



CRIMEScene

Newsletter of the Northwest Association of Forensic Scientists

WINTER 2008

VOLUME 34 ISSUE 1



Fresh capitata stalked glandular trichomes of *Cannabis sativa* contain cannabinoid resin. Inset: positive Duquenois-Levine test for cannabinoid resin.

Image provided courtesy of Thomas Homan, Oregon State Police, Portland Forensic Laboratory

INSIDE THIS ISSUE:

President's Message.....	2
NWAFS 2007 Business Meeting Minutes.....	3
John M. Browning Firearms Achievements.....	7
Former President's Message.....	8
Nuclear Fast Red Stain: History & Use.....	9
NWAFS 2008 Meeting Info.....	12
DNA From Badly Burned Bodies.....	13
Caption This.....	14



PRESIDENT'S MESSAGE

MATTHEW NOEDEL

This year will mark a transition for our organization. With the on-line distribution of our Newsletter, we are on the cutting edge of using the internet and technology to communicate with our 300 or so members. I would encourage everyone involved with the NWAFS to visit the web site at:

www.nwafs.org

There, members can register to become participants in our secure on-line forum through Yahoo Groups. This is an excellent way to communicate with your peers in the Northwest Association. Also, this group can be used to post questions, suggest new or innovative scientific techniques, or just catch up with friends within the group.

NWAFS Conference-2008

If you haven't heard yet, the 2008 conference will be in Boise, Idaho, the week of November 3, 2008. It has been a few years since we launched a meeting without the support of other organizations so a strong showing at this conference can really put the NWAFS back on the map. Boise is a great city and the host committee is working out details that will make this meeting attractive to all of our members. Look ahead to November and plan to attend the conference or better yet, prepare a presentation or develop a workshop. The NWAFS is a great place to present for the first time and build your professional resume!

New Life Member

I want to congratulate Lisa Caughlin in her recent award of life member to the NWAFS. In the past, Lisa worked hard for our organization serving on the board, hosting meetings, and promoting the association. It is an honor to see her get the recognition she deserves for serving the NWAFS.

Parting Notes

Lastly, I want to extend an invitation to all our members to get involved in shaping and developing the NWAFS. As our organization continues to support forensic science in the Northwest region, we need fresh ideas and suggestions as to how the NWAFS can best serve you. I challenge you to think about what the NWAFS could provide for you that would help you in forensics and to send a quick email outlining those ideas. As President, I am eager to incorporate new ideas into the fabric of the NWAFS so that our organization remains a contemporary and useful entity to the scientists working in our demanding field.

Thanks for your time and I hope to see you in Boise,

Matthew Noedel, NWAFS President
mnoedel@att.net



**Minutes
NWAFS Business Meeting
Salt Lake City, UT
November 8, 2007**

Called to order at 5:04p.m. by President, Rocklan McDowell

Rocklan McDowell recognized Jay Henry for his outstanding devotion to the organization of the 2007 meeting.

16 voting members required to hold quorum, 20 voting members present. List of members in attendance made by Membership Secretary, Skyler Anderson.

The 2006 Meeting Minutes were published in the Winter 2007 Newsletter.

Motion to accept the minutes made by: Matt Jorgenson.

Second by: Andrew Pacejka

Minutes accepted by unanimous vote.

President – Rocklan McDowell

- Thanked everyone in attendance for participating in the 2007 meeting.
- Recognized Jay Henry and the Utah State Crime Lab for hosting the 2007 Meeting.
- Introduced the Board Members.

Vice President – Matt Noedel

- Nothing to report.

Member at Large – Matt Jorgenson

- Nothing to report.

Editorial Secretary – Kori Barnum

- Nothing to report.

Technical Resources Secretary – Bahne Klietz

- Not present, nothing to report.

Treasurer – Shannon Larson

Not present, report given on Shannon's behalf by Skyler Anderson:

Account Balances as of 09/30/07:

- | | |
|------------------------------------|-------------|
| • Checking: | \$30,926.11 |
| • Savings: | \$19,382.22 |
| • Dreyfus and Investment Accounts: | \$24,793.93 |
| • Total Assets: | \$75,102.26 |

Expenses for period of 10/30/06 through 09/30/07:

- | | |
|-----------------------------|-----------|
| • Newsletter expenses: | \$2372.84 |
| • Website: | \$ 225.00 |
| • Postage (non-newsletter): | \$ 236.97 |
| • Accountant: | \$ 235.00 |
| • Office Supplies: | \$1355.62 |
| • 2006 Fall Meeting: | \$1880.88 |
| • Total Expenses: | \$6306.31 |

Income for period of 10/30/06 through 09/30/07:

- | | |
|------------------------------|-----------|
| • Dividend income (Dreyfus): | \$1407.75 |
| • Interest Income (Savings): | \$ 144.78 |
| • Membership Dues: | \$7525.00 |
| • Total Income: | \$9077.53 |
| • Total Income and Expenses: | \$2771.22 |

Motion to accept the Treasurer's Report made by: Rocklan McDowell

Second by: Robert Heegel

Report accepted by unanimous vote.

Minutes, Cont.

**NWAFS Business Meeting
Salt Lake City, UT
November 8, 2007**

Membership Secretary – Skyler Anderson

Regular Members	224
Provisional Regular Members	40
Associate Members	31
Provisional Associate Members	9
Life Members	9
Total	313

* 7% of Regular Voting Members Required for Quorum = 16

New Member Applications**Applicants for Provisional Regular Member:**

Name	Agency
Allen, Trevor	WSP Crime Lab, Cheney, WA
Ballard, Anna	WSP Crime Lab, Cheney, WA
Herbelin, Sharon Maley	WSP Crime Lab, Vancouver, WA
Trejo, Sara M.	WSP Crime Lab, Olympia, WA
Feaman, Heather	OSP Forensic Serv., Clackamas, OR
Christenson, Chandra Erin	Utah BFS, West Valley City, UT
Fernandez, Vesna B.	CA DOJ, Santa Rosa, CA

Applicants for Provisional Associate Member:

Name	Agency
Carrabba, Mary W.	Southern Oregon Univ., Ashland, OR
Jaynes, John	Santa Rosa PD, Santa Rosa, CA
Larsen, Nika	OSP Forensic Serv., Springfield, OR
Sargeant, Kimberly	WY Game and Fish, Laramie, WY

Motion to accept Member Applicants made by: Ray Kusumi

Second by: Kori Barnum

Applicants accepted by unanimous vote.

Elevation in Membership Status**Provisional Regular to Regular (voting) Member:**

Name	Agency
Williams, Joshua	WY State Crime Lab, Cheyenne, WY

Motion to accept elevated Member made by: Larry Pederson

Second by: Ray Kusumi

Elevation accepted by unanimous vote.

Life Member Nomination

Lisa Caughlin Formerly- Sacramento County DA's Forensic Laboratory

Motion to award Life Membership to Lisa Caughlin made by: Matt Jorgenson

Second by: Stuart Jacobson

Life Member accepted by unanimous vote.

Minutes, Cont.
NWAFS Business Meeting
Salt Lake City, UT
November 8, 2007

Resigned Members

Name	Agency
Alexander, William	Forensic ID, Eugene, OR
Cutler, Rachel	ISP Forensic Services, Meridian, ID
Evans, Samantha	CA DOJ, Santa Rosa, CA
Fraser, Heidi	OSP Forensic Services, Springfield, OR
Gaxiolla, Rebecca	CA DOJ, Redding, CA
Griffin, Michelle	Montana State Crime Lab, Missoula, MT
Hutchinson, Lori	Montana State Crime Lab, Missoula, MT
Johnson, Elizabeth	US Army, Forest Park, GA
Kocisko, Maureen	Montana State Crime Lab, Missoula, MT
Larson, Sara	CA DOJ, Redding, CA
Moenne-Loccoz, Marcela	Portland, OR
Murdock, David	UT DPS, Salt Lake City, UT
Saferstein, Richard	Forensic Consultant, Mt. Laurel, NJ
Stine, Janice	OSP Forensic Services, Springfield, OR

Missing Members

Name	Agency
Bagwill, Christina	Maelyn L. Smith and Co., Marysville, WA
Gergets, William F.	Therion Corp., Troy, NY

Other Business

- Dan Alessio announced the Ethics Code and that he would like to head the Ethics Enforcement Committee.
- Rocklan McDowell announced that the 2008 Meeting will be in Boise, Idaho from November 3rd to November 7th.
- President opened the floor for any nominations for the 2009 meeting location.
 - Vice President announced that the board couldn't justify making the official 2009 meeting site in Orlando given the difficulty in getting to such a remote location from the Northwest and the difficulty in members getting approval from agencies to travel.
 - Jay Henry suggested that sending NWAFS members to the Florida meeting would be beneficial to see how they organize meetings so we can get back to hosting independent NWAFS meetings with high attendance. Jay also mentioned that the Salt Lake Meeting was a success with 167 registrants and 40 workshops.
 - Matt Jorgenson offered to host the 2009 meeting as an alternative in Fort Collins, CO

Motion to accept Fort Collins Meeting made by: Matt Noedel

Second by: Larry Pederson

Meeting location accepted by unanimous vote.

New Business

- The changes to the NWAFS Constitution were published in the 2007 Summer Newsletter.
Motion to accept the Constitutional changes made by: Matt Jorgenson
Second by: Jay Henry
Constitutional changes accepted by unanimous vote.

Minutes, Cont.
NWAFS Business Meeting
Salt Lake City, UT
November 8, 2007

General Business Discussion

- Matt Jorgenson suggested to the members that the Association needs to take serious action to increase membership involvement in meetings, publishing in the newsletter, and presenting papers.
- Kori Barnum mentioned that the NWAFS website and three hard copy newsletters have included instructions for downloading the new digital newsletters and instructions for joining the Yahoo users' group and e-mail list.

New Board Position Openings

President opened the floor for Board of Directors nominations:

- Matt Noedel Nominated for President by Matt Jorgenson
 - (2nd: Dan Alessio, Accepted by Unanimous Vote)
- Matt Jorgenson Nominated for Vice President by Matt Noedel
 - (2nd: Jay Henry, Accepted by Unanimous Vote)
- Glenn Davis Nominated for Member at Large by Matt Jorgenson
 - (2nd: Kori Barnum, Accepted by Unanimous Vote)
- Robert Heegel Nominated for Secretary Treasurer by Mitch Nesson
 - (2nd: Corinna Owsley, Accepted by Unanimous Vote)

Motion to close meeting made by: Matt Jorgenson.

Second by: Robert Heegel

Motion to close meeting accepted by unanimous vote.

Closed Meeting at 6:25p.m.

Minutes

NWAFS Board of Directors' Meeting
Salt Lake City, UT
November 7, 2007

Meeting called to order by President, Rocklan McDowell at 6p.m. Board Members Present:

Rocklan McDowell – President

Matt Noedel – Vice President

Matt Jorgenson – Member at Large

Kori Barnum – Editorial Secretary

Skyler Anderson – Membership Secretary

President (Rocklan McDowell) Lead the Following Discussions:

- Code of Ethics
 - Need an Ethics Committee to enforce the Code
 - Examine other association's ethics committees for ideas
- Constitutional changes
 - Electronic communication
 - Retired members (member emeritus)
- 2008 Meeting in Boise
- 2009 Meeting
 - Possibility of a joint meeting with multiple regional associations in Orlando
 - Association needs to strive for more NWAFS exclusive meetings
 - Could possibly send NWAFS members to joint meeting in Orlando to teach classes and participate
- Meeting-planning handbook needs revision to be more helpful for meeting organizers
- Open board of directors positions

Meeting adjourned at approximately 8p.m.

John M. Browning – Achievements in Firearms

Source: John M. Browning Firearms Museum, Ogden Utah 2007

Provided Courtesy of Dan Alessio, Oregon State Police Forensic Laboratory

NOTABLE INVENTIONS

- **Most popular sporting firearm in history, Model 1894 Winchester 30-30: still in production (over 6 million produced).**
- **Most popular shotgun ever produced, Model A5, manufactured by Browning from 1903 until 1998. Produced also by Remington, Savage and others (over 4 million produced).**
- **Most popular pistol ever produced, Model 1911 Colt Army. Produced by Colt and others from 1911, still in production (estimated 10 million produced).**
- **Most popular machine gun ever produced, Model 1917 and various models utilizing same recoil system. Produced from 1917 until present (estimated 10 million produced).**
- **Most popular 22 caliber rimfire rifle ever produced, Model 1890 Winchester and later versions. Produced from 1890 until present (Winchester produced over 2.5 million, other manufacturers are still producing).**
- **Most popular 22 caliber semiautomatic pistol design: Colt Woodsman-Challenger-Huntsman line (over 650,000 produced).**

FIREARMS FIRSTS

1. **Gas operated machine gun, 1889**
2. **Gas operated machine gun adopted by our government, Model 1895 Colt Peacemaker or Potato Digger**
3. **Gas operated semiautomatic pistol, 1895**
4. **Rotary barreled semiautomatic pistol, 1896**
5. **Lever action shotgun, Model 1887 Winchester**
6. **Recoil operated semiautomatic shotgun, Model A5, 1900**
7. **Gas operated assault rifle, Browning Automatic Rifle (BAR), circa 1908-1909**
8. **Water-cooled recoil operated machine gun, Model 1917 30 caliber, 1901**
9. **50 caliber water-cooled machine gun, 1918**
10. **Aircraft cannon, later used on Model P39 Air Cobra, WWII, 1921**



John M. Browning

A Brief Message From Former NWAFS President Rocklan McDowell...

Thank you for a fun three years of serving on the Board of Directors. My term as President may be over, but I will remain very much involved.

I have been appointed Chair of the Seminar Planning Committee and I am hosting the 2008 meeting! It will be held November 3-7 in Boise, Idaho. It will again give you the chance to receive training from quality instructors at a reasonable price, very much the mantra of our organization. The banquet will showcase your talents at exploring the past. The theme is 80's Prom, but you have the leeway and imagination to delight in any attire that will bring out the love or hate for that era in all of us!

As an Association, we continue to add new members, but have also hit a plateau in attendance at meetings. The Board of Directors and I as the meeting host ask you,

“How can we make NWAFS meetings where you want to go for training and networking?”

With the climbing prices of training, gas, and airfare, the NWAFS is a valuable resource to you and your agency for affordable education in our field. Make recommendations to the Board for topics you want to learn about, instructors you want to learn from, and aspects of the discipline you want to explore. Think about the wealth of knowledge you possess. Put on a workshop or present a paper or casework at the meeting. Share your expertise with your peers. Let's work together to make meetings and the Association a bigger success.

As the newest Past-President of the Association, I would like to take the opportunity to say thank you. It was a wonderful year for me. Thank you to the Board of Directors who will continue with strong leadership as the NWAFS moves forward.

I am looking forward to a “TOTALLY RAD” meeting in Boise! See you all in November!

—Rocklan McDowell



CRIMESCENE is the official publication of the Northwest Association of Forensic Scientists. It is published four times a year in the months of February, May, August, and November. The Newsletter welcomes submissions from its membership, such as: technical tips, case studies, literature compilations, workshop or training notifications, reference citations, commentary, historical accounts, and other topics of interest to the membership. Please submit material for publication in Microsoft Word for Windows format as an e-mail attachment. For more information regarding the Newsletter or to make a submission please contact Kori Barnum at kori.barnum@state.or.us.

Nuclear Fast Red (NFR) Stain: A Brief History and Use

Jennifer Riedel, Oregon State Police, Springfield Forensic Laboratory, Springfield, OR

Background

The Christmas Tree stain is used to visualize spermatozoa (and other cell types) in biological smears and consists of two dyes used sequentially: nuclear fast red (NFR) and picroindigocarmine (PIC). When the stain works properly, spermatozoa heads stain a bright pink while vaginal and oral epithelial cells have green cytoplasm with gray/mauve nuclei. In the late 1960s, this stain combination became a standard forensic procedure to visualize spermatozoa because of the ease in locating the bright pink sperm against a field of blue/green epithelial cells.¹

In 2004, we observed unusual staining of the Christmas Tree stain at one of the Oregon State Police Forensic Service Division's laboratories. The reagent was staining the epithelial cell cytoplasm yellow to red instead of the expected green to blue-green color. This diminished the contrast between the sperm heads and the epithelial cells making it difficult to locate spermatozoa. The problem was isolated to the NFR solution, rather than the PIC solution.

History

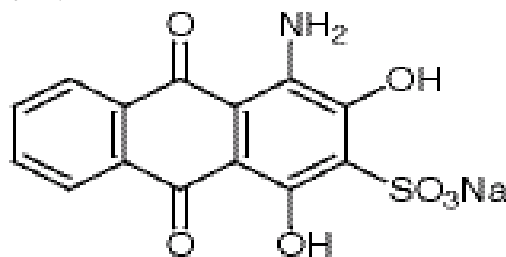
Christmas Tree stain is a popular stain for the microscopic examination of spermatozoa. It is also known as Oppitz's stain because Oppitz originally developed the stain for forensic use in 1969, with his published article being translated in 1972.^{1,2} It is a differential stain consisting of two components: nuclear fast red (NFR) and picroindigocarmine (PIC). Similar differential staining procedures using carmine, basic fuchsin, or hematoxylin along with PIC have been in use since the late 1800s.³

The nomenclature of stains and dyes has historically been confusing because different names were used to describe the same dye and different dyes had similar-sounding names. In 1923-24, the English Society of Dyers and Colourists' developed a classification system to solve this problem and assigned a single numerical number to a dye, regardless of its common name(s). This system was revised in 1956 and the Colour Index number (C.I. No.) or (C.I.) remains a current way to identify a particular dye.³

A second method to identify dyes is by their CAS Registry Number. A CAS number is a unique identifier designated to one substance and currently there are over 27 million CAS Registry Numbers for organic and inorganic substances. The CAS Registry is operated by the American Chemical Society.⁴

Nuclear fast red is also known by the common names of Kernechtrot and Calcium Red. Its C.I. number is 60760 and its CAS number is 6409-77-4. Indigocarmine is also known as Indigotine 1, 1a and C.I. Acid Blue 74. Its C.I. number is 73015 and its CAS number is 860-22-0. In use, indigocarmine has commonly been dissolved in aqueous picric acid, causing the resulting stain to be called, "picroindigocarmine."^{3,1,2}

Biological dyes are classified and grouped by similarities in chemical structure (e.g. nitroso dyes, azo dyes, diazonium salts, xanthenes and acridines, etc.); NFR is an aminoanthraquinone dye.³ It is a nuclear dye (e.g. stains nuclei) and works in the presence of a metallic mordant, typically aluminum. A mordant is a material that increases the selectivity and/or effectiveness of the dye; without the mordant the dye may not work.^{1,3,6} Without the addition of the mordant (aluminum sulfate) to solution, NFR is a dye for calcium deposits.¹ The structure of NFR is as follows with a molecular weight of 357.276 and chemical formula of $C_{14}H_8NO_7SNa$.



Nuclear Fast Red (NFR) Stain: A Brief History and Use, Cont.

Jennifer Riedel, Oregon State Police, Springfield Forensic Laboratory, Springfield, OR

Like NFR, indigocarmine is a polycyclic dye and is considered a phenanthroline. It is sometimes used as a plasma stain and in solution with aqueous picric acid (PIC), it is a collagen or connective tissue stain.^{3,6}

NFR is a relatively simple reagent, consisting of NFR, aluminum sulfate, and water. Aluminum sulfate exists in anhydrous form (CAS 10043-01-3) and in various levels of hydration with the octadecahydrate form $[\text{Al}_2(\text{SO}_4)_3 \cdot 18\text{H}_2\text{O}]$ (CAS 7784-31-8) being readily available and affordable. Aluminum sulfate is hygroscopic, and therefore absorbs water from the atmosphere.¹ Recipes for NFR have not specified what level of hydration of aluminum sulfate is needed, or whether that level of hydration is related to the success of the reagent. The reagent is prepared with hot water or is heated to facilitate the dye dissolving into solution.

Purpose

A series of experiments was conducted to identify the reason NFR was staining epithelial cell cytoplasm too red.

Procedures

In the Oregon State Police Forensic Laboratory, Christmas Tree staining times have traditionally been 10 minutes or more for the NFR, then rinsed and followed by 10-15 seconds of PIC with a final rinse. Edwin Jones of the Ventura County Sheriff's Office Crime Laboratory implied that this timing sequence is common in other labs.² However, Jones experimented in the early 1990s with a different staining time sequence. He concluded that greater contrast could be achieved between the green background (epithelial cells) and the pink spermatozoa by decreasing the amount of time the NFR was allowed to stain and increasing the amount of time PIC was in contact with the specimen. He proposed a 1 minute / 1 minute time sequence for NFR and PIC and it continues to be used today at his laboratory.^{1,7}

OSP Division Procedures Manual

Allow NFR to stain for 10 minutes. Rinse with DI water.

Add picroindigocarmine green (PIC) to slide for 15 seconds. Rinse with ethanol.

Modified Staining Procedure per Ed Jones

Allow NFR to stain for 1 minute. Rinse with DI water.

Add PIC to slide for 1 minute. Rinse with ethanol.

Eleven different NFR reagents were prepared, varying a single variable each time. Each NFR reagent was stained per OSP Procedures Manual timing sequence as well as with Ed Jones' timing sequence. The various results are summarized below. Exact reagent compositions, lot numbers, etc. along with tabulated results are available upon request but were omitted for the sake of space.

Discussion

The following variables were examined and did not correct the problem of epithelial cell cytoplasm staining red:

- Preparing the NFR reagent with shorter heating times versus heating overnight
- Increasing the amount of aluminum sulfate in the reagent
- Decreasing the amount of aluminum sulfate in the reagent
- The hydration level of the aluminum sulfate: $\text{Al}_2(\text{SO}_4)_3$ versus $\text{Al}_2(\text{SO}_4)_3 \cdot 18\text{H}_2\text{O}$
- Whether the source of the epithelial cells is from the vagina or the mouth
- Whether the source of the epithelial cells is from different individuals
- Changing the distilled water source
- Purchasing new powder dye, suggesting that age or expiration of NFR may have an effect

Nuclear Fast Red (NFR) Stain: A Brief History and Use, Cont.

Jennifer Riedel, Oregon State Police, Springfield Forensic Laboratory, Springfield, OR

Using Ed Jones' timing sequence partially corrected the problem, likely because it didn't allow the red NFR stain to be in contact with the epithelial cells as long. However, using a set of Christmas Tree stain reagents that did not produce abnormally red cytoplasm in combination with Ed Jones' timing sequence resulted in weakly stained (light pink) spermatozoa.

The only factor that fully corrected the problem was the time interval from when an NFR reagent was made to when it was used. Several months after the eleven reagents were made, their physical appearance changed from a homogenous, clear, bright pink color to a duller and darker pink color with visible sediment. The solutions were stored at room temperature. More importantly, even with agitation, the older reagents did not dye cytoplasm red when they were subjected to staining times greater than a minute. In fact, with time, the solutions behaved as expected and the OSP Procedures timing sequence produced acceptable and expected results.

Conclusions

The results suggest that when the NFR reagent is first made, it is a super-saturated solution. When it is used during this time to stain biological smears, the result is epithelial cells being stained too red with longer staining times, diminishing the contrast that makes Christmas Tree Stain the stain of choice for microscopic spermatozoa searches. Within several months, the same reagent yielded acceptable results (green epithelial cytoplasm) with longer staining times.

Recommendations

Three recommendations that we have incorporated into our procedures for quality control include:

1. Incorporate into Christmas Tree Stain procedures a variable time that NFR is allowed to stain a biological smear. It is recommended that a minimum of 1 minute to over 10 minutes be allowed.
2. Establish a routine whereby the Christmas Tree Stain reagents are checked at least monthly using a known smear of epithelial cells and spermatozoa. Based on the timing sequence and resulting appearance of this monthly check, the analyst can determine what the best timing is for case samples during that month. This check is especially critical in the first months following a new NFR reagent preparation.
3. Last, allow the flexibility for the PIC stain to remain for at least a minute before rinsing to increase contrast.

¹ Saferstein, R. (editor), *Forensic Science Handbook Volume II*, 2nd ed., Prentice Hall, New Jersey, Chapter 8, "The Identification of Semen and Other Body Fluids," 2005.

² Gaensslen, R. E., *Sourcebook in Forensic Serology, Immunology, and Biochemistry*, U. S. Dept. of Justice, August 1983.

³ Lillie, R. D. (editor), *H. J. Conn's Biological Stains*, 9th ed., The Williams & Wilkins Company, Baltimore, 1977.

⁴ www.cas.org/EO/regsys.html

⁵ http://www.sigmaaldrich.com/Area_of_Interest/The_Americas/United_States.html

⁶ Lillie, R. D., *Histopathologic Technic and Practical Histochemistry*, The Blakiston Company, Inc., New York, 1954.

⁷ <http://www.intox.org/databank/documents/chemical/alumsulf/cie171.htm>

⁸ Personal communication with Ed Jones on March 22, 2006.

Mark Your Calendars For the Northwest Association of Forensic Scientists 2008 Meeting!!

**Boise, ID.
November 3-7, 2008
Owyhee Plaza Hotel
Banquet theme: 80s Prom
Come in your 80s best to dance the night away!**



Boise (pronounced *boy-see*), the capital and largest city in the State of Idaho, is the hub of commerce, banking and government for the state.

Located along the Boise River and nestled against foothills of the Rocky Mountains, our city offers many outdoor activities to local residents, from skiing at Bogus Basin Ski Resort to biking on the Boise River Greenbelt to boating at nearby reservoirs. The Boise area has it all - desert, rivers, mountains and lakes for hiking, camping, kayaking, river rafting, hunting and fishing.

Many large regional, national and international companies are headquartered here, including Simplot Corporation, Boise Cascade, Washington Group, Micron Technology and Hewlett-Packard.

Boise is home to Boise State University, the state's largest university with an enrollment of over 18,600 students, as well as 34 grade schools, 9 junior high schools, and 5 high schools.

DNA Recovered from Badly Burned Remains

**Devon Sommer, Oregon State Police
Forensic Laboratory, Clackamas, OR**

The Portland Metro Laboratory recently assisted a local agency with the processing of a badly burned vehicle for forensic evidence, specifically for the presence of human remains. The vehicle was recovered near a small town outside of Portland along a road in the forest. According to the arson investigators, it had burned to near completion, meaning almost all of the fuel available for combustion was consumed.

Upon analysis of the back seat area of the vehicle apparent human remains were observed and collected. The majority of the remains recovered were severely desiccated, calcined, and showed obvious signs of having been in a hot environment. A portion of an apparent torso was removed and transported to the State Medical Examiner's Office for an autopsy. During the autopsy identifiable portions of anatomy were observed and several samples collected. These samples were given to the DNA Unit for analysis with a limited expectation of success. The DNA Unit was able to obtain human DNA from a section of lumbar spine, a liver sample, a lung sample and a "blood" sample (a paste-like substance removed from the aorta of the heart). The DNA from the "blood" and from a secondary standard (toothbrush) from the registered owner of the vehicle matched, thus providing identification of the remains.



Rear View of Burned Vehicle



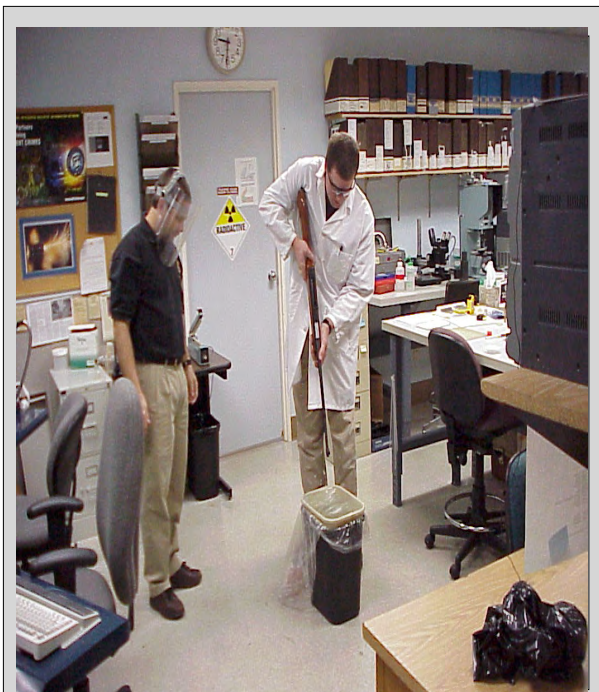
Apparent Torso



Apparent Torso Removed From Vehicle



CAPTION THIS!
The best caption submitted
for the photo presented
to the right will win an
Amazon.com gift certificate.
Decision of the Editor is final.
Bribery may be considered.
Send captions to
kori.barnum@state.or.us.



Congratulations to last issue's
Caption This winner

JEFF BORNGASSER
Oregon State Police
Forensic Lab

**“Are you sure you
checked with the guys
downstairs about this
new water tank?”**