Managing Forensic Evidence in the Custody of Museums
Legal Considerations for the Establishment of Guidelines at the National Museum of Natural History, Smithsonian Institution

By

Elizabeth Eubanks
April 2005
"...I want you to run that bug by the Smithsonian, see if they can identify it."

With these instructions FBI Agent Clarice Starling, fictional heroine in the film “Silence of the Lambs,” brought a forensic bug specimen to the Smithsonian’s National Museum of Natural History (NMNH) (Talley 1991). Even in popular culture, the Smithsonian, and in particular the NMNH, is identified as an important resource for the examination of forensic evidence.

Fiction is often based in reality. Staff throughout the NMNH, in fact, examine and analyze evidence for law enforcement and other agencies on a regular basis using their valuable combination of specialized training and access to one of the largest comparative collections in the world. The Smithsonian takes the position that, as a public trust entity, part of its mandate is to serve the public in any way possible, including forensic activities. Webster’s Dictionary defines the adjective forensic as “relating to or dealing with the application of scientific knowledge to legal problems.” Forensic evidence therefore, is evidence that is part of a criminal investigation and requires special handling. Staff at the museum also analyze other materials that are not necessarily forensic, but could have legal implications for the museum. These include biological specimens that are subject to regulatory oversight. Only forensic evidence will be discussed here.
To date, staff have operated largely independently and unregulated by the museum with regard to their forensic activities. The flow of evidence in and out of the museum is usually recorded privately and often stored for extended periods by the individual recipient. On rare occasions, evidence is accessioned into the museum’s collections. Because of the potential legal and ethical implications associated with handling and housing evidence (for both staff and the museum) the NMNH Registrar is beginning to address the need to develop guidelines. This paper examines two key areas necessary for developing this policy: 1) legal issues of evidence handling as it may relate to the museum, including storage and accessioning; and 2) guidelines established by other forensic labs and museums that could be adapted by the NMNH. The NMNH is not alone among museums and universities that handle forensic evidence. Conclusions and recommendations made here will be of benefit to the entire museum community.

Current Forensic Evidence Management in the NMNH

The following brief, open-ended statement is taken from the loans section of the draft copy of the updated NMNH Collections Management Policy (CMP), which has yet to be fully approved by the museum administration and SI legal counsel:

NMNH receives incoming loans of items for forensic identification and analysis from numerous medical, investigative and enforcement agencies. These items and the staff’s associated actions are managed according to Memoranda of Understanding (MOU) or other formal agreements [drawn up privately between staff and] the referring agency.

17.1 Items on loan to NMNH for forensic purposes are subject to the requirements of the applicable MOU or agreement, which supersede routine transaction policy and procedures. These may include stringent requirements regarding access to the item and all associated information as well as specialized requirements for storage, handling and conservation.

17.2 NMNH recognizes the public value of its forensics services and accordingly upholds these requirements.
This constitutes an initial effort by the registrar and collections management staff to recognize the flow of forensic material in and out of the NMNH while the issue is examined.

To begin the process of developing forensics guidelines, the registrar surveyed staff in the museum about their procedures and the needs they expressed to further carry out their forensic work. They found that no unit has its own formal policy for forensic-related objects and procedures for evidence management vary widely, even within the same unit. Many law enforcement agencies have their own policies that they apply to NMNH staff performing forensic services for their agency. Once agency that regularly uses the services of museum staff has created a Memorandum of Understanding (MOU) that covers the scope of work but not the particulars of handling and storage.

The biggest hurdle to establishing guidelines is staff itself—scientists typically chafe under structure and governance by rigid rules or procedures. Scientists in the NMNH do know the limits of protocol with any forensic investigation and are careful not to compromise evidence. In general, however, those interviewed agreed that a forensic policy should be addressed in the official CMP, but preferred that it be generic to provide some flexibility. The actual procedures would be established by the units themselves based on the kind of work they do.

Storage of forensic material varies in the level of security due to lack of facilities and resources. When evidence is considered highly sensitive, it is not left in the custody of the museum but accompanied by law enforcement at all times. In many cases, however, forensic evidence is mailed to the museum and could remain in storage for extended periods while the case is pending. Maintenance of forensic material could potentially have an impact on space, which is limited at the museum. For example, Carla Dove, a feather analysis expert in the
Division of Birds, maintains feather samples for 10 years in the event that they need to be reexamined. Most of her cases come from airplane strikes and are not part of legal investigations, but with an average of 2000 cases per year she has eight to ten file cabinets of important evidence she is currently saving.

Only on rare occasions will NMNH staff record incoming forensic evidence in the NMNH’s automated Transaction Management System, which tracks collections in the museum including official and unofficial loans. In general, staff privately track forensic evidence in their own record-keeping systems or record the information in the tracking systems of the originating agency for security and privacy issues. Staff do not want any requirements to create an automated record of forensic evidence in museum systems, most importantly because of computer security concerns. Some staff expressed the concern that computers can be hacked and information compromised. Should the information be subpoenaed, the “chain of custody” could be questioned.

Legal Aspects of Evidence

The Importance of Chain of Custody

The principle of chain of custody is the establishment that evidence as found in situ is witnessed at time of discovery and that there is a continuous chain of custody up to presentation in a court of law. ‘Chain of custody’ is used synonymously with “chain of security”, ‘chain of evidence,’ and ‘continuity of evidence.’ Obviously the defense can challenge any evidence if the chain of custody is broken at any point in time (Melbye and Jimenez 1997).

Chain of custody questions can relate to not only documentation of transfers and handling but also to the security of the storage areas where evidence is held.
The *Federal Rules of Evidence* cover many aspects of physical evidence collected by law enforcement and prosecuted in Federal courts. Two areas of the Federal Rules of Evidence could pertain to the NMNH. Rule 702 covers the admission of expert or skilled testimony, which would relate to the expertise or qualifications of staff who analyze the evidence. Rule 901 relates to the evidence itself and directs the court to establish whether the evidence introduced at trial is the same as what was collected during the investigation. It is quoted here in part where it may relate to the NMNH:

**RULE 901. Requirement of Authentication or Identification**

901(a) The requirement of authentication or identification as a condition precedent to admissibility is satisfied by evidence sufficient to support a finding that the matter in question is what its proponent claims.

901(b) By way of illustration only, and not by way of limitation, the following are examples of authentication or identification conforming with the requirements of this rule: …

3. Comparison by trier or expert witness. Comparison by the trier of fact or by expert witnesses with specimens which have been authenticated.

4. Distinctive characteristics and the like. Appearance, contents, substance, internal patterns, or other distinctive characteristics, taken in conjunction with circumstances.

In following this rule, trial courts generally do not decide whether the item is admissible by a preponderance of the documentation and chain of custody; rather, the court decides only whether sufficient proof has been introduced for a ‘reasonable’ jury to trust the evidence (Giannelli 1996:458). In fact, some courts have adopted the stance that a strict chain of custody is not required for admissibility under this rule. The Fifth Circuit Court has written that ‘chain of custody goes to the weight rather than the admissibility of the evidence, and is thus reserved for the jury’ (Giannelli 1996:459). In *United States v. Ladd*, the First Circuit decided as follows for some evidence poorly handled by a lab:
In the last analysis, the prosecution’s chain-of-custody evidence must be adequate – not infallible. Here, some links in the chain were rusty, but none were missing. Without question, the defense succeeded in showing a certain sloppiness, regrettable in a forensic laboratory. Yet the net effect of any such disarray on the authenticity of the evidence depended on what inferences a reasonable factfinder might choose to draw from it (United States v. Ladd, 885 F2d 954 (1st Cir. 1989)).

The above ruling was recently upheld in United States v. Ingram (No. 02-10360-RWZ, 200 U.S. Dist. LEXIS 15913 (D. Mass., September 12, 2003)), a case involving some “rusty” links in the chain of custody of some bullets. Other federal courts of appeal, however, continue to apply the ‘reasonable probability’ standards that applied before the Federal Rules of Evidence were adopted (Giannelli 1996:459), which are more strict than the Federal Rules of Evidence.

Some states have adapted the Federal Rules of Evidence for their own use. Many of these adaptations specifically address chain of custody. For example, the Tennessee Rules of Evidence 901(a) states “…as a condition precedent to the introduction of tangible evidence, a witness must be able to identify the evidence or establish an unbroken chain of custody.”

In one Tennessee case, State of TN v Goodman, a chain of custody question was applied to remains handled by a well-known forensic anthropologist, Dr. William Bass, at the University of Tennessee. The defense contended that the chain of custody of some badly burned remains sent from the medical examiner to Dr. Bass, who subsequently sent portions to another anthropologist in Maryland, had been broken. Therefore, the jury should not have trusted that the remains tested by the anthropologists were the ones the Medical Examiner sent. In this case, the court ruled that “given the distinct characteristics of this corpse [burned], as compared to the other corpses being examined at the UT [University of Tennessee] Hospital, it is obvious the corpse these doctors examined was the same one. . . The chain of custody was thoroughly
established and this issue has no merit” (State of TN v Goodman, 643 S.W.2d 375 (TN Crim. App. 1982)).

In this case, it was the uniqueness of the remains that established their chain of custody. In general, a search of countless court cases on the state and federal level revealed that chain of custody truly became an issue with toxicology and DNA evidence or for evidence that is not unique in nature. Could this apply to a mix-up of remains of the same age and sex? While I found no cases involving chain of custody errors by museum staff, and only the Tennessee case for a physical anthropologist, there may be other instances where the chain of custody was questioned before trial and the evidence ruled inadmissible.

While SI staff would not be prosecuted under evidence laws for poor chain of custody, the reputation of both the museum and the staff would be harmed. A lawyer with the US Attorney General’s Office noted that poor chain of custody could be a disaster for a case being prosecuted. He has never heard of problems with chain of custody in museums or universities doing forensic work on the side, but other labs devoted to forensic analysis have had credibility problems. He felt that forensic lab standards are now widely followed and quality issues could embarrass the museum if a standard protocol was not developed.

A professor in the George Washington University Law School (Anonymous, personal communication 10/30/2003) cited problems with the Houston Police Department’s toxicology laboratory, which has been temporarily closed due to questions of competence. As an example, he gave a personal experience with the Houston lab. He had requested tissue samples saved on slides by the lab as part of a reexamination of a case for the victim’s family, but sloppy storage and poor marking on the slides made the family question whether they were the right sample. In this case, the family’s investigation was affected by poor chain of custody. He likens museums
to medical examiners offices, which are not under rigid control. While he has not heard of
instances where a museum or university got in trouble for forensic evidence handling, there are
plenty of cases in the medical examiner’s field where improper handling has resulted in
embarrassment and impairment of evidence admissibility. He cited the Washington, DC, Office
of the Chief Medical Examiner (OCME), recently the subject of an investigation by the DC
Office of the Inspector General for possible management oversight (Maddox 2003). In the final
report on the inspection, the Inspector General noted that the OCME was lacking in a number of
key areas of evidence management, including official policies and procedures, tracking systems
for evidence and quality assurance standards (Maddox 2003:24).

**Maintenance of Laboratory Data**

All of the laboratory managers I interviewed agreed that a data management system for
evidence was essential for the chain of custody but it did not have to be in electronic form. A
member of the board of the American Society of Crime Laboratory Directors (ALSCD)
(Anonymous, personal communication, 11/19/2003), stated that a notebook was sufficient for
recording and tracking information about the material. Some NMNH staff members prefer
record keeping in notebooks stored under lock and key because they felt it to be more secure
than computer systems.

An official of the C.A. Pound Human Identification Laboratory (Anonymous, personal
communication 11/17/2003) advised care in what was recorded, such as preliminary conclusions
or thoughts, because any noted changes in the analyst’s thinking could be questioned if the
records were subpoenaed. A subpoena is a written legal directive that must be complied with.
“A subpoena *duces tectum* is a subpoena covering all written records as well as compelling the
presence of the witness.” (National Fish and Wildlife Forensics Laboratory 2001:12).
**Sampling and Disposition of Evidence**

The museum may wish to remove samples from the evidence for microscopic examination or other analysis. Alterations of the item could lead to its inadmissibility if the changes are substantial enough to affect the relevance of the evidence (Giannelli 1996:447). “The Federal Rules of Criminal Procedure (1989) and the American Bar Association’s standards for criminal discovery provide that, whenever an expert intends to conduct tests that may destroy the subject, or otherwise dispose of relevant physical objects, opposing counsel should be informed prior to the test.” (Galloway, et. al 1990:444). Therefore, if all parties agree, sampling would be permitted.

One question posed by the NMNH registrar was whether there should be any restrictions placed upon evidence officially acquired by the museum. I posed this question to a lawyer familiar with evidence laws in the U.S. Attorney General’s office (Anonymous, personal communication, 11/7/2003). In his opinion, the evidence does not require special maintenance or restrictions if it has been released completely by the legal system, any owner(s), and, in the case of human remains, families, for acquisition by the museum. If the evidence is still considered to have legal importance by a state or the federal government, it needs to be maintained securely and restricted to limited official use. States have varying statutes on the maintenance of evidence for the purposes of appeal.
Established Guidelines for the Handling of Forensic Evidence

The Highest Standards for Forensic Evidence Management

The American Association of Crime Laboratory Directors - Laboratory Accreditation Board (ASCLD/LAB) has established strict guidelines for the management of forensic labs. The following summarizes the accreditation standards:

The ASCLD/LAB program places a premium on evidence integrity. The laboratory must provide secure long- and short-term storage capacities. Evidence in long-term storage must be under proper seal and evidence in short-term storage must be protected from loss, contamination and deleterious change. The main organizational aspects of meeting these standards are evidence retention and control of access to unsealed evidence. Evidence retention is a major problem for many laboratories... Examples of practices to deal with the problem include a laboratory service which delivered evidence from completed cases back to the originating police offices on a weekly basis, a routine destruction of evidence over a year old unless an active instruction is received from a senior police officer or prosecutor, and a routine screening of information on the jurisdiction’s Justice Information System to identify cases disposed of. (Tilstone 2000:71)

Most labs around the country are not up to the ASCLD/LAB accreditation standards, even those devoted to forensic examination. Accredited labs are an elite group with adequate time and resources. An official with the National Fish and Wildlife Forensic Laboratory (NFWFL) (Anonymous, personal communication, 11/12/2003) stated that his lab is ASCLD/LAB-accredited to limit any questions about the competence of staff or security of evidence, even though the high standards are very time consuming to follow. As a former defense attorney, he found that Federal institutions do most of their work for the prosecution, which relies on evidence integrity.

Much of the ASCLD/LAB requirements would be impossible, impractical, and even unnecessary for the NMNH to follow. However, some of the basic tenants could be adopted. Accredited labs have a high level of security. For example, “visitors (including
all service personnel) must be documented and escorted at all times to protect the integrity of evidence testing and chain of custody. Scientific personnel should have access restricted to only those specific areas that their work requires. After-hours security should deter and detect any unauthorized entry to the laboratory. A convenient method of restricting access and recording entry is by the use of key cards connected to a central computer system for logging” (Smith and Kidwell:60). The simplest method of security is for analysts to have a personal secure locker that they and only they can access. A back-up key can be retained under seal for emergency access (Tilstone 2000:72). Should the NMNH decide to set aside space specifically for forensic evidence, these basic security needs could be met.

When a lab receives evidence, strict guidelines are in place for sealing and unsealing forensic evidence:

“When an evidence container is opened and the evidence examined by a forensic scientist, that person must label each piece of evidence with the laboratory’s case number and item number and affix his or her name or initials and the date and time that the evidence was opened. When the analysis is complete, the evidence must be resealed in a tamper-evident manner. This is often accomplished by the use of evidence tape, which is specially designed to stick tightly and shred when attempts to remove it are made. When any type of tape is used, the analyst should put his or her initials and the date and time across the tape so that part of the writing is on the tape and part is on the package. This ensures that, should the tape be removed, it will be difficult to replace without leaving evidence of its removal.” (Siegel 2000:410)

Published Guidelines for Forensic Anthropologists

The study of human skeletal remains is known as physical anthropology. Among physical anthropologists, most of whom are employed by universities, many also provide forensic services for law enforcement. Forensic anthropologists, as they are known, are often very active with cases. The NMNH employs a number of highly respected forensic
anthropologists, although their forensic work is considered a side activity to their primary research interests. Among SI staff who perform forensic examination, the forensic anthropologists are the most active and often the most visible to the public. Forensic anthropologists are highly aware of the legal and ethical considerations of forensic investigation as they are often called to testify about their role in the investigation. Published guidelines for evidence management by forensic anthropologists are applicable and practical for museums to adopt because they are geared toward experts who are usually operating in universities or university-like museums such as the NMNH where forensic activities are secondary.

Foremost is the chain of custody requirements. Galloway, et all (1990:43) recommend that a chain of custody document include: 1) the law enforcement or medical examiner case number; 2) the time and date of each transfer; 3) the items under consideration; 4) the signature of the person relinquishing the custody, initially the coroner, medical examiner, or the law enforcement officer in charge of the scene; and 5) the signature of the person receiving custody. “Without the ability to document each custodial stage in the process from crime scene to final disposition, evidence may be jeopardized and the anthropologist accused of mishandling the remains.” (Galloway, et. al 1990:43)

Secure storage is also an important issue with the warning that “failure to maintain secure conditions will provide grounds for the opposing attorney to question its admissibility since items may have been altered or lost” (Galloway, et. al 1990:43). Melby and Jimenez (1997) advise keeping the law enforcement evidence seal in place until examination is started. During examination, visitors and personnel not directly involved should be kept to a minimum. When not in immediate use, all evidence should remain under lock and key, with the expert keeping the only key. After examination, the evidence should be immediately sealed.
Ideally, evidence would be returned to law enforcement after analysis. Often, forensic anthropologists store remains or portions of remains until the medical examiner has made final determination for their disposition. “Those bones which bear vital evidence of specific peri-mortem trauma or establish identity in a case in which positive identification is likely to be contested may be retained after the remainder of the remains are returned to the family for burial. This can only be done, however, with the express permission of the medical examiner and with the knowledge of the investigators. The chain of custody should then reflect which bones are returned and which have been retained” (Galloway, et. al 1990:44).

Survey of Current Forensic Evidence Management in Museums

The Florida Museum of Natural History at the University of Florida, Gainesville, curated forensic human remains before the establishment of the of the C.A. Pound Human Identification Laboratory (CAPHIL) in the university’s Department of Anthropology. Their 1995 collections policy contained statements regarding the forensic material when it was managed at the museum. The following is from their Incoming Loans section:

“Objects sent to the museum for forensic identification by law enforcement agencies constitute a special class of loans. Because they may be used as evidence in court cases, access to forensic objects must be limited to those Museum staff members directly involved in their identification so as not to jeopardize legal chain of custody. When not being examined, forensic evidence objects shall be stored in locked cabinets or other secure facilities.”

Return of the forensic material was at the discretion of the curator and in agreement with the sending agency. Now that the forensic operations have moved from the Florida Museum of Natural History to the CAPHIL, this portion of the policy has been removed. As with all established forensic labs, the CAPHIL is concerned with security and chain of
custody. They house remains from active cases as well as donated material for examination by staff and graduate students. The policy on all material, even when donated, is to restrict access for chain of custody and in the event that the case is reexamined (Anonymous, staff member of C.A. Pound Laboratory, personal communication 11/17/2003).

So far, the Florida Museum of Natural History is the only museum I have found with a collections management policy that specifically addresses forensic activities. I spoke with collections managers from two of the country’s larger museums likely to do forensic work, the American Museum of Natural History (AMNH) in New York and the Field Museum of Natural History (FMNH) in Chicago. A collections management official at FMNH (Anonymous, personal communication 11/18/2003), said that his museum, much like NMNH, does not have a policy specifically addressing forensic evidence nor any established protocols. He expressed interest in policies developed by the NMNH. A collections management official at the AMNH (Anonymous, personal communication 11/18/2003), said that the museum does not allow forensic material in the building expressly because of the issues surrounding the handling of evidence.

**Conclusion and Recommendations**

The forensic work of the Smithsonian is highly visible and well respected nationally. An official in the Ohio Bureau of Criminal Investigations, also a member of ASCLD, expressed admiration for the NMNH and its promotion of the forensic sciences during conversations with me (Anonymous, personal communication 11/19/2003). The NMNH is committed to the forensic services performed by the staff and has recognized a need to establish guidelines, not
only to protect staff and the institution but also to provide information to agencies requesting forensic services.

The most vital part of any museum’s responsibilities in handling evidence is to protect the chain of custody. Poor chain of custody can potentially render evidence inadmissible under the Federal Rules of Evidence and state laws. Court rulings have established the position that the chain of custody does not have to be infallible if the evidence is unique in nature. Courts have also ruled that minor lapses in the chain of custody, even for evidence that is not unique, affect the weight the jury will place on evidence rather than its admissibility. However, the NMNH should avoid any questions regarding chain of custody and quality assurance, particularly because of its national visibility and stature. Staff and the museum could be held accountable and subject to lawsuits.

Chain of custody requires secure storage and transport, restricted access, and careful documentation. Records maintained by staff can be electronic or paper-based as long as they are secure. Should the records be subpoenaed, staff will be required to demonstrate that the integrity is intact. ASCLD/LAB considers established guidelines to be critical in managing the integrity of evidence, both to inform staff about proper procedures and to demonstrate commitment to quality.

On a few occasions, evidence has been accessioned into the museum’s collection. If the evidence is legally cleared by the court and any interested parties (e.g. the victim, the victim’s family, or the state) for accessioning, the museum is not under any obligations to maintain special care.
Recommendations for Managing Forensic Evidence in Museums

The current draft of the NMNH’s collections plan places responsibility for evidence handling procedures on the referring agency. Research into the legal and professional issues of forensic evidence management has led me to believe that the NMNH should take a more proactive role. The following recommendations would be possible for any museum to adopt.

- All Memoranda of Understandings (MOUs) between a museum and the referring agency should be for the protection of the scientist and the museum. Ideally, the museum’s legal counsel would be involved to craft MOU templates that are customized for the needs of each unit. MOUs would be used in all cases so that the referring agency understands the museum’s limitations with evidence management.

The collections management plan should provide guidelines that can be instituted museum-wide and mandate units to develop more specialized guidelines suited to their needs. The details of the referring agency’s instructions can be handled at the unit level, but some procedures, such as tracking and storage, should be automatic and universal.

- In my opinion, all evidence from active or potentially active cases should have the chain of custody protected in a standardized way if it is housed in the museum for any length of time. The policy statement developed by the Florida Museum of Natural History is a good example. In their policy, staff are directed to limit access to the evidence and keep it secure at all times. To ensure chain of custody, the museum should provide secure and highly controlled space for housing evidence in each unit. Storage in a locked office is not as secure as locked cabinets with restricted keys.
Too many people not involved with the forensic cases can potentially have access to a locked office.

- Management of records should be kept at the unit level and highly restricted. Staff should not be required to enter data into an automated system managed by the museum. Handwritten notebooks locked in a cabinet can be more secure than computers attached to a network.

- Accessioned evidence that has been completely and legally released to the museum does not require any restrictions, although the museum may wish to place special controls on it. The CMP should contain instructions about how accessioned evidence and the associated documentation is to be handled.

As a final thought, I believe that the museum would greatly benefit from developing lab space for staff to securely handle and house evidence. In recent years, forensics have become a hot topic and the museum’s forensic activities, particularly those of the anthropologists, are well publicized in print and television. Development of a laboratory devoted to forensic activities in the museum could only enhance the reputation of the staff and the Smithsonian, but also ensure a safe and secure environment for these activities.
REFERENCES

Florida Museum of Natural History

Galloway, Alison; Walter H. Birkby, Tzipi Kahana, and Laura Fulginiti

Giannelli, Paul

Maddox, Charles C., Esq.

Melbye, Jerry and Susan B. Jimenez

National Fish and Wildlife Forensics Laboratory

Siegel, J. A.

Smith, F. P. and D. A. Kidwell

Talley, Ted

Tilstone, W. J.
Personal Interviews

(Permission to publish most names not requested in time for publication)

Anonymous, Collections, American Museum of Natural History, NY.  11/18/03

Anonymous, National Fish and Wildlife Forensics Laboratory, Ashland, OR.  11/12/03

Anonymous, Ohio Bureau of Criminal Identification/Investigation, London, Ohio and American Society of Crime Laboratory Directors. Interviewed 11/19/03


Anonymous, C.A. Pound Human Identification Laboratory, University of Florida, Gainesville. 11/17/2003

Anonymous, The George Washington University Law School, Washington, DC. 10/30/03

Carla Dove, Specialist, Division of Birds, NMNH. 10/30/03