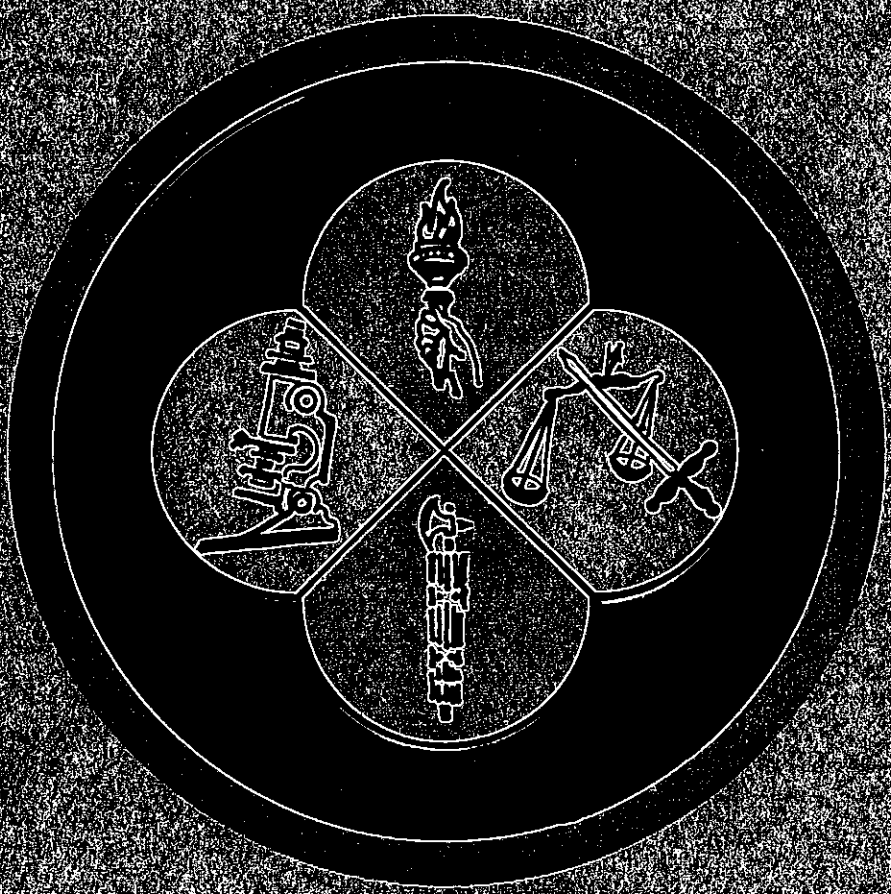
THE NEWSLETTER of



MARCH 1984 VOL 10 NO 1

NORTHWEST ASSOCIATION OF FORENSIC SCIENTISTS

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Upcoming Meetings

SPRING 1984

May 2, 3 & 4

North Shore Motor Hotel
Coeur D'Alene, Idaho

Program Chairman:
Wally Baker
2220 Old Penitentiary Rd.
Boise, ID 83702

FALL 1984

October 3, 4 & 5

Holiday Inn
Medford, Oregon

Program Chairman:
Brad Telyea
650 Royal Ave., Suite 11
Medford, OR 97501
(503) 776-6118

SKELETAL REMAINS: JUDGING THE TIME OF DEATH.

By John Lundy, Ph.D.
Deputy Medical Examiner and
Forensic Anthropologist
Medical Examiner's Office
Portland, Oregon

In most death investigations, the time of death is estimated on the basis of factors such as livor mortis, rigor mortis, core body temperature and vitreous fluid from the eye. However, even these often used criteria may provide questionable results and are always open to debate. They are no substitute for eyewitness accounts or other direct evidence.

When the body is not in a fresh state, estimation of the postmortem interval can be made on the basis of the degree of putrifaction, taking into consideration factors such as climate, recent weather and the surrounding environment. Insect activity may provide information as to the time of death, but it is wise to consult an entomologist about such matters. In certain cases, clothing associated with the remains may provide a clue as to the season or type of weather which prevailed when the death took place.

But what can one do when presented with only bones, or in some cases, parts of bones? Obviously, one is limited in estimating the postmortem interval from skeletonized material. Dr. T. Dale Stewart has outlined a set of observations upon which he bases his impression of the time since death: they are the presence or absence of odor and its intensity, soft tissues and their locations, adherent earth, adherent vegetation, adherent insects (both living and dead), evidence of postmortem animal activity, stains and bleaching of the bone, and the formation of adipocere.

The odor of decay usually persists after the soft tissues have disappeared, but here again, the length of its persistence and its intensity may be dependent upon variables such as exposure of the site to the elements, if the remains were in water, etc. As for the soft tissues, cartilage at the joints is usually the last to disappear.

Soil can be examined for chemical content and vegitation can be helpful in estimating time of death in some cases. For instance, if leaves are found under the remains, they might reveal the time of year the body came to rest there. The examination of insect material, as with a more complete body, should be left in the hands of a trained entomologist.

Postmortem animal activity can not only deflesh bones, but scatter them in all directions from the original site. In attempting to obtain the marrow in the shaft of long bones, carnivores will destroy the ends of the bones. Dr. Dan Morse has studied the effects of animal activity on the scatter of bones. He found that three weeks after death the bones were still articulated and there was no scatter in one case. Another case, found four years after death, the scattering was over a 30 foot diameter area and the skull and femora were not found.

Staining and bleaching of bone are very dependent upon the surrounding environment. Staining usually occurs when minerals and chemicals in the soil or surrounding water leach into the bone itself. There have been no studies done to provide sufficient data on how long staining might take after the time of death. Bleaching of bone, can take place rapidly under the right circumstances. For instance on the surface of the Kalahari Desert in Southern Africa, a bone may bleach white in a very short period of time after the soft tissues disappear. However, in an Oregon forest where sun may never reach the forest floor, one is more likely to see moss-green

staining on the exposed surfaces of bone. In some cases, it is possible to see a combination of staining and bleaching on the same bone, as was the case with a skull found in the sand on the Columbia River. Staining and bleaching of bone should not be considered accurate indicators of age when dealing with skeletal remains.

Adipocere is composed mainly of fatty acids formed during postmortem hydrolysis and hydrogenation of adipose tissues. Adipocere may begin to form a few days after death, but according to Stewart, it does not become visible until about three months after death. Adipocere usually forms only in moist environments (Oregon?) and would not be seen on skeletal remains in arid regions such as Arizona or New Mexico.

The general concensus of workers is that under optimum conditions, a corpse will almost completely skeletonize in about two weeks after death. This would be an environment of high humidity, warm weather, and the remains on the surface. Most of the soft tissue loss would be due to insects. In climates such as Florida, where studies have been done, the range for skeletonization is from a minimum of two weeks to a maximum of about eight months. In the Pacific Northwest, one might expect complete skeletonization to take from one to two years, with defleshing faster in the spring and summer and retarded in the fall and winter.

Residual bone nitrogen may aid in estimating the age of bones after death. Since nitrogen is contained only in proteins in the bone, the amount remaining in bone provides a rough estimate of the length of time since death.

Materials associated with skeletonized material such as fabric, buttons, etc. have proven useful in estimating the time of death. Historical archaeologists have dated burials based upon button types, belt buckles and other associated items. Work has been done by Dr. Dan Morse on the rate of deterioration of fabrics, both man-made and natural. Other materials he has studied are paper, leather, plastic and human hair. While far more study is in order, the early results are promising.

Being able to obtain a reasonable estimate of the time of death in cases of skeletonized remains affords one a better chance of matching the remains to reported missing persons. This is true in both criminal cases and non-criminal deaths such as lost hunters, etc. However, as you can see, the extreme limitations of what the anthropologist can do make very clear the fact that in many cases involving skeletal remains, estimation of the time since death is little more than an educated guess.

Suggested Reading:

Stewart, T.D. (1979) Essentials of Forensic Anthropology, Charles C. Thomas, Springfield.

Morse, Dan, Jack Duncan and James Stoutamire (1983) Handbook of Forensic Archaeology and Anthropology, Rose Printing, Tallahassee.

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DISASTER HANDLING

A Reference Outline

Lawrence L. Renner

New Mexico State Police Crime Laboratory

In response to the feedback received on the questionnaire and from personal dialogue following my presentation relating to my experience with the 1980 New Mexico State Penitentiary Riot, at the SAFS/SWAFS meeting in Little Rock, Arkansas, I am submitting the following for your personal reference files.

Disaster Handling

I. Background
   - A. Determine the type of disaster
     1. Minor - five or less deaths
     2. Major - six or more deaths
   - B. Ascertain the location and climatic conditions
   - C. Acquire any statistics and history on the general situation i.e., floor plan, numbers of individuals present, etc.

II. Pre-scene Activities - Make arrangements for
   - A. Security
     1. Scene - General Area
        - a) perimeter - allow entry to persons with official business only
        - b) personnel - armed personnel with restraint capabilities should accompany lab staff in order to relieve staff of all responsibilities other than processing the scene
        - c) Lock-up - a safe area for individuals needing containment
     2. Scene - Specific Area
        - a) determine estimated time unprotected i.e., time from occurrence to occupancy
        - b) maintain security (see II, A, 1) until lab has completed processing and releases scene
   - B. Triage Center - for the purpose of
     1. Identify condition of individuals involved
        - a) well
        - b) injured
        - c) dead
     2. Relocation arrangements - location and transportation to
        - a) containment area - within walking distance
        - b) medical facilities - ambulance, truck, helicopter
        - c) morgue facilities - ambulance, truck, helicopter
   - C. Communications
     1. Telephone and/or radio should be present at scene, triage center, medical facility and morgue facility
     2. Portable telephone trucks can be used to fill any gaps (contact local telephone companies)
   - D. Auxiliary locations
     1. Evidence to crime laboratory
     2. Bodies and body parts to morgue with x-ray, autopsy, and cooler/ refrigeration capabilities

NOTE: General formula for a Major Disaster - four (4) refrigeration trucks for each 80+ bodies

- 1 truck for adult males
- 1 truck for adult females
- 1 truck for miscellaneous parts
- 1 truck for cases completed/released

E. Auxiliary Personnel - on stand-by basis
   1. Next of kin
      a) identification (physical, medical, jewelry, etc.)
      b) funeral home arrangements
      c) grief counseling (see II, E, 3, c)
   2. Local Police I.D. Department or F.B.I. - for fingerprint assistance
   3. Medical Examiner
      a) identification by police records, dental charts, x-ray records, fingerprints
      b) establish procedure for notifying next of kin
      c) responsible for grief counseling (see II,E,1,c)
   4. Law Enforcement - National Guard
      a) security
      b) assist lab staff with processing scene (under direction)
      c) transportation and food
   5. Non-Law Enforcement Specialists (Firemen, Physical Anthropologist Forensic Odentologist, etc.)
      a) advise on safety of burned areas
      b) search for and physically reconstruct bones
      c) match individuals and objects to bite marks and bruises (photo enhancing)

F. Auxiliary Equipment
   1. Camera, flash, film, fresh batteries
   2. Body evidence bags vs body crash bags ($10.00+ vs $50.00+)
   3. Seals, tape, tape measure, marker, clip board, 3x5 cards, paper
   4. Block of consecutive case numbers
   5. Portable flood lights
   6. Gas masks, surgical gloves, surgical masks and odor blocker (contact me personally for observations on various odor blockers)
   7. Knee boots, snow boots
   8. Weapon or personal armed guard

III. Scene

A. Teams - order and activity
   1. SWAT - to clear and secure area (prior to)
   2. Crime Laboratory - to process; including photos, diagrams, and evidence collection (see III, B, 2, c) (prior to)
   3. Medical Examiner
      a) inside scene - two staff to each body; photo body and area, tag for location, I.D., injuries, bag, transport to triage center (by National Guard)
      b) triage center - one staff; initial I.D. photo (poloroid), assignment of numbers, log maintenance, seal bags, supervise storing of bodies pending transportation to morgue

B. Anticipated
   1. Problems
      a) unauthorized persons present (inmates, police, legislators, clergy, clean-up, and contractors)
      b) fire, smoke, tear gas, water, darkness
      c) time pressure from other agencies
      d) lack of organization in command/co-ordination of scene activities

2. Recommendation
   a) secure area (both inside and outside)
   b) designate one person to be in charge of scene and release in the following order:
      (1) secure area
      (2) admit crime lab
      (3) admit medical examiner
      (4) admit all others (see III,B,1,a)
   c) crime lab process as a normal crime scene (two lab staff per each death)
   d) STAY COOL, DON'T RUSH, DON'T PANIC

IV. Post Scene
   A. Morgue
      1. One person responsible for log, count, and location (use large wall chart)
      2. Preliminary description (easiest first)
      3. Detailed description (easiest first)
   B. Medical Aspects
      1. I.D. board/chart - include notes on
         a) location (for re-check)
         b) physical description
         c) dental
         d) tatoos
         e) old fractures
         f) fingerprints
      2. Pre-death factors - complete homicide work-up autopsy including toxicology and carbon monoxide level
      3. Reconstruction of injuries - utilize milar tracings, photos, and photo enhancing
      4. Documentation for teaching materials
      5. Anticipation of litigations and allegations
   C. Court trials - anticipate minimum 3-5 years prior to trial

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canadian society of forensic science la société canadienne des sciences judiciaires
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FIRST ANNOUNCEMENT — 31st ANNUAL CONFERENCE

Viscount Gort Flag Inn
Winnipeg, Manitoba

AUGUST 18 - 24, 1984

A week long scientific program featuring research papers, seminars, demonstrations, exhibits, and workshops including:

Statistics in Forensic Science:
a two-day course relating four statistical concepts to specific forensic disciplines.

Disaster Planning:
a two-day medical workshop.

INFORMATION:

Executive Secretary
613-235-7112

PRESIDENT:

Dr. K. Wayne Hindmarsh

Please add my name to the mailing list for further details.

NAME: .....

ADDRESS: .....

.....

.....

.....

I am interested in attending the 1984 Conference ( )

I woud like to:

Present a paper ( )

Exhibit ( )

(Return to above address)

The Spring meeting of the Northwest Association of Forensic Scientists will be held at the North Shore Convention Center in Coeur d'Alene, Idaho on May 2, 3, 4, 1984. A call for papers abstract appeared in the November 1983 Newsletter. As yet, we have not received any responses from our members The success of our meetings depends on the participation of our members, so please submit your abstract to:

Wally L. Baker
Program Chairman
Forensic Section
2220 Old Penitentiary Road
Boise, ID 83712

NORTHWEST ASSOCIATION OF FORENSIC SCIENTISTS

Spring Meeting

Coeur d'Alene, Idaho

May 2-4, 1984

CALL FOR PAPERS

NAME_____

ADDRESS_____

_____PHONE_____

TITLE OF PAPER_____

ABSTRACT_____

_____

_____

_____

_____

_____

ESTIMATED LENGTH OF PRESENTATION_____

AUDIO-VISUAL EQUIPMENT NEEDED_____

_____

_____

Send to:

Wally L. Baker, Program Chairman
Bureau of Laboratories, Forensic Section
2220 Old Penitentiary Road
Boise, ID 83702
(208) 334-2231

"THE MEANING OF THE LOGO"

The color scheme is in three parts: Gold meaning Science, Blue meaning Truth and Purple meaning Justice.

The four pictures of equal balance are The Scales of Justice, The Torch of Knowledge, The Microscope denoting Criminalistics or Forensic Science and The Fasces, the Symbol of Authority.

The Association's name is part of the Logo and the pharmaceutical symbol  denotes the Association as having scruples.

The Editor

THE NEWSLETTER

A Newsletter published by the Association dedicated to the:

1. encouragement of the exchange of ideas and information within the field of forensic sciences through improving contacts between persons and laboratories engaged in the forensic sciences;

2. stimulation of research and the development of new and/or improved techniques; and

3. promotion of the improvement of professional expertise of persons working in the field of forensic science.

SUGGESTIONS FOR CONTRIBUTORS

The Newsletter includes the following regular features:

1. Correspondence and inquiries (letters)
2. Methodological notes (bench top)
3. Abstracts of papers presented at NWAFS meetings
4. Short technical reports
5. Case reports
6. Employment opportunities
7. News of meetings, schools, workshops, training opportunities
8. Legal news
9. Editorials

Contributions should be titled, include author credits and any pertinent references. The contributions should be typed, single spaced, on plain white paper and compacted as much as possible.

Submit all contributions to the Newsletter Editor:

George K. Matsuda
Oregon State Police Crime Laboratory
1111 S.W. 2nd Avenue, Room 1201
Portland, OR 97204

The Newsletter is published four times a year. Contributions should be submitted by February 1, May 1, August 1 and November 1, each year.