Chair’s Column: We’re There!

Please excuse the hiatus in the publication of the departmental newsletter. Summer 2009 was taken up with the planning for our move to the Mount Vernon Campus and working on the self-study required by the Forensic Science Education Program Accreditation Commission (FEPAC). We had to pack up our offices and laboratories, as well as arrange for the relocation of all of our instruments. All of the full-time faculty (with the exception of Professor Eva Vincze) have offices on the lower level of Somers Hall (a large undergraduate dormitory). There is also a large reception area and four new laboratories (devoted to DNA teaching and research) in the same suite. Professor Moses Schanfield has a conventional serology laboratory at the opposite end of the building on the same level. The department’s SEM, GC-MS and FTIR have been set up in Acheson Science Center Room 102. All of the forensic science classes are now being taught on the Mount Vernon Campus, with the exception of the High Technology Crime Investigations program, which will remain at the Arlington Graduate Center.

The other really big news is that Professor Daniele Podini has previously received funding for his research program from the George Washington University Facilitating Fund, the Forensic Sciences Foundation and the Cosmos Club Foundation. The faltering economy has not affected enrollment at The George Washington University: The University welcomed its largest freshman class in its history. Enrollment in the Master of Forensic Science degree program has rebounded after several years of decline. The Department added 66 new degree candidates in the fall 2009 semester. Part of this rebound can be attributed to more aggressive marketing of the Master of Forensic Sciences. Informational flyers were distributed via email to the chairs or program heads of undergraduate degree programs in anthropology/archaeology, biology, chemistry and computer science at colleges and universities in the District of Columbia, Maryland and Virginia. Flyers were also sent to faculty contacts provided by recent graduates of our program. Also as a part of this marketing effort, the Department of Forensic Sciences hosted a fall open house in conjunction with the University’s Colonials Weekend. The Department had hosted an informational open house in 2008; however, this year the Department opted for a more hands-on approach. Participants viewed a mock crime scene and then analyzed evidence suppose-
Chairs Column (cont.’)

Eddy collected during the investigation of the crime (a mass murder based on the Atlanta Day Trader murders).

Off-campus, the Security Management Program stopped taking applicants this semester due to declining enrollment. The High Technology Crime Investigations Concentration revised its curriculum to better fit the needs of this dynamic field and development is underway for a new concentration in Cyber-Intelligence Analysis. Watch for more details on this exciting new program in the next Newsletter.

At the beginning of this column, I mentioned the FEPAC self-study. This is almost completed and the Department will submit its application for accreditation immediately after New Year. We will also be instituting changes in our degree requirements and adding some new courses in order to comply with the FEPAC guidelines. Some type of research project will be required of all students in the crime investigation, forensic chemistry, forensic molecular biology and forensic toxicology concentrations. There will be new graduate seminar courses that all students in those concentrations will be required to take. We hope that FEPAC accreditation along with the other program changes will allow us to continue to attract high quality graduate students.

Donors

Like every other educational institution in the country, The George Washington University has more demands for resources than it has revenues to meet them. The Department of Forensic Sciences appreciates donations from its graduates. Thanks to: Colleen Dunn, Joseph Kris, Marna Lynn McLendon, Frank and Marie Massaro, Charles and Marlene Perrota, Wesley Thomas and Lisa Varley. See our website at www.gwu.edu/~forensic to learn how you, too, can help.
Faculty News

Dr. Maureen Christian, who taught forensic psychiatry in our department for many years, passed away on June 28, 2009, following a lengthy illness. Dr. Christian was also assistant professor at Marymount University. She was a recognized authority on serial killers. Dr. Christian’s fellow faculty, students and alumni held a celebration of her life on September 23 at St. Peter’s Episcopal Church in Arlington. Professor Walter Rowe attended, representing the department.

Dr. Hal Deadman, who teaches ForeS 206: Trace Evidence Analysis, gave a lengthy interview to CNN on September 22. CNN was preparing a report on the Wayne Williams case in Atlanta. Williams was convicted in the notorious Atlanta Child Murders case. “The strongest evidence against Williams was the analysis of the hair and fiber evidence conducted by Dr. Deadman.”

Professor Daniele Podini has received a two-year research grant in the amount of $255,918 from the National Institute of Justice. This is entitled “Development of a SNP assay panel for ancestral origin inference and individual somatic traits.” The grant includes funding for a graduate student; Katherine Butler, former part-time faculty member of the Department of Forensic Sciences and a technical leader at Bode Technology, has been selected to fill that position. Professor Podini will be presenting a paper at the annual meeting of the American Academy of Forensic Sciences: “A Correlation Study Between Sample Age, Human Salivary α-Amylase Activity and DNA Quantity on Postage Stamps” (with Emily B. Herren and Laura E. Dolezal). Ms. Herren and Ms. Dolezal are 2009 graduates of our degree program. Ms. Herren is now employed at Bode Technology and Ms. Dolezal works at the Armed Forces DNA Identification Laboratory (AFDIL).

Professor Ted Robinson has the second edition of Crime Scene Photography coming out in January 2010.

Professor Walter Rowe has had two papers accepted for presentation at the upcoming annual meeting of the American Academy of Forensic Sciences; “The Implications of the National Research Council’s Report – Strengthening Forensic Science in the United States: A Path Forward for Graduate Forensic Science Degree Programs” (to be presented in the Criminalistics Section) and “Where There’s a Will There’s a Way: The Howland Will Case” (to be presented in the Last Word Section). He has also been invited to give papers at a forensic science conference in Cairo in April 2010. In October, Professor Rowe and Dr. Hal Deadman testified in Spokane, Washington, on behalf of the Washington State Patrol in the case of Melnikoff v Washington State Patrol, a civilian action arising from the discharge of a forensic scientist by the Washington State Patrol.

Professor Moses S. Schanfield will be participating in an international symposium on human migration sponsored by the Biological Anthropology Laboratory at the University of Kansas on March 1-2, 2010. He will be talking about Roma (Gypsy) migrations. Professor Schanfield has also had two papers accepted for presentation at the American Association of Physical Anthropology meeting in Albuquerque, New Mexico, in April: “Lack of regional continuity in the Alabama-Coushatta tribe: mitochondrial DNA analysis in the Southeastern United States” (A.R. Rode, M.C. Schanfield, R.S. Malhi) and “Comparison of SNPs, STR and InDels to measure local differentiation in SW Chinese populations” (M.S. Schanfield, S. Miller, K. Labato, S. Bin).

Professor Eva Vincze was part of a team of four GW faculty (Professors Tom Mazzuchi, Lance Hoffman, Shelly Heller) who travelled to Morocco to explore how GW and Al Akhawayn University (AUI) in Ifrane, Morocco, could further develop cooperative efforts, specifically in information assurance, computer security and digital forensics. The team met with a variety of University administrators/professors and high ranking government officials. Professor Vincze gave a presentation on “Cybersecurity, Policy and Law.”

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62nd Annual Scientific Meeting
February 22-27, 2010
Seattle, Washington
Forensic Science Solves History’s Mysteries – Part II

“Looky here, Bilgewater,” he says, “I’m nation sorry for you, but you ain’t the only person that’s had troubles like that.”

“No!”

“No you ain’t. You ain’t the only person that’s ben snaked down wrongfully out’n a high place.”

“Alas!”

“No, you ain’t the only person that’s had a secret of his birth.” And, by jings, he begins to cry.

“Hold! What do you mean?”

“Bilgewater, kin I trust you!” says the old man, still sort of sobbing. “To the bitter death!”

He took the old man by the hand and squeezed it, and says, “That secret of your being: speak!”

“Bilgewater, I am the late Dauphin!”

Mark Twain,
The Adventures of Huckleberry Finn

Identity theft is a growing concern in the modern world. However, impostures to gain power, wealth or prestige are almost as old as civilization. They are also important artistic motifs (e.g. the novels The Prince and the Pauper and The Prisoner of Zenda, as well as the movie Kagemusha) The story of Jacob and Esau in the Old Testament is one of the earliest tales of imposture: In order to obtain his father Isaac’s blessing, Jacob disguises himself by donning his brother Esau’s clothing and covering his arms with goatskins to mimic Esau’s hairiness. Other impostors have played for larger stakes than a father’s blessing. Herodotus recounts that Cambyses II, the Persian King of Kings, had his younger brother Smerdis (or Bardiyaa) secretly killed (perhaps to remove a potential dynastic rival). In the spring of 522 BCE, while Cambyses was embroiled in the brutal conquest of Egypt, a usurper appeared in Persia, claiming to be Smerdis and assuming the title of King of Kings. Cambyses started to march back from Egypt but died enroute, not before, however, confessing to the murder of his brother. In less than a year, the usurper was assassinated by Darius the Great, who recorded the “official” version of the masquerade in the Behistun Inscription on a mountainside in Iran. This version would later be passed on to Herodotus by his informants in the Persian Empire. Some revisionist historians have suggested that the supposed usurper really was Smerdis and that the story of an impostor seizing the throne of Persia was concocted by Darius to legitimize his own seizure of power.

Even Roman Emperors had to contend with the occasional impostor. In 9 CE, the Emperor Augustus exiled his grandson Agrippa Postumus (the youngest son of Augustus’s very promiscuous daughter Julia) to Planasia, a small island in the Mediterranean. Agrippa had fallen from a dizzying height: Before his exile he had been co-heir with Tiberius to imperial power. Around the time of Augustus’s death in 14 CE Agrippa was executed, whether on orders of Augustus or those of his successor Tiberius remains unclear. Two years later Clemens, one of Agrippa’s slaves, impersonated him and gained a substantial following before being captured and executed. In his historical novel I. Claudius, Robert Graves makes Augustus’s covert attempt to restore Agrippa as his heir the event that precipitates Augustus’s poisoning by his wife Livia. According to Graves, the “impostor” really is Agrippa and the Clemens story is a hasty improvisation by Livia and Tiberius.

Of course, forensic science has little to say about the cases of Smerdis and Agrippa Postumus: Only documentary evidence remains. In the case of the Princes in the Tower there is some physical evidence that might be examined. Edward V and Richard of Shrewsbury, I, Duke of York, the sons of King Edward IV, were declared illegitimate by Act of Parliament and imprisoned in the Tower of London. They were last seen in 1483. What happened to them thereafter remains a mystery. The most widely accepted version of their fates is that they were murdered in the Tower on the order of their uncle, Richard, Duke of Gloucester, who then reigned as Richard III. However, Henry Tudor (who defeated Richard III at the Battle of Bosworth Field and assumed the throne as Henry VII) has also been accused of killing the Princes to secure his succession to the throne. Henry’s reign was plagued by impostors claiming to be one of the missing princes or another claimant to the throne. One, Perkin Warbeck, claimed to be Richard of Shrewsbury and led an uprising against Henry VII; putting down Warbeck’s revolt strained Henry’s shaky finances and, after his capture, Warbeck was executed for treason. Lambert Simnel’s handler (an Oxford priest named Roger Simon) first intended to pass him off as Richard of Shrewsbury, but finally settled on the Earl of Warwick (a young man about the same age as Richard of Shrewsbury who had died during his imprisonment in the Tower by Henry VII). Simnel was more fortunate than Warbeck (and most other opponents of the Tudors): After his
Forensic Science Solves History’s Mysteries – Part II (cont.’)

capture, he was consigned to the royal kitchen as a spit-turner. In 1674, fragmentary human skeletal remains were found in the rubble fill of a stairway in the White Tower. King Charles II had the bones placed in an urn and reburied in Westminster Abbey. In 1933, the contents of the urn were examined scientifically; they proved to be a mixture of human and animal bones. The human bones were the fragmentary remains of two children, one aged 11 to 13 and the other 7 to 11. The sex of the two could not be determined by a visual examination. It has recently been proposed that DNA analysis of the bones might provide useful information. As noted below, DNA analysis has shed light on the fates of several missing royals, as well as other assorted outlaws.

In June 1795, 10-year-old Louis Charles, the Dauphin of France, died in the Temple Prison in Paris. The official cause of death was tuberculosis; however, the physicians who autopsied the mangled remains found tumors, as well as scars from beatings. The body was disposed of in an unmarked grave. Because Louis Charles had been separated from the other members of his family for almost two years and had long been in the custody of French revolutionaries, there were doubts about whether the child who died in the Temple was really the Dauphin. Eventually over one hundred people claimed to be or were thought to be the Lost Dauphin. In America, naturalist John James Audubon was one popular candidate, as was Eleazar Williams, who was raised by a Native American family in New York State and became a missionary to the Mohawks in Wisconsin. The best known European claimants were the Comte de Richemont and Karl Wilhelm Naundorff. Both Richemont and Naundorff unsuccessfully tried to establish their bona fides through various channels. Naundorff was able to convince some retainers and ministers of Louis XVI that he was the Dauphin; however, Louis Charles’s surviving sister did not believe him to be her lost brother. In 1998, molecular biologists attempted to sequence mitochondrial DNA from hair samples and from Naundorff’s right humerus.

Despite the severe degradation of the DNA, partial sequences were obtained from DNA extracted from the bone. The differences between these sequences and the corresponding sequences in the mitochondrial DNA of Marie Antoinette, two of her sisters and four maternal relatives were such that Naundorff was effectively excluded as being the Lost Dauphin.

One artifact of the dead child in the Temple had survived. One of the physicians who conducted the autopsy had removed the heart and preserved it. This was in keeping with the custom of preserving the hearts of French kings as sacred relics. The heart endured many vicissitudes (theft, riots) until it came to rest in a crystal urn in the crypt of the Basilica of St. Denis. The same research group that had examined Naundorff’s DNA attempted to sequence mitochondrial DNA extracted from the heart. Again, the ancient DNA was badly fragmented; nevertheless, a statistical analysis of the results found that it was 166 to 206 times more likely that the heart came from a member of the Habsburg family (to which Louis Charles belonged) than a randomly selected individual. Unfortunately, the DNA results do not completely lay to rest the issue of whether the Dauphin could have been spirited out of the Temple: the heart of Louis Charles’s older brother Louis Joseph may also have been removed for preservation upon his death from tuberculosis in 1789. Louis Joseph’s tomb at St. Denis was destroyed during the French Revolution. Given the problematic provenance of the putative heart of Louis Charles it is not outside the realm of possibility that the heart is from his brother or another family member.

In 1828, a strange young man appeared on the streets of Nuremberg. He could barely walk and barely talk. He could however write his name: Kaspar Hauser. He told a strange tale of having been raised in a darkened cellar. Quickly Hauser became an international celebrity. Conjectures were offered up as to his origins, one being that he was the hereditary Prince of Baden. Hauser, it was asserted, was the son of Duke Karl von Baden and Stephanie de Beauharnais (daughter of Napoleon’s empress Josephine de Beauharnais). Officially, the son of Duke Karl and Stephanie de Beauharnais had died less than a month after his birth in 1812. According to the Prince of Baden theory, the legitimate offspring (Kaspar Hauser) had been switched for a dying infant in order to direct the succession to another branch of the family. The mystery surrounding Hauser was deepened by an accidental (or intentional) gunshot wound. Then in 1833, Hauser died of a stab wound to his chest. As he lay dying he told of being lured into a garden by a stranger who then

Believed to be the heart of Louis the XVII

Eventually over one hundred people claimed to be or were thought to be the Lost Dauphin.”
Hauser, riddle of his time. His birth was unknown, his death mysterious.” In 1996 an attempt was made to test the Prince of Baden theory: sequences of the mitochondrial DNA from maternally related descendants of Stephanie de Beauharnais were compared with the mitochondrial DNA sequence of DNA extracted from bloodstains on the underpants Hauser was supposedly wearing the day of his attack. World War II damage to the cemetery where Hauser was buried made it unlikely that his body could be exhumed to obtain a DNA sample. The sequence from the bloodstain did not match that of the de Beauharnais line. This seemed to lay the Prince of Baden theory to rest; however, further DNA testing in 2002 yielded a more ambiguous result. In the 2002 testing the mitochondrial DNA from six samples (locks of Hauser’s hair and items of clothing worn by Hauser) was sequenced. These sequences were identical but differed significantly from the sequence from the bloodstains on the underpants. The new sequences also differed from that of a reference sample from a maternally related descendant of Stephanie de Beauharnais, but not enough to exclude a relationship. Unfortunately, the new “Hauser” mitochondrial DNA sequences are common in the German population at large.

In 1882 legendary western outlaw Jesse James was shot and killed in St. Joseph, Missouri. He was buried on the family farm near Kearney, Missouri. James has remained a potent presence in popular culture, being portrayed in dime novels, on television and in the movies (played by actors such as World War II hero Audie Murphy, Tyrone Power, Robert Wagner, Robert Duvall, Rob Lowe, Colin Farrell and Brad Pitt). In 2007 The Assassination of Jesse James by the Coward Robert Ford won two Academy Awards and appeared on a number of “critics’ best films of 2007” lists. As befits such a larger-than-life figure, rumors have circulatd since 1882 that James was not killed by Robert Ford. Instead, the shooting was staged to allow James to escape justice by assuming another identity. Similar legends surround James’s Civil War commander William Clarke Quantrill and Lincoln’s assassin John Wilkes Booth. A number of persons claimed to be James and their descendents have continued to advance such claims, even in the face of lawsuits from the James family. One of the better known claimants was J. Frank Dalton, who is buried in Granbury, Texas (which, ironically, is also supposed to be the final resting place of John Wilkes Booth). In 1995 Professor James Starrs (at the time a professor of law and forensic science at The George Washington University) undertook the exhumation of Jesse James’s grave in Mt. Olivet Cemetery in Kearney, Missouri (to which the family had moved his remains in 1902). The body in the grave was that of a middle-aged male of European ancestry. He had a calcified .36 caliber pistol ball in his chest (James suffered two gunshot wounds to the chest, the last inflicted in 1865 by Union cavalry). The tie pin that appears in postmortem photographs of James was also still on the body. The mitochondrial DNA sequence obtained from two teeth matched that of descendents of James’s sister. The DNA sequence also matched that of DNA from hairs excavated from the site of James’s original grave. Although these findings should have laid to rest the claims that James faked his death, descendents of various claimants have pushed for DNA testing on their ancestors’ remains.

Forensic Science Solves History’s Mysteries – Part II (cont.’)
Fräulein Unbekannt was actually a young Polish factory worker named Franziska Schanzkowska. Schanzkowska had a history of mental illness (possibly precipitated by an industrial accident in an ordnance factory during World War I).

Fräulein Unbekannt eventually began calling herself Anna Anderson. In 1968, Anderson immigrated to the United States, where she married Charlottesville eccentric Jack Manahan, a professor at the University of Virginia. Anderson died in 1984, and per her wishes her remains were cremated. She had, however, left behind some biological traces in the form of a tissue sample in a Charlottesville hospital and some hairs in an envelope stuck in one of Jack Manahan’s books. These samples would definitely destroy her claim to be Anastasia. In the 1970s, an amateur Russian archaeologist had found the mass grave of the Tsar, his family and four servants under a forest road north of Yekaterinenburg. After the fall of the Soviet Union the grave was excavated and the remains were subjected to DNA testing. This testing showed that the remains included the Tsar, the Tsarina and three of their four daughters. The Tsarevich Alexei and a daughter were still missing. However, if Anastasia had managed to survive, Anna Anderson was not she: The mitochondrial DNA sequence of Anderson’s tissue sample and hairs did not match the Yekaterinenburg skeletons or reference DNA samples from living relatives of the Romanovs. Her mitochondrial DNA sequence did match that of Franziska Schanzkowska’s great-nephew. Finally, in 2007, another grave site was found about 70 meters from the first. This grave contained the fragmentary skeletal remains of an adolescent female and an adolescent male. DNA analysis showed that the remains were almost certainly those of the Tsarevich and the remaining daughter. None of the Romanov family survived the 1917 execution.

As time goes on, we can expect DNA to solve more of history’s mysteries. After all, the list of famous missing persons is large: Benjamin Bathurst (British diplomat), Ambrose Bierce (noted American author), Amelia Earhart (noted American aviatix), the crews of the aircraft of Flight 19, to name just a few.

Further Reading

Alumni News
John Crews, MS ’00, was the subject of a profile in the Columbian College of Arts and Sciences Newsletter (http://www.gwu.edu/~ccas/webdev/newsletter/September2009/crews.html). He is chief of forensic genetics and laboratory director for the non-profit Forensic Anthropology Foundation of Guatemala, which helps identify some of the more than 200,000 persons who lost their lives during political violence in that country from 1960 to 1996. Crews did similar work in Bosnia.

Fraulein Unbekannt—aka Anna Anderson—Manahan, aka Franziska Schanzkowska ( ? - 1984)
The Forensic Science Institute - Summer 2010

About the program
The Crime Scene Investigation (CSI) Institute teaches the scientific knowledge, skills and abilities essential to investigative work. The program is open to students interested or enrolled in The George Washington University forensic science graduate program. It is also open to police, science teachers, and photographers who may use this program to obtain professional certification as a Crime Scene Investigator through the International Association for Identification (IAI). The institute satisfies three of the five courses required for the GW Graduate Certificate in Forensic Investigations. This nine-credit institute packages three online courses with an on-campus lab and special activities for a discounted tuition rate. It enhances participants’ qualifications in a competitive job market and serves as an excellent entry point or continuation of a master’s degree in forensic science. No prerequisites are required.

Online
FORS 251 Crime Scene Investigation I  May 17-June 18
FORS 252 Crime Scene Investigation II  July 7-Aug 8
FORS 207 Photography in the Forensic Sciences  May 17-June 18

Measuring evidence and drawing crime scene diagrams to scale
Photographically documenting the crime scene and the evidence within the scene
Processing fingerprints with powders, chemicals and alternate light sources
Processing 2D and 3D impressions, such as shoeprints in dirt and other substrates
Collecting blood and body fluids and using chemical reagents to enhance their visibility
Preserving and packaging physical evidence
Analyzing blood spatter patterns

On-campus  Aug 9-13, 9 am-noon and 1-5 pm
Labs and course-related exercises
Group investigation and processing of mock murder crime scene
Presentations from experts in the field
Eligibility to take IAI certification exam
Site visit to National Museum of Crime and Punishment
Opening breakfast and closing dinner

Program Director
Edward Robinson spent 25 years in law enforcement with the Arlington County Police Department. He then became supervisor with the Baltimore County Police Department’s Forensic Services Section. Since 2000 he has served as Associate Professor in the GW Forensic Science Department, where he created the CSI concentration. Robinson holds a Master of Forensic Science degree from GW and has authored two books: Crime Scene Photography (2007) and Basic Police Photography Manual (1990).

Laura Ellsworth is Professorial Lecturer in Forensic Sciences at GW.

Supplies and Equipment: All supplies and equipment are provided to students at no additional cost. Students use high-end SLR NIKON cameras.

Housing: There is a wide range of accommodations within walking distance of the Foggy Bottom campus. http://www.summerhousing.gwu.edu;
http://www.gwu.edu/explore/visitingcampus/lodgingdining

Cost $7,347 (9 credits) *This is an estimated tuition cost. The official cost will be posted in March.

Registration To register, contact the Office of Summer Sessions at:
202-994-6360 or gwsummer@gwu.edu.

For more information about the program, please contact Ted Robinson at erobinso@gwu.edu.