this crime after the first shooting." But an October 2001 report by California state ballistics experts -- hushed up by the California attorney general's office -- concludes that ballistic fingerprinting isn't feasible right now.

Ballistic fingerprinting involves sending a fired bullet and empty cartridge casing from a gun to a government agency before that gun can be sold. The idea is to match -- preferably by automated computer analysis -- pre-sale ballistics data with crime scene data. Maryland and New York already require ballistic fingerprinting. So far it hasn't helped convict a single criminal in Maryland despite "fingerprinting" 17,000 guns sold since January 2000. New York hasn't had success either. And there isn't likely to be success any time soon, according to the study.

The report included the test firing of more than 2,000 rounds from 790 pistols. When cartridges from the same manufacturer were test-fired and compared, computer matching failed 38 percent of the time. With cartridges from different manufacturers, computer matching failed 62 percent of the time.

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Steven Mil  
author of J

"Automated computer matching systems do not provide conclusive results" requiring that "potential candidates be manually reviewed," said the experts. But the experts estimated a California database would grow by about 108,000 entries every year for pistols alone. "This study indicates that this number of candidate cases will be so large as to be impractical and will likely create logistic complications so great that they cannot be effectively addressed," they said. The test-firing results only scratch the surface of ballistic fingerprinting's problems.

The experts concluded it's unknown whether cartridges fired after typical firearm break-in and wear can at all be matched to the cartridge fired when the gun was new. "Firearms that generate markings on cartridge casings can change with use and can also be readily altered by the users," said the experts. "They are not permanently defined like fingerprints or DNA." A file may be used to make scratch marks in a barrel or a breech face, and various parts may be replaced to give a firearm a completely new ballistic identity. Bullets may be treated to alter the machining marks in a barrel. Not all guns even generate markings on cartridge casings. Further, "fired cartridge casings are much easier to correlate than fired bullets," noted the experts. Because bullets are severely damaged on impact, they can only be examined manually. Moreover, Americans already own more than 200 million guns; those won't be included in any ballistics database.

Hiding behind the sniper shootings and calling for ballistic fingerprinting -- is the gun control lobby. "The [sniper] shootings are a perfect example of how valuable complete ballistic fingerprinting would be," said a spokesman for the Coalition to Stop Gun Violence. "Doesn't it make sense for us to give law enforcement the tools they need in order to solve such crimes?" asked Sarah Brady of the Brady Campaign.

Perhaps -- if ballistic fingerprinting worked. What gun control advocates really want is the proven result of ballistic fingerprinting -- reduced gun sales. The Maryland law reduced 2001 handgun sales to their lowest level in 10 years. Handgun sales have continued to drop in 2002, according to the Maryland State Police. Gun control advocates are fogging debate by claiming a July 2001 report from the Bureau of Alcohol, Tobacco and Firearms found computerized ballistic fingerprints currently available to federal law enforcement officials produced 8,800 ballistics matches with 17,600 crime scenes during 2000-2001. But the ATF report only involved standard matching of crime scene evidence with post-crime ballistic testing. This is quite different from comparing crime scene with pre-sale ballistics.

Shockingly, the California experts were silenced by California's pro-gun control Attorney General Bill Lockyer. One panel member said he was gagged by the AG's office, not only about the study, but about the entire topic. The AG's office acknowledged in an interview it favored a ballistics fingerprinting system and denigrated its study as "preliminary" pending a review by a lone European expert. No explanation was offered for not having FBI, ATF or other U.S. ballistic experts review the report. The Bush administration has opposed ballistics fingerprinting on a national level, but this week committed to more study of the idea -- the same sensible recommendation made by the California experts. As it stands now, ballistic fingerprinting only promotes the agenda of gun control activists, not the agenda more in the public interest, that of law enforcement.

*Steven Milloy is the publisher of JunkScience.com, an adjunct scholar at the Cato Institute and the author of Junk Science Judo: Self-defense Against Health Scares and Scams (Cato Institute, 2001).*

## **Gun 'Fingerprinting' Debated Experts: weapons can be altered**

By Robert Cooke, STAFF WRITER, October 22, 2002  
Copyright © 2002, Newsday, Inc.



The following is a quote from the person who's website that Newsday sites as a source for their article. Too bad they did not talk to him.

I've tried to remain out of the Gun DNA debate but I can tell you it won't work. Not only do the guns change over time they can be intentionally altered. A large number of guns used in crime are stolen so what good would having it's ballistic data on file do? It will cost a Billion dollars and in 10 years they will abandon it. Shoot, we don't have the manpower now to work the cases we have! Firearms labs all over the US run months behind (I'm 10 months behind now). Making sure you have the right standards entered for the right gun will also be a problem. I know for a fact that one of the major gun manufacturers is sending out guns with the two required standards, that when checked, don't match the gun. Automation may cut down on the error rate but I personally don't want a SWAT team storming my house because someone entered the wrong data into the computer!

He added in a follow up e-mail:

... No one from that website wrote or called for permission to use my material.

The idea of tracing guns back to the people who use them is as elusive as it is enticing. One idea under discussion is to make guns traceable via "fingerprinting," testing every gun before it leaves the manufacturer for the unique marks it leaves on bullets and casings. Prominent supporters of such a nationwide "ballistic fingerprint" system include the Brady Campaign to Prevent Gun Violence and the Million Mom March. But forensics experts warn that devising such a system, even though it seems logical, is likely to be unreliable. That's because guns can be easily altered. And, of course, millions of unsampled guns are already in people's hands.

To change the kinds of marks a firing pin and a breach block make on a brass cartridge, for example, only simple tools and little skill are needed. Also, the gun's barrel can be rebored, honed or simply allowed to rust, and the marks it leaves on a bullet change. Firearms analysis now in use involves, in addition to the weapon's caliber, examining the cartridge size and powder load, the number of grooves and lands in what's known as the rifling of the barrel, even the direction of the rifling. This is useful because each brand of gun has its own characteristics. Beyond that, each individual gun leaves its own unique "signature" on the ammunition it uses.

The term "rifling" refers to the spiral pattern of grooves lining the inside of the barrel, which impart a spinning motion on the bullet to keep it stable in flight. When a gun is fired, this grooved rifling tends to cut scratch marks in the bullet, said Walter Rowe, professor of forensic science at George Washington University in Washington. And because the bore of each gun barrel has slight imperfections, bullets fired from the same gun bear the same striations. But, a barrel can be regrooved, or get rusty, changing the marks cut into the bullet. Steel-encased or armor-piercing bullets also show far less visible marks because of their hardness, compared with lead bullets. Gun parts such as firing pins and breach blocks, or bolts, are usually hand-finished, so each can leave slightly different markings on the shell casing. But this, too, can be altered with common tools. Shell extractor and ejection mechanisms also can leave identifying scratch-like marks on the shell casing.

Expanding the forensic tool kit with firearms fingerprinting is certain to be costly, said Greg MacAleese, a former policeman and now president of Law Enforcement Technologies Inc. in Colorado. "There are problems with how much it's going to cost to develop and implement" such a complex system, he said. But he does expect progress. Rowe argues that for now fingerprinting "is a half-baked idea." "There are too many ways to compromise such a system and render it ineffective," said Rowe, a chemist. "It doesn't require a lot of work or a lot of skill" to subvert a system that might identify guns

and ammunition.

Many police departments are already participating in a system designed to spot guns used in multiple crimes. In a cooperative arrangement between the FBI, the Bureau of Alcohol, Tobacco and Firearms and numerous local police departments, a project called NIBIN is already using some of the "ballistic fingerprinting" techniques, such as the marks found on bullets. NIBIN, for National Integrated Ballistic Information Network, involves computerized sharing of crime data on guns and ammunition. It allows law enforcement agencies to link crimes, and sometimes collar suspects. For example, images of bullets recovered from different crime scenes can be compared in the national computer system. Or a gun recovered from a crime scene can be fired, its slug and cartridge recovered, and compared to thousands of other images in the system. The NIBIN system has enabled law enforcement agencies to discover links, for example, when the same gun has been used in multiple crimes, even in different states.

The idea of "marking" black and smokeless powder chemically also has been explored, and essentially discarded. Too many bullets are made each year, powder is often sold in bulk and distributed among hobbyists, and chemical marking can adversely change the properties of gunpowder.

#### **Bullets Tell the Story, Sometimes**

No two guns, even of the same make and model, will leave identical marks on fired rounds due to nuances of manufacturing, use and abuse. Though police can track down a gun by examining its "fingerprints" on bullets and casings found at crime scenes and in ballistic databases, experienced criminals can still thwart the system. Here's an explainer of firearm fingerprinting's promises and failures.

#### **ON THE CASING**

##### **What Cops Look For:**

Striations: As a spent round ejects from the gun, distinctive scratches are etched into the casing.

Firing pin imprint: When the gun's firing pin strikes the round's detonator cap, it leaves an indentation.

The size, shape and depth of the indentation can reveal much about the gun.

##### **What Criminals Do:**

Remove casings from scene

File down or replace firing pin to change imprint left on round.

#### **ON THE BULLET**

##### **What Cops Look For:**

Rifling pattern: When a gun is fired, spiraling grooves in the barrel cause the moving bullet to spin, which helps it fly farther and straighter. These grooves, called rifling, also scar the bullet with unique marks that can be matched with the gun.

##### **What Criminals Do:**

Rebore or shorten gun barrel to change rifling. Use bullets of harder metal, which resist rifling marks.

SOURCE: [firearmsID.com](http://firearmsID.com); staff reporting

### **NY ballistic database firing blanks?**

By **MICHAEL HILL**

Associated Press Writer

June 3, 2004, 3:26 PM EDT

ALBANY, N.Y. -- A database designed to match handguns in New York state to crime scene evidence has not solved a crime more than three years after its debut.

Pataki administration officials cite difficulties local police can face in getting crime scene evidence to Albany, where the database is housed. But state officials say they are close to solving the problem through a deal that would allow inquiries made around New York to piggyback on a federal ballistic network.

Since March 2001, identifying information about each new pistol and revolver sold in New York has been entered into the Combined Ballistic Identification System database. Under the system, called CoBIS for short, new guns are fired, casings are collected and the minute markings are cataloged by a computer.

Law enforcement officials say the unique markings are like gun "fingerprints" and that bullet casings recovered from crime scenes can potentially be matched with the more than 53,000 guns entered into New York's database.

New York and Maryland are the only states operating such databases. Federal law enforcement officials run a different sort of database containing information on guns used in crimes, as opposed to new guns.

The federal National Integrated Ballistic Information Network, called NIBIN, has been credited with thousands of "hits," many of them yielding investigative information. Maryland's database, five months older than New York's, has posted six hits based on more than 160 queries, according to Maryland state police.

New York's database has produced no hits from 203 queries.

Proponents of ballistic databases say New York's system is still relatively young and that it could take years before new, legally purchased guns are used in crimes.

New York criminal justice officials said there is a logistical hurdle, too. Since the CoBIS station is at state police headquarters in Albany, investigators in cities like Buffalo or Watertown must transport crime scene casings to Albany for testing.

State officials hope to make their system more accessible by using the eight federal NIBIN stations around New York as entry points for evidence. But federal regulations bar information on new guns from being entered into that system — rules attributed to the influence of gun advocates concerned over central registries.

Pataki administration officials say they reached a deal with federal officials that would allow crime scene information to be transmitted one-way to the NIBIN station at state police headquarters in Albany. It would then pass through a firewall to the state-run system, where the actual matching would be done.

ATF spokeswoman Sheree Mixell said there is no final agreement yet. But she said talks were continuing with law enforcement officials in New York to assist them in a way that does not violate the law.

Jessica Scaperotti, a spokeswoman for the state Division of Criminal Justice Services, said the Pataki administration is confident that the federal partnership will help realize the "tremendous potential" of CoBIS.

"Gun fingerprinting has the power to provide powerful evidence that can solve crimes," she said.

While the administration expects the arrangement to result in new investigative leads, it's not likely to dampen the long-running dispute over ballistic databases. In New York, a recently filed lawsuit challenging the \$1.5 million-a-year system alleges that it violates the privacy of gun owners. Others have questioned whether the databases in New York and Maryland will ever be effective.

Walter Rowe, a professor of forensic science at George Washington University, said there are too many ways to get around New York's database. Criminals can buy guns in neighboring states or simply take a file to the gun's breech face, essentially changing the gun's unique "signature."

"If one does a cost benefit analysis, this might not have been a wise way to spend public money," Rowe said.

Eric Gorovitz of The Coalition to Stop Gun Violence disputed the contention that criminals can easily foil the database with a file given the wide array of markings the computer looks at.

"Even if they did succeed in doing it once in a while, it's still a tool you don't otherwise have," Gorovitz said. "Nobody says, 'People wear gloves. We shouldn't have a fingerprint database.' It's a preposterous suggestion."

Gorovitz believes a major problem with ballistic databases is that only New York and Maryland have one. They need to be more widespread to be effective, he said.

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7/1/004	75,293	2,249	\$13,666,666 +?	0
8/1/004	77,194	1,901	\$14,000,000 +?	0
9/1/004			\$14,333,333 +?	0
10/1/004			\$14,666,666 +?	0
11/1/004			\$15,000,000 +?	0
12/1/004			\$15,333,333 +?	0

\* (Only 53,801 of the total are actually imaged and in the computer system.)



## APPENDIX B

[Gun and Game Forums](#) > [General](#) > [The Gun Room](#) > Lawsuit faults gun records' cost, use

PDA

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05-11-2004, 06:03 AM

Lawsuit faults gun records' cost, use

By Gary Craig

Staff writer

(May 10, 2004) — A state system requiring the ballistics "fingerprinting" of new handguns sold in New York has cost taxpayers millions while doing nothing to solve crimes, a federal lawsuit contends.

The lawsuit challenges the state CoBIS, or Combined Ballistic Identification System, which requires that most new handguns sold in the state be test fired so the state can file specific ballistics information into a database. CoBIS has cost the state more than \$12 million and "since inception, not one crime has been solved using the system," the lawsuit alleges.

The lawsuit, filed in late April in U.S. District Court, also seeks to overturn a law placing restrictions on firearms sales at gun shows.

Suing Gov. George Pataki and other state officials are the Shooters' Committee on Political Education, or SCOPE, the Camillus Sportsman's Club and the Yates County Federation of Conservation Clubs.

CoBIS has been promoted as a crime-solving technique that can help trace a weapon used in crime through its ballistics "fingerprint" in the state database. But its effectiveness has been under challenge across the country. Supporters of CoBIS contend that the system is still in its infancy and can't be expected to show its mettle immediately as a crime-fighting tool.

Opponents say the technology is not yet refined enough to work, and that citizens who buy and sell guns legally will be entered into the state database even though they have no connections with crimes.

"It's a humongous waste of taxpayers' money," said SCOPE President Ken Mathison. "It's costing the state of New York about \$4 million a year."

Nearly 52,000 guns were registered in the CoBIS system since its inception in March 2001, said State Police spokesman Lt. Glenn Miner.

There have been no "confirmed hits" between registered guns and guns used in crimes, he said.

However, the "time-to-crime" — the period when a gun is legally sold and when it shows up as a crime weapon — can be five to seven years, so CoBIS likely wouldn't see matches this early, Miner said. Those weapons used in crimes are often stolen or lost firearms.

Gun control advocates see potential in CoBIS. Andy Pelosi, the executive director of New Yorkers Against Gun Violence, concurred that the system is too young to find many matches with weapons used in crimes. Plus, he said, local law enforcement don't appear to be using the system extensively.

"If that system's not being queried on a regular basis, of course you're not going to get hits," Pelosi said.

"It has to be more than just a warehouse of shell casings from new handguns sold in New York state."

At least one experienced firearms investigator questions whether CoBIS is a help or a hindrance to local law enforcement.

Robert Stanton, a firearms examiner at the Monroe County Crime Laboratory, claims in a supporting affidavit in the federal lawsuit that the CoBIS system will be of little help because of the sheer size of the database.

County law enforcement now match the ballistics from crime-scene evidence and the computerized searches "may produce ten comparable matches" with weapons used in previous crimes, Stanton stated.

"Introducing a ballistic data from new gun sales to licensed pistol permit holders throughout New York State would generate false positives, take much more time, and disrupt the entire investigative process," he said. Studies of ballistics imaging systems in Maryland and California raised questions about the reliability of the technology.

However, the constitutionality of CoBIS — not its effectiveness — will determine its fate in court. A judge would have to determine that the use of CoBIS illegally extends beyond the prerogative of state lawmakers.

The lawsuit contends that CoBIS violates the privacy of legal gun owners because their names would be connected to firearms that could be used later in crimes.

"What we're saying is that, for no good reason, you have this database established which permanently connects the pistol purchaser to the pistol," said lawyer Scott Garretson, who represents SCOPE and the other plaintiffs.

"Making (the gun buyer) a potential suspect or 'person of interest' to the government is an infringement of constitutional dimensions."

The lawsuit also alleges that the gun-show legislation, which required background checks for gun sales, is unconstitutionally vague in its description of different "events" covered by the law. "It is capable of sweeping and improper interpretation," the lawsuit alleges.

"We have no problem with background checks on the sale of firearms through dealers," said SCOPE President Mathison. But the wording of the statute is so unclear that it could make a private sale between two individuals a criminal act, he said.

The Attorney General's Office said it could not comment because it had yet to be served with the lawsuit.

well lets see if the state finds a way to shoot this one down, or if someone in the occupied territories here has pulled their heads out enough to smell air.

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