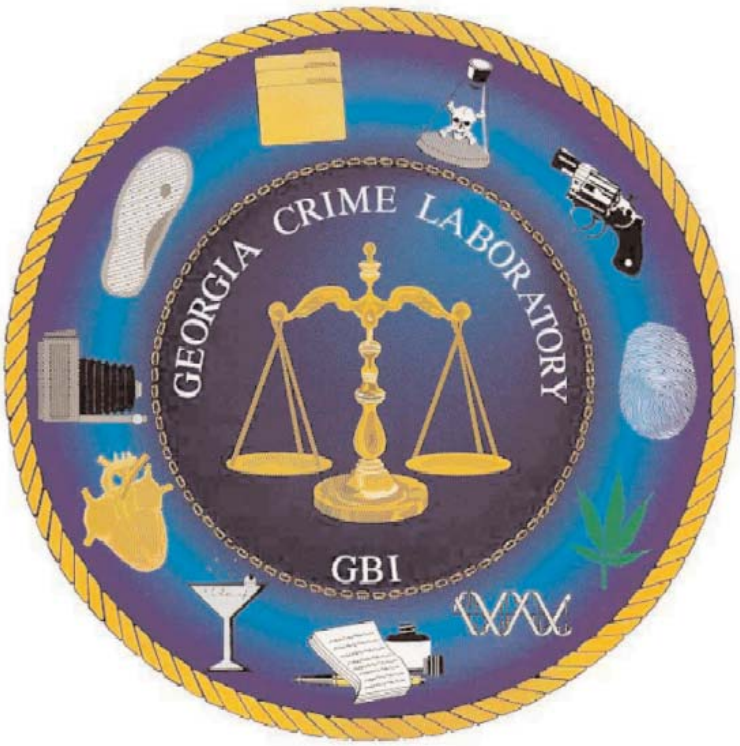
DIVISION OF FORENSIC Sciences



266 Positions
$23,075,798 Budget

CRIME LABORATORY Services

The Division of Forensic Sciences (DOFS) provides scientific support to criminal justice agencies, enabling them to detect, apprehend and prosecute criminals by utilizing accurate, useful and timely laboratory analysis and testimony. Except for limited services provided by local and federal laboratories, DOFS crime laboratories are the only forensic services available to the criminal justice community of Georgia.

PERSONNEL Growth

The Division of Forensic Sciences (Georgia State Crime Laboratory) was formed by legislative act in 1952. The laboratory had five full-time staff members who processed 651 cases that year. In FY'02, 264 scientists and technicians processed more than 127,011 reports.

The laboratory receives and processes about 10,000 service requests per month. The high watermark for unworked cases occurred in October 1999 when the laboratory had 35,857 backlogged cases. In the initial phases of training new scientists in FY'00, training was concentrated for three to four months to give the necessary knowledge,

FY'02: Case Backlog Reduction

Month/ Year	Total (all cases)	30-day Turnaround
June 1998	17,500	40 %
June 1999	30,700	20 %
June 2000	6,100	70 %
June 2001	1,383*	89 %
June 2002	1,426	60 %

** Excludes DNA convicted offender database*

Command Staff

Dan Kirk
Deputy Director

DOFS Operations

Dr. George Herrin
Assistant Deputy Director

DOFS Operations

Karen Scott
Assistant Deputy Director

skills, and judgement required to perform 80-90 percent of the complex scientific testing necessary at the crime lab. During FY'01, additional instruction was given to the scientists to complete training in their respective fields of forensic science.

As the turn-around time reduction has minimized delays in the court system and as the laboratory has expanded its services, the law enforcement community has responded with increasing numbers of submissions. In FY'99, the laboratory received 88,000 requests as compared to 110,000 in the previous year. In FY'01, almost 106,000 requests were processed. In FY'02, the laboratory released more than 127,011 requests.

With additional budget restraints (due to a weak economy) and the increased caseload, the laboratory has begun to developa backlog that continues to grow.

FY'02: DOFS Cases Worked

Forensic Biology	3,728
CODIS Database	31,360
Chemistry	48,010
Firearms	5,033
Latent Prints	1,749
Questioned Documents	674
Toxicology	32,238
Trace Evidence	648
Medical Examiner	3,549
Total	**127,011**

DOFS Operations

Bill Wall
Assistant Deputy Director

Med. Examiner's Operations

Dr. Kris Sperry
Chief Medical Examiner

Med. Examiner's Operations

Scott Roberts
Assistant Deputy Director

LABORATORY Services

DOFS provides scientific support to the criminal justice system in Georgia. Using the most recent technologies and highly sophisticated equipment, lab scientists and technicians in specialized disciplines collect, analyze and interpret all aspects of physical evidence for law enforcement and prosecutors through the state. They also offer expert testimony on their findings.

FIREARMS SECTION

The Firearms Section was able to reduce the backlog of firearms related cases during FY'02 to three requests as of June 2002. There is a national shortage of trained firearm examiners. Since no individuals graduate college with the necessary skills for firearms examinations, all crime laboratories must train new staff in a program that can take to two years to complete. To solve part of this problem, the GBI, the Florida Department of Law Enforcement (FDLE) and the Royal Bahamas Police Force sponsored a joint firearms training program. By the end of FY'02, most of the training was completed and five firearms examiners were assigned duty stations in all the regional laboratories, except the Southwestern Regional Crime Laboratory in Moultrie. The Integrated Ballistics Identification System (IBIS) increased to two units with the addition of a system for the Coastal Regional Crime Laboratory in Savannah. The unit in the Headquarters Laboratory has been operational for several years.

IMPLIED CONSENT

Implied Consent provides training in the operation of the Intoxilyzer 5000 for the detection of drivers suspected of being under the influence of alcohol. The section administers the quality control and assurance programs for Georgia's breath alcohol testing program. In FY'02, 43 Intoxilyzer basic certification classes were held at the Georgia Public Safety Training Center (GPSTC). The unit provided training for:

- The Georgia State Patrol
- The Department of Natural Resources
- The federally-funded Police Corp.

The staff also participated in the Georgia Prosecuting

Crime Lab Disciplines

Drug Identification

Analyzes and identifies suspected narcotics and other controlled substances as well as paints and accelerants.

Forensic Biology/DNA

Detects, identifies, and individualizes biological fluids. The section also maintains a computerized database called CODIS, (COmbined DNA Index System) that stores the DNA profiles of convicted sexual offenders and felons in Georgia. Evidence from all types of cases can be searched on the database to see if matches can be found and suspects identified.

Pathology

Performs autopsies to determine cause and manner of death in criminal and coroner cases.

Toxicology Section

Isolates and identifies drugs and poisons in human tissues.

Attorney Council's seminar on DUI vehicular homicides.

Throughout the year, the Implied Consent Unit trained 1,411 new operators and maintained certification for 8,521 active operators. Forty-eight new Intoxilyzer 5000 units were activated and inspections on 544 certified instruments were completed. Recertification classes were conducted at seven regional training centers as well as at GPSTC. This decentralized training increases access and reduces costs for local agencies. The training also provided Georgia with approximately 8,000 certified Intoxilyzer operators.

QUESTIONED DOCUMENTS

In addition to conducting routine examinations and comparisons of handwriting involved in forgery cases on checks and other financial instruments, Question Documents examines documentary evidence involved in more serious violent crimes.

At the request of the director, the section assisted the Air Force Office of Strategic Intelligence at Warner Robbins Air Force Base with an investigation as to several bomb threats that resulted in the closing of a vital hanger for the world's largest transport plane, the C5. This disruption caused an estimated loss of $5 million but more importantly slowed vital work on planes needed during the initial stages of the Afghanistan bombing mission. Several bomb threat notes left in a restroom over the course of several months caused the evacuation of the hanger building on four occasions until cleared by bomb sniffing dogs. Handwriting examinations and comparisons identified the chief suspect resulting in prosecution.

In a Richmond County case, handwriting analysis helped establish an alibi for a homicide suspect. Handwriting that was identified on several hotel receipts established that a chief suspect in a murder case was not in the area at the time the homicide was committed.

Crime Lab Disciplines

Firearms Identification

Compares bullets and cartridge cases to the firearms from which they were fired; utilizes the National Integrated Ballistics Identification Network (NIBIN), monitored by the Bureau of Alcohol, Tobacco and Firearms (ATF).

Latent Prints

Collects, preserves, identifies, and compares fingerprints from crime scenes and physical evidence utilizing the Automated Fingerprint Identification System (AFIS).

Trace Evidence

Examines evidence, including fibers, hairs, glass, shoe and tire impressions, and other forms of trace evidence, assisting in determining if a suspect was present at a crime scene.

FORENSIC PHOTOGRAPHY

Forensic Photography has moved into the digital age by adopting new techniques to record and transmit images vital to the prosecution of criminals. Evidence bearing latent prints can be digitally recorded, and through the use of sophisticated software programs, enhanced in ways not previously possible. For example, surface backgrounds that obscure a latent fingerprint image vital to an investigation can be subtracted to clarify the area of interest. This is not always the case using conventional photography.

TOXICOLOGY

Toxicology built on the momentum it developed in FY'01 and completed a record number of services of 32,238. The Toxicology Section has placed a high priority on expanding the panel of analytical techniques it offers in death investigation cases. This is especially true after investigating several cases involving poisoning by anti-freeze (ethylene glycol) and the medical neuromuscular blocking agent: succinylcholine. These cases involved extensive literature searches and laboratory work to develop new and fully-validated analytical techniques. Results generated with in-house and collaborative laboratory work resulted in multiple homicide investigations being launched involving these rarely seen poisons.

TRACE EVIDENCE

Trace Evidence provides identifications, comparisons and analysis of hair, fibers, paint, plastic, glass, footwear, tire impressions, fractured materials and other miscellaneous materials. Forensic analysis, interpretation and courtroom testimony of scientists assigned to this unit plays a critical role in the investigation and prosecution of serious/violent crimes such as homicide, sexual assault, armed robbery, kidnapping and burglary. The timely analysis of trace materials is critical to the successful apprehension and prosecution of criminals.

Trace Evidence currently has a backlog of approximately 100 violent criminal cases, a reduction from 200 cases in FY'01. The current average turn-around time for cases is approximately seven months for most services. A federal grant administered by the CJCC has allowed the outsourcing of paint cases.

Throughout the year, Trace Evidence has provided investigative leads to agencies. Some of these investigative leads included vehicle year/make/model/color as determined from paint left on the clothing of hit-and-run victims, brand/model of tires and footwear as determined from impressions left at crime scene, and race of suspects as determined from hair left at the scene.

LATENT PRINTS

The Latent Primts Section of the Crime Lab collects, preserves, identifies and compares fingerprints from crime scenes and physical evidence. The unit also interfaces with the Automated Fingerprint Identification System (AFIS), a database that houses fingerprints of persons who have been arrested in Georgia.

In FY'02, Latent Prints processed 1,749 requests with an on-time rate of 94 percent (30 days or less). The section consists of four certified latent print examiners. The section was involved with the Walker County Tri-State Crematory investigation, asssisting with the identification process.

Crime Lab Disciplines

Questioned Documents

Using a variety of techniques, the service examines and compares documents for possible forgery. It also determines if a suspect is linked to documents key to an investigation.

Forensic Photography

Processes and prints crime scene photographs.

Implied Consent

Administers the state's breath alcohol testing program and provides training on the use of breath alcohol testing instruments.

CHEMISTRY/DRUG IDENTIFICATION

Chemistry continues to improve and advance the testing and services offered by DOFS. In FY'02, a new method was developed and implemented for cocaine quantitations. This improvement required the use of High Performance Liquid Chromatography. This instrumentation was acquired last year for placement in all GBI Labs. The new method allows improved accuracy of the drug purity analysis.

Fire debris cases were extracted at all labs, with analysis performed in the Western Regional Laboratory. Additionally, an improved fire debris identification method was adopted. This new method brings the identification and reporting processes more closely into line with nationally recognized methodology.

Chemistry has worked to meet the needs of law enforcement agencies by providing additional resources to address the increased number of clandestine methamphetamine laboratories seized in Georgia. Working with the GBI Investigative division, the laboratory has created a Clandestine Laboratory Response Team to enable lab scientists to respond to these dangerous sites. Through additional training and acquisition of equipment, the laboratory has been able to implement a statewide team to respond to clandestine laboratory sites on a 24 hour a day/seven day a week basis. For improved response, a dedicated vehicle for the clandestine laboratory team was obtained through federal grant funding. DOFS staff has aided in numerous training programs that will assist law enforcement officers in safely responding to these dangerous sites. There were 84 lab responses in FY'02 and the number is growing.

FORENSIC BIOLOGY/DNA

In July 2001, the backlog for the COmbined DNA Index System (CODIS) database was approximately 12,000, with about 2,200 samples being submitted each month. By the end of June 2002, only 1,000 new samples were awaiting testing. It is projected by December 2002 offender samples will be processed as they are received. Almost 32,000 offender samples were entered into CODIS this fiscal year. Samples are collected by the Department of Corrections and submitted to this unit for analysis. CODIS also contains DNA profiles from casework specimens collected from crime scenes or sexual assault cases. CODIS searches these profiles against cases both in Georgia and nationwide. If the computer program detects a common DNA donor, a match report is generated then verified by a trained analyst. Matches may occur as cases linked to each other (forensic hit) or unsolved cases linked to an offender (offender hit). The total number of samples in CODIS by July 2002 was more than 54,000.

Eighty-nine offender hits were observed and by June 2002, the total number of offender hits has reached 130. On average, there are seven offender hits per month.

The trend of non-sex offenders being linked to unsolved sexual assault cases continues. At the national level, six forensic hits and seven offender hits were observed. Because of the quality and quantity of casework data at the national level, GBI was awarded a two-year appointment to the National CODIS Board in December 2001.

During FY'02, DNA parentage testing was introduced as a new service. This is currently being utilized for GBI investigations only in criminal cases such as incest. The demand for this service is steadily increasing.

FACILITY Improvements

With increasing workloads at GBI crime laboratories, renovations, upgrades and construction of new modern laboratory facilities were needed to keep pace with demand.

New laboratories to replace existing obsolete buildings are on schedule:

• The **Eastern Regional Crime Laboratory** in Augusta, Richmond County, is scheduled for completion in November 2002.

• The **Central Regional Crime Laboratory** in Macon, Bibb County, is scheduled for completion in 2003.

• Toxicology and morgue additions to the **Coastal Regional Crime Laboratory** in Savannah, Chatham County, are scheduled for completion in early 2003.

• Toxicology and morgue addition to the **Southwestern Regional Crime Laboratory** in Moultrie, Colquitt County, are scheduled for completion in 2003.

Progress: *The new Crime Lab Annex located at Headquarters in Decatur. The Annex will opened its doors to business in September 2002. Dedication is scheduled for October 15, 2002.*

• The **Northeastern Regional Crime Laboratory** in Cleveland, White County, is the newest laboratory and scheduled for completion in late 2003.

• The **Headquarters Laboratory Annex and Morgue** is scheduled for occupancy in September 2002. The new building is named in honor of the laboratory founder, Dr. Herman Jones.

The total forensic laboratory system will soon have eight locations strategically located throughout the state, with more than 250,000 square feet of modern scientific space.

QUALITY Services

The Division of Forensic Sciences has established a comprehensive quality assurance system that allows the GBI crime laboratory system to meet all of the requirements of two accrediting bodies. Prior to accreditation, DOFS was the only full-service forensic lab in the world certified to the ISO 9002 Quality Management Standard. Underwriters Laboratories, Incorporated (UL), was the crime lab's registrar to that standard since 1998. DOFS voluntarily discontinued certification with UL when it achieved new accreditation to the International Standard ISO 17025. On November 1, 2001, DOFS became the first forensic lab in the United States to attain international accreditation to ISO 17025 through the National Forensic Science Technology Center. The accreditation certifies that DOFS meets international criterion in the areas of quality management and technical competence

DOFS also has maintained the accreditation requirements of the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB) since 1999. DOFS is unique in that it is the first forensic lab in the United States to be granted accreditation by both NFSTC and ASCLD/LAB.

INFORMATION Management

FY'02 saw some major changes in the way DOFS manages and stores data collected during analysis of evidentiary samples. Previously, most data was generated and stored in paper form. This year, several software packages were implemented that allow the direct transfer of scientific data from analytical instrumentation to the LIMS (Laboratory Information Management System). With this single improvement, significant reductions in the amount of paper handled by laboratory staff for record keeping and filing have been realized. The lab has also gone through several design and development phases on the LIMS software itself, in a continuing effort to optimize its usefulness to the staff. More law enforcement agencies began using the Web site for the retrieval of official reports. Additional equipment for the capture of digital photographs of evidence and visual test methods were installed.

With the use of information technology, digital imagery, and the Internet, the laboratory has been able to increase its efficiency in handling more than two million pages of scientific data generated each year and providing the results of scientific analysis to law enforcement customers faster than ever before.

DOFS leads the nation in the use of modern computers to improve work processes.