

The FBI's role in reference collections

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Long history in collections

- Began with Charles Appel
 - Special Agent in the Bureau of Investigation (precursor to the Federal Bureau of Investigation)
 - July 7, 1932, Appel wrote a memorandum to J. Edgar Hoover, proposing a separate division within the Bureau to oversee the “criminological research laboratory”

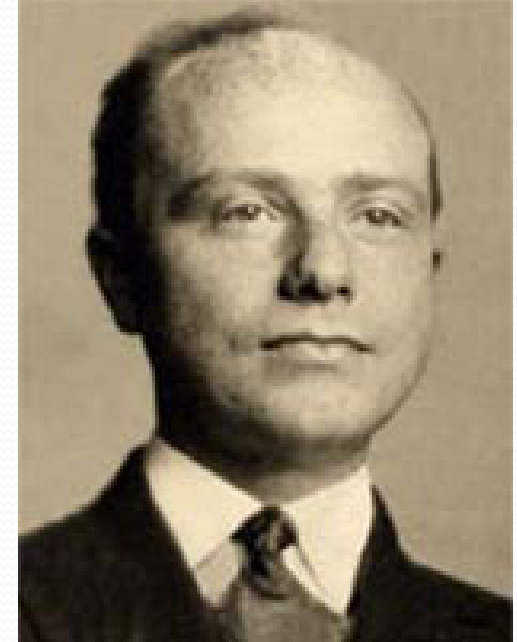


Photo: www.fbi.gov

Charles Appel

- Two weeks later, Appel wrote another memo to Hoover outlining his vision for the laboratory
 - Envisioned the laboratory would provide information and criminological support to American law enforcement
- In September, 1932, Appel's vision was realized with the purchase of the laboratory's first equipment



Photo: www.fbi.gov

Charles Appel, cont.

- Appel specialized in handwriting analysis, but performed many other duties
- He initiated many of the Bureau's early reference collections
 - Inks
 - Dyes
 - Tread marks

Other historical collections

- Typewriter standards file
- National fraudulent check file
- National Automotive Paint File
- Reference Firearms Collection
- Bank Robbery Note File
- Photocopier file
- Shoeprint file
- etc.

Collections vs. databases

- Collection – a group of objects or an amount of material accumulated in one location, especially for some purpose or as a result of some process
(www.dictionary.com)
- Database – a comprehensive collection of related data organized for convenient access, generally in a computer (www.dictionary.com)

“Words mean things” (Samuel R. Delaney)

- In forensic science (especially trace evidence), we tend to label ordered sets of information or things as “databases” when they are really just “collections”
- The broader scientific/legal community is keenly aware of some very powerful forensic science databases that are regularly used
 - CODIS
 - NGI

“Words mean things” (Samuel R. Delaney)

- Many of the collections we maintain at the FBI (and yes, we call some of them databases) are very different in composition from those listed above and are used for a very different purpose
- As we start to talk about building/sharing “databases”, we need to ensure that we are all talking about the same thing

FBI Collections – today

- Primary utility of many of our collections is in providing lead information to the investigator, often by narrowing down a list of possible sources
- These collections are also a critical component in the training programs of our scientists
- Following are *some* examples of collections maintained with the FBI Laboratory that are available to be searched through the appropriate point of contact

FBI Collections – today

- Questioned Documents
 - Threatening Communication Database (formerly Anonymous Letter File)
 - Primary repository for all communicated threats received by the FBI, comprised of thousands of images of letters, envelopes, and other communications
 - Bank Robbery Note File
 - Computerized database of images of demand notes utilized during bank robberies
 - Typewriter Standards File
 - Used to determine the make, model, and other information concerning the typewriter in question

FBI Collections – today

- Questioned Documents (continued)
 - National Fraudulent Check File
 - Computerized file containing images of fraudulent and counterfeit checks; assists in comparison of fraudulent checks from different cases to a common source
 - Polyethylene Repository and Information Database for Evidence (PRIDE)
 - Computerized file containing images, information, data, and known samples to assist in determining brand name/manufacturer of plastic bags

FBI Collections – today

- Firearms/Toolmarks
 - Reference Firearms Collection
 - Collection of over 7000 firearms obtained primarily through the disposition program
 - General Rifling Characteristics database
 - (more details later)
 - Reference Ammunition File
 - Over 1000 calibers and 350 ammunition manufacturers, data can be searched based on a variety of characteristics.



FBI Collections – today

- Trace Evidence
 - National Automotive Paint File
 - National Forensic Tape File
 - Forensic Automobile Carpet Database
 - Other open source databases

FBI Collections – today

- Many of these are truly collections, not databases, and are not fit for the purpose of dissemination and research
- Primary purpose is to provide lead information back to the investigator, by narrowing down the potential list of possible sources of an evidentiary item

FBI Collections – today

- However, that does not mean that these collections wouldn't be very useful in the *development* of databases, which I hope we will hear more about over the course this workshop
- For example
 - Less than two weeks ago, NIST recently announced that their “3D Ballistics Research Database Goes Live”
 - The FBI Laboratory is contributing to this effort by providing a large dataset of test fires from our Reference Firearms Collection

FBI Collections – today

- In that example, the FBI was able to capitalize on its extensive reference firearms collection to assist in the population of NIST's 3D research database
- There *may* be other FBI collections that could be used in a similar manner
 - With the caveat that some of our collections may contain proprietary, law enforcement sensitive, and even classified information that may not be able to be shared

Recent efforts worth highlighting

- The FBI maintains and disseminates a General Rifling Characteristics (GRC) database, which is a database of firearms including class characteristics of the firearms
 - Firearm class characteristics
 - Rifling pattern
 - Land and groove measurements

04/11/2016

GRC Database Search

Reference No.: (Underlined Captions = Multi select field) (Italicized Captions = Scan field)

Caliber: 0

- 17 ▲
- 18
- 20
- 22 ▼

Cartridge: 0

- 10 GAUGE SHOTGUN ▲
- 10mm AUTO
- 12 GAUGE SHOTGUN
- 12.7x108mm ▼

Firearm Type: 0

- B - SMG/Machine Pistol ▲
- C - Rifle:Shotgun Combo
- GL - Grenade Launcher
- MA - Machine Gun ▼

Land/Groove:

Twist Direction:

Manufacturer:

Extractor Position:

Type of Rifling:

Model:

Ejector Position:

Firing Pin Shape: 0

- Bar ▲
- Circular
- Conical
- Double ▼

Breech/Boltface Marks: 0

- Arcs ▲
- Circular
- Granular
- Irregular/Crosshatched ▼

Manuf. Location: 0

- ??? ▲
- American Samoa
- Argentina
- Aruba ▼

Manuf. Region: 0

- Africa ▲
- Antarctic
- Arctic
- Asia ▼

Manuf. Origin:

- Outside U.S.
- United States
- Neither (Off)

Inches Millimeters

Ref. No. (Partial):

Min. Land Width (0.000 to 0.450) (inches):

Min. Groove Width (0.000 to 0.450) (inches): 00 ▲

Min. Land Width (0.000 to 11.430) (mm):

Min. Groove Width (0.000 to 11.430) (mm): 01

Max. Land Width (0.000 to 0.450) (inches):

Max. Groove Width (0.000 to 0.450) (inches): 02

Max. Land Width (0.000 to 11.430) (mm):

Max. Groove Width (0.000 to 11.430) (mm): 03

Notes:

Information to be displayed on hardcopy printout (non-searchable and non-mandatory)

Name:

Case ID:

Specimen:

Other:

LAB ID:

Clear Form

Begin Search

Begin Search - (Make-Model)

Close (Main Menu)



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GRC Database Search Results - Expanded

Reference No.: **2012012**

Caliber: **40** Cartridge: **10mm AUTO** Firearm Type: **PI - Semi-Automatic Pistol** # Land/Groove: **6**

Manufacturer: **COLT** Extractor Position: **3** Twist Direction: **Left**

Model: **DOUBLE EAGLE** Ejector Position: **8** Type of Rifling: **Conventional**

Firing Pin Shape: **Hemispherical** Breech/Boltface Marks: **Parallel**

Manuf. Location(s)	Manuf. Region(s)	Manuf. Origin(s)
United States	North America	United States

Min. Land Width (inches): **.064** Min. Groove Width (inches): **.123**

Min. Land Width (mm): **1.626** Min. Groove Width (mm): **3.124**

Max. Land Width (inches): **.074** Max. Groove Width (inches): **.130**

Max. Land Width (mm): **1.880** Max. Groove Width (mm): **3.302**

Notes: **MARK II SERIES 90**



Close

GRC Database

- Data was updated and disseminated bi-annually
- CD's containing the data were burned and disseminated to all enforcement partners upon request
- Extremely time-consuming and labor-intensive process



GRC Database

- Partnered with one of our sister Divisions, the FBI's Criminal Justice Information Services (CJIS) Division, in an effort to make this database available on-line
- Access to the database will be through CJIS's Law Enforcement Enterprise Portal (LEEP)
- Will allow for the data to be updated more regularly, and will remove the need to disseminate CD's on a bi-annual basis

Summary

- Based on the outcome of this test, the FBI Laboratory will explore the possibility of making additional datasets available on-line through the CJIS portal
- The Laboratory is also open to discussion on future efforts to capitalize on our existing collections for new/novel databases



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