Careers in forensics:

Analysis, evidence, and law

Elka Maria Torpey

In legal proceedings, a case is only as strong as its evidence. And whether that evidence is strong depends, in large part, on the work of forensic specialists.

The field of forensics is broad and involves many kinds of workers. Some of them are involved in crimesolving. Others, such as forensic social workers or forensic economists, help to resolve different legal issues.

But one thing all forensic specialists have in common is that their work is connected to the law in some way. These workers might have a background in life sciences, art, engineering, healthcare, social sciences, or a number of other fields. And although their specialized knowledge and job titles vary, all forensic workers have expertise related to a legal issue or case.

This article discusses forensics and some of the work it encompasses. The first section talks about what forensic workers do and lists selected specialties within the field. A second section describes places of employment, potential earnings and opportunities, and education and training requirements. A final section provides sources for finding more information.

Elka Maria Torpey is an economist in the Office of Occupational Statistics and Employment Projections, BLS. She is available at (202) 691-5719 or torpey.elka@bls.gov.

Forensics at work

Forensic workers apply scientific or other specialized knowledge to questions and issues related to the law. Their job duties fall into two basic categories: analyzing evidence and acting as expert witnesses in legal proceedings. Some forensic specialists concentrate primarily on one of these tasks, although many do both.

When analyzing evidence, forensic specialists often uncover details about past events—for example, a time of death, the cause of a car accident, or the source of a computer hacking. They might investigate clues about what happened and draw conclusions using their expertise. Whatever they find, they share with law enforcement and other personnel involved in the case or investigation.

Some workers focus largely on the study of physical evidence. Like anyone who works with items related to legal proceedings, these forensic specialists must be careful to document their receipt and handling of evidence. They must also record their observations.

Other forensic specialists look to the future. For example, a forensic economist might help to determine the impact that an injury will have on an individual's earnings potential. A forensic social worker might seek to ensure that a client receives the services that he or she needs.

When testifying as expert witnesses, forensic specialists present their findings in legal proceedings. They might need to prepare a report or exhibits that summarize their analysis and conclusions. Often, the information that forensic workers study is complex, so they must be able to explain technical concepts to judges, juries, attorneys, and others.

Forensic workers have diverse training, so their specializations vary. Job tasks depend on the area of expertise. Below are some examples.

Computer forensic investigators obtain and search computers and electronic records for evidence related to a case—for example, by recovering deleted files from a victim's computer or by probing a company's records for evidence of fraud. For more information, contact the International Association of Computer Investigative Specialists by writing P.O. Box 1728, Fairmont, WV 26555; calling toll free 1 (888) 884-2247; or e-mailing *cfce@cops.org*. Or, visit online at **www.iacis.com**. See also the *Occupational Outlook Handbook* statement on private detectives and investigators at **www.bls.gov/oco/ocos157.htm**.

Crime scene photographers take photographs of details related to a crime. They might, for example, photograph the crime scene, a victim's injuries, and other objects on the scene. Contact the International Association for Identification by writing 2535 Pilot Knob Rd., Suite 117, Mendota Heights, MN 55120; calling (651) 681-8566; or e-mailing *iaisecty@theiai.org*. Or, visit online at **www.theiai.org**.

Firearm and toolmark examiners study guns, bullet striations, spent bullet casings, and other markings to help determine the type of firearm used. These workers also can identify the particular tools used in a crime, such as those applied to a window pane for forcing entry into a building. Contact the Association of Firearm and Toolmark Examiners' president Thomas Price at the Kansas Bureau of Investigation by writing Forensic Science Lab, 1620 SW. Tyler St., Topeka, KS 66612; calling (785) 296-8309; or e-mailing *tl.price@kbi.state.ks.us*. Or, visit the association online at **www.afte.org**.

Forensic accountants examine financial transactions related to a legal case or issue to help identify fraudulent or illegal activity. Contact the Association of Certified Fraud Examiners by writing the Gregor Building, 716 West Ave., Austin, TX 78701; calling toll free 1 (800) 245-3321; or e-mailing *memberservices@ACFE.com*. Or, visit online at **www.acfe.com**. See also the *Occupational Outlook Handbook* statement on accountants at **www.bls.gov/oco/ocos001.htm**.

Forensic anthropologists specialize in human bones and use this knowledge to help determine information—such as age, height, and sex—related to skeletal or other remains. Anthropologists also help to find and recover these remains. Contact the American Board of Forensic Anthropology by writing California State University, Anthropology Department, 400 W. First St., Chico, CA 95929; or calling or e-mailing the board secretary, Elizabeth Murray, at (513) 244-4948 or *Elizabeth_Murray@mail.msj.edu*. Or, visit the association online at **www.theabfa.org**.

Forensic artists produce art-related works that may help to solve a case, such as sketches of suspects based on witness descriptions or computer-generated images of missing persons' age progressions. Contact the International Association for Identification by writing 2535 Pilot Knob Rd., Suite 117, Mendota Heights, MN 55120; calling (651) 681-8566; or e-mailing *iaisecty@theiai.org*. Or, visit online at **www.theiai.org.**

Forensic biologists examine organic substances and perform DNA analysis of samples, such as those of hair or blood. Information about forensic biologists may be available from organizations for related occupations. See, for example, forensic anthropologist and forensic pathologist.

Forensic chemists do chemical analyses of evidence that includes drugs, soil, and shards of glass. Information about forensic chemists may be available from organizations for related occupations. See, for example, forensic toxicologist.

Forensic document examiners analyze handwriting, printing, inks, and related types of evidence to verify authenticity of documents. Contact the American Board of Forensic Document Examiners, Inc. by writing 7885 San Felipe, Suite 122, Houston, TX 77063. Or, visit the association online at **www.abfde.org**.

Forensic economists use economic theories and models to help calculate monetary awards in legal cases. Contact the National Association of Forensic Economics by writing PO Box 394, Mount Union, PA 17006; calling toll free 1 (866) 370-6233; or e-mailing *Nancy@nafe.net*. Or, visit online at **nafe.net**.

Forensic engineers interpret physical evidence using their knowledge of engineering. They might, for example, reconstruct an accident to determine its cause—and, thus, help to establish which parties are legally responsible. Contact the National Academy of Forensic Engineers by writing 174 Brady Ave., Hawthorne, NY 10532; calling toll free 1 (866) NAFE-ORG (623-3674); or e-mailing executive director Marvin Specter at *specter@nafe.org*. Or, visit the academy online at **www.nafe.org**.

Forensic nurses provide nursing care to assault victims and collect physical evidence from them related to these incidents. They also aim to prevent future assaults through educational outreach programs. Contact the International Association of Forensic Nurses by writing 1517 Ritchie Hwy., Suite 208, Arnold, MD 21012; calling (410) 626-7805; or e-mailing *info@iafn.org*. Or, visit online at **www.iafn.org**.

Forensic pathologists are medical doctors who perform autopsies or other investigations to help determine a cause of death. Contact the National Association of Medical Examiners by writing 430 Pryor St. SW., Atlanta, GA 30312; calling (404) 730-4781; or e-mailing *name@thename.org*. Or, visit online at **www.thename.org**.

Forensic psychologists apply their knowledge of human behavior and thought processes in a variety of legal contexts. Examples include determining a defendant's mental competency, helping to develop a suspect's psychological profile, or assessing a witness's credibility. Contact the American Psychology-Law Society by writing, P.O. Box 11488, Southport, NC, 28461; calling (910) 933-4018; or e-mailing *APLS@ec.rr.com*. Or, visit online at **www.ap-ls.org.**

Forensic social workers help to improve the lives of people involved in the legal system. For example, they might meet with a child and later make recommendations in a custody case related to him or her, or they

might help to evaluate and provide social services to criminal defendants. Contact the National Organization of Forensic Social Work by writing 460 Smith St., Suite K, Middletown CT 06457; calling (860) 613-0254; or e-mailing executive director Paul Brady at *pbrady@nofsw.org*. Or, visit the organization online at **www.nofsw.org**.

Forensic toxicologists study bodily fluids and other evidence to help determine whether drugs, alcohol, or other toxic substances were involved in a crime or death. They also might perform drug testing for employers. Contact the American Board of Forensic Toxicology by writing 410 N. 21st St.,Colorado Springs, CO 80904; calling (719) 636-1100; or e-mailing immediate past president Yale Caplan at *ABFTOX@aol.com*. Or, visit the board online at **www.abft.org**.

Latent print examiners identify suspects by studying fingerprints, footprints, and related clues from a crime scene. Contact the International Association for Identification by writing 2535 Pilot Knob Rd., Suite 117, Mendota Heights, MN 55120; calling (651) 681-8566; or e-mailing *iaisecty@theiai.org*. Or, visit online at **www.theiai.org**.

Career investigation: Where they work, what they earn, and how they prepare

The specialties described above are just some of many opportunities in forensics. This section gives an overview of workers' employment, wages, and career preparation.

Employment. Forensic specialists work in a variety of places. Examples include police departments, government agencies, prosecutors' offices, law firms, insurance companies, hospitals, and consulting firms. Some specialists are self-employed, such as those who analyze clues and offer testimony as expert witnesses. Others hold jobs in addition to forensics-related assignments—for example, a full-time civil engineer who also works occasionally as an expert witness.

The U.S. Bureau of Labor Statistics (BLS) collects data on forensic science technician, a broad occupational title that encompasses many forensic specialties. As defined by BLS, these workers collect, identify, classify, and analyze evidence for criminal investigations. Some examples are firearm and toolmark examiners, forensic document examiners, forensic toxicologists, and latent print examiners. According to BLS, all types of forensic science technicians held about 12,030 wage and salary jobs in May 2007.

Competition is keen for jobs in forensics, due to the popularity of the work. However, demand for some of these workers is expected to increase. BLS projects that forensic science technicians will grow by 31 percent over the 2006–16 decade, faster than the average for all occupations, with job opportunities best for those who have a bachelor's degree in forensic science.

Earnings. Earnings of forensic specialists depend on the field in which they work. Forensic science technicians earned a median annual wage of $47,680 in May 2007, according to BLS. Earnings of other forensic specialists most likely compare to those of workers in their broader occupation. For example, earnings of forensic chemists would likely be similar to those of all chemists.

Some forensic specialists have sporadic earnings, especially those who are self-employed or who work on call. Expert witnesses, for example, might only be compensated when they work on a particular case. This compensation is often at a set hourly rate, which varies by specialty, geographic location, and other factors.

Skills and preparation. Precision, attention to detail, objectivity, problem-solving ability, and strong oral and written communication skills are important for forensic specialists. Many of these occupations also require specialists to remain analytical in potentially unpleasant or challenging situations, such as viewing a murder scene or studying an accident's wreckage.

Some forensic specialists, such as computer forensic investigators, have a background in law enforcement. And an understanding of, or experience with, the law and legal procedures can be helpful for many forensics careers.

Educational backgrounds of forensic specialists vary. But all require at least the minimum knowledge or training for workers in their field of specialization, and many have additional requirements. Becoming a forensic pathologist, for example, requires a medical degree, completion of a residency program, and board certification in pathology and in forensic pathology.

Most forensic specialists need at least a bachelor's degree and sometimes an advanced degree. Workers who provide expert analysis and testimony often have a Ph.D. or master's degree in their field of expertise. In addition, workers who are employed as expert witnesses usually need many years of work experience in their occupation, credentials from professional organizations, and sometimes, other achievements, such as published research. A solid professional reputation in their field is also essential.

Discovering more information

To learn more about forensics careers, or about the broader occupations discussed in this article, refer to the *Occupational Outlook Handbook*. The *Handbook* is available in many public libraries and online at **www.bls.gov/ooh** (search "forensic"). And BLS employment and earnings data on forensic science technicians is available in the *Handbook*'s coverage of science technicians, online at **www.bls.gov/ooh/ocos115.htm**.

For earnings data in occupations such as chemist or psychologist, refer to the Occupational Employment Statistics Web site at **www.bls.gov/oes**.

And for information about forensic science careers, contact:

The American Academy of
Forensic Science
410 N. 21st St.
Colorado Springs, CO 80901
(719) 636-1100
pgilliam@aafs.org
www.aafs.org.