

THE NEWSLETTER of



JUNE 1982

VOL. 8 NO. 2

NORTHWEST ASSOCIATION OF FORENSIC SCIENTISTS

Executive Committee

President	Brad Telyea
Vice President	Ken Konzak
Secretary-Treasurer	Lionel Tucker
Executive Committee Member-at-Large	.Carolyn Kirkwood .Don MacLaren
Past President.	Pamela Server

Committees

Ethics	Arnold Melnikoff
Membership	Robert Sager
Publication.	George Matsuda
Historical	Floyd Whiting
Technical Advancement.	Kathy Brown
Continuing Education	Beth Carpenter

Upcoming Meeting

Fall Meeting NWAFFS
October 6-8, 1982
Cosmopolitan Motor Hotel
1030 N.E. Union Avenue
Portland, Oregon 97232
Program Chairman: George Matsuda

FROM THE PRESIDENT

Our last meeting was just held in Seattle and it was a great success. One thing noted was an increased interest in group discussion on selected topics and thus the moderator must work even harder to keep the meeting moving on time.

Our next meeting is scheduled for Portland on October 7 and 8. A training seminar on Processing Clandestine Laboratories will be presented on October 6. If there is any interest in presenting a paper, notify George Matsuda at the Oregon State Police Crime Laboratory, Portland.

The General Section of the American Academy of Forensic Sciences has established a fund for use in recognizing the contributions made to the Forensic Sciences by individuals in the field. This year each Regional Association has been given \$100 to implement the award. I have appointed a Blue Ribbon committee to select this individual and to announce the recipient at the fall, 1982 meeting.

We, the members of the Northwest Association of Forensic Scientists, are also privileged to be invited to the First Inter-American Congress of Forensic Sciences in Sacramento, California, on November 2-5. This meeting looks to be very informative and is located near to our membership.

Please notify me if you need any information from the organization on any topic you would like discussed at our next business meeting.

Brad Telyea, President

FROM THE EDITOR

As the new editor of the NWAFS newsletter, I wish to ask your assistance in continuing to publish a news-filled newsletter. The objective of the publication is to inform all members of new procedures, NWAFS business, employment, etc. This objective cannot be met unless the information is passed on to me.

I hope to hear from many of you in the future.

George Matsuda, Editor

NORTHWEST ASSOCIATION

OF

FORENSIC SCIENTISTS

Business Meeting

April 30, 1982

Seattle, Washington

- I. Meeting was called to order by NWAFS President Brad Talyea at 6:00PM.
- II. The minutes of the Fall meeting at State Line, Nevada, were adopted as published in the Newsletter.
- III. Treasurers Report

Treasurers Report
Lionel A. Tucker, Jr.
December 31, 1981 to May 18, 1982

	<u>CREDIT</u>	<u>DEBIT</u>
Funds forwarded as of December 31, 1981	4,532.57	
Dues collected	2,206.85	
Interest checking account	136.50	
Profit from Fall Meeting, State Line	262.73	
Registration and Exhibitor Fee from Spring Meeting, Seattle	2,479.39	
Postage		116.50
Copy Rite (Newsletters)		371.43
Advance Lynn McIntyre Seattle Meeting		350.00
Advance Robert Sager Seattle Meeting		36.00
Refund dues Brian Wraxall		20.00
*Expenses Hilton Hotel (Lunch, Meeting Rooms etc.)		2,422.64
	\$9,618.04	\$3,316.57

Amount in Treasury **\$6,301.47

* - Does not include cost of hospitality room

** - Unaudited

IV. Committee Reports

- A. Executive Committee - No report
- B. Membership Committee - No report
- C. Continuing Education Committee - No formal report; Ms. Carpenter was at the F.B.I. Academy. Brad Talyea indicated that the Chairlady is still looking into purchasing educational material from the C.A.C. and sperm samples.
- D. Technical Advancement Report - Samples will continue to be sent out. Kathy Brown will succeed Ken Konsak in this position. All laboratories will be receiving information as to the format. Floyd Whiting indicated it will be timed to the National Science Foundation's system.

V. Old Business

- A. George Matsuda is our new Newsletter Editor replacing Daryl Brender. Robin Pierson will be assisting.
- B. Our next meeting will be held in Portland, Oregon on October 7th and 8th at the Cosmopolitan Hotel. George Matsuda is the Chairman. For additional information, contact George at (503) 248-5736.

VI. New Business

- A. Nominations for the location of the Spring 1983 Meeting were as follows:
 - 1. Boise, Idaho
 - 2. Missoula, Montana
 - 3. Vancouver, CanadaThe location chosen was Missoula, Montana, as long as it is not at the Elks Club.

This meeting's duration: 12 minutes.

Respectfully submitted,


LIONEL A. TUCKER, JR.
Secretary-Treasurer
Northwest Association
of Forensic Scientists

ABSTRACTS

HUMAN HAIR STUDY

C. L. Cwiklik

Microscopic comparison of human hair depends upon the ability of the human brain to recognize patterns, including the range of variation of morphological characteristics within individuals, body areas, racial groups, and chemically treated hair. Thus, experience becomes a factor in the hair examiner's ability to reach conclusions. How can a person acquire sufficient experience within a training program? We have incorporated a directed self-study of known hair samples into our training program. This has proven valuable for inexperienced and experienced hair examiners alike. Some results are discussed.

METHODS OF MANUFACTURING RIFLED BARRELS (Robert L. Sorensen and P. Lee Johnson)

Robert L. Sorensen

A report on visiting a firearms manufacturing plant and personally viewing three of the four methods of rifled barrel manufacturing.

BITE MARKS IN CRIMES AGAINST PERSONS

Peter F. Hampl D.D.S.

Bite marks can be an important piece of evidence if recognized and treated properly.

Informing crime scene investigators, crime laboratory and hospital emergency room personnel to recognize bite marks and handle them in a proper manner to preserve the evidence.

AN EXAMINATION OF COCAINE MIXTURES BY IR

Roger A. Ely

Mixtures of Cocaine and non-controlled "-caines" create reproducible IR spectra which are both unique and specific.

By examining the IR regions from 1800 to 1600 cm^{-1} and 800 to 600 cm^{-1} , the interfering non-controlled "-caine" can be predicted.

CORRELATION OF BLOOD AND VITREOUS HUMOR ALCOHOL LEVELS

Jeffrey D. Caughlin

Vitreous humor has been reported the most suitable specimen for analysis in cases where a reliable postmortem blood alcohol concentration cannot be determined.

A literature survey demonstrates that estimation of the blood alcohol concentration from the vitreous humor alcohol concentration to be within a wide range. The magnitude of this range is proposed to be as a result of the affect of postmortem changes in the specimens from which the distribution ratios have been determined.

SPECIES IDENTIFICATION & INDIVIDUALIZATION OF ALASKAN BIG GAME MEAT AND BLOOD.

Jim Wolfe

PGI and albumin can be used to discriminate between members of the Alaskan deer family (Sitka blacktail deer, moose, caribou and elk). PGI can also be used to differentiate between Alaskan brown/grizzly and black bear. 6PGD and LDH variation is present in brown/grizzly bear, with LDH variation also present in black bear. Further screening is needed to determine phenotype frequencies for the various bear populations, and to determine whether the variation observed is actually genetic.

ARMOR PIERCING AMMUNITION

Michael J. Grubb

There has been a recent flurry of interest in metal piercing handgun ammunition, especially regarding the potential danger to police officers, even those wearing bullet-proof vests. Penetration tests were conducted with Kevlar fabric using the various metal piercing handgun cartridges. Results allow the problem to be placed into perspective.

CONSIDERATIONS ON FORENSIC GLASS EXAMINATION

Michael J. Grubb

The task of the examiner is an easy one when questioned and known glass samples show significant differences in their observed properties. When they "match", however, the interpretational problems begin. Aids in interpretation come from an understanding of the manufacturing processes, the variation of physical properties within a single glass object, and the "population" of glass in a specified geographical area.

IDENTIFICATION OF MT. ST. HELENS VOLCANO VICTIMS

William E. Alexander, D.M.D.

The need for identifying victims of a volcano is rare in this day and age. Mt. St. Helens, Washington, erupted May 18 and again on May 25, 1980. She left 34 known dead and 27 others missing. The forensic odontology team examined, charted, photographed, and took x-rays of all recovered victims. Ante mortem records of unrecovered bodies are on file and are compared as victims are found. Unlike most disasters, there is a wide range of findings. Asphyxiation by ash is the main cause of death; in the presence of extreme heat, extreme cold, anoxia, water, gases, falling trees, falling rocks, fire and concussion. Horror and fear cannot be excluded. Historically, beginning with Pompeii, the victims were buried. In the Pacific "Ring of Fire" where most volcanos in modern times have occurred, death is caused by tidal wave, ash and famine. As far as I know, Mt. St. Helens was the first time victims in direct, close proximity of an erupting volcano have been examined. Perhaps the most bizarre phenomenon can be attributed to heat conductivity. Skin exposed to the elements in many cases appeared quite normal. Skin covered by clothing but not in contact with clothing was bright pink as if sun-burned. Skin in contact with clothing usually suffered third degree burns.

PARTICLE SIZE DISTRIBUTION AS A FORENSIC SAMPLE CHARACTERISTIC

C. Cwiklik

Particle size distribution as a sample characteristic can be used both to sort particles and to classify the entire sample. The simplest sizing equipment - sieves - have been used. Several examples illustrate sieving as a quick way to sort a material from a mixture, or from debris; other examples indicate particle size distribution to be valuable as a comparison characteristic.

FORENSIC ASPECTS OF LASER MICROSCOPY

Dr. Jim Callas

When the laser is coupled with a microscope, new types of analytical microchemistry become possible. In this review, four examples will be given: (a) Raman microprobe, (b) the laser scanning confocal microspectrophotometer, (c) laser holography, and (d) laser desorption micro mass spectrometry. The possible and already-realized applications of these instruments to forensic science will be discussed.

ERRORS IN SCIENTIFIC PROCEDURES

Raymond J. Davis

Scientists who are called upon to provide expert testimony in courts of law are often challenged (in our adversary system) to provide an assessment as to:

1. the general acceptance of a particular scientific procedure or methodology,
2. its application to the purpose of the law,
3. the skill or technique of the examiner or analyst, and finally,
4. the confidence the expert places on any data or results obtained from their procedure and its subsequent interpretation.

How the scientist fares in this rite of passage depends upon their awareness of 'errors in scientific procedures'. This presentation will cover the assessment scientists must provide in court on points 3 and 4 above.

ANALYTICAL TOXICOLOGY IN FOODS AND NUTRITION

Marleen M. Wekell

There are many classes of compounds in foods that produce a deleterious effect when ingested. Some of these food toxins are: naturally occurring from inorganic, microbial, plant and animal sources; contaminants; and toxins formed as a result of processing, cooking or storage. The response provoked by these materials are carcinogenic, mutagenic, teratogenic, immunological, enzyme inhibition, or specific target organ effects. Methods for evaluating the risks and presence of food toxins can involve microbial assays, enzyme analyses, animal studies, chemical tests, and physical methods. The method used for toxicological assessment in cases where a choice is possible is determined by the nature of the toxic response, desired sensitivity, cost and time.

IDENTIFICATION OF SOME INTERFERENCES IN THE ANALYSIS OF CLORAZEPATE

(Edward M. Suzuki, Ph.D. and William R. Gresham, Ph.D.)

Edward M. Suzuki

Clorazepate presents several problems in forensic identification. In addition to rapid acid decarboxylation to N-desmethyldiazepam (a non-controlled substance often confused with clorazepate), extracts of the pharmaceutical forms (TranxeneTM and AzeneTM) contain substances which interfere with isolation of intact and unaltered clorazepate. We have identified the causes of some of these interferences and discuss their origin and methods we have developed to overcome them. We have also identified the source of the previously reported (but unexplained) conversion of dipotassium clorazepate to the monopotassium form following solution of the former.

LOCOMOTOR ADAPTATION TO INCAPACITATING OSTEOMYELITIS IN A PREHISTORIC PEND d'OREILLE MALE

Charline G. Smith

Assessment and interpretation of skeletal materials excavated thirty years ago. Materials represent a male Indian, born about 275 years ago and lived to be forty to fifty years old. He had a broken leg at about age twelve, later developed osteomyelitis which spread into the left hip and stopped growth of the left leg. He got around by sitting sideways, resting the left leg on the right, using the right leg and arms to propel himself. He apparently did horticultural work; he was buried with a digging stick and an antler flesher--traditional women's tools.

Hallucinogenic Mushrooms of the Pacific Northwest

by Michael W. Beug, Ph.D.
The Evergreen State College

The hallucinogenic mushrooms of the Pacific Northwest are as yet incompletely known. As our knowledge of the mycoflora of the Pacific Northwest improves, I believe that we will find psilocybin in a total of roughly 20 species in at least four genera.

Most hallucinogenic mushrooms are in the genus Psilocybe and chromatographically they can be roughly divided into two groups -- those with chromatographic patterns resembling Psilocybe semilanceata, "Liberty Caps," and those resembling Psilocybe cyanescens.

Psilocybe semilanceata is probably the most widely collected indigenous hallucinogenic species. It is found in somewhat boggy pasture and wet grasslands. It contains psilocybin but not psilocin. Psilocybin levels we have measured by HPLC are between 6.2 mg/g and 12.8 mg/g dry weight. This species is one of the most consistent producers of psilocybin and shows the least variation in level from one species to the next. Reports of psilocin in this species result from breakdown of the psilocybin during extraction. Chromatographically similar species include a woodland mushroom, Psilocybe pelliculosa (1.2 to 7.1 mg/g dry weight psilocybin) and two grassland species, Psilocybe liniformans var. americana (6.5 mg/g to 12.8 mg/g dry weight psilocybin) and an unnamed species (no psilocybin). The three grassland species are easily confused by collectors.

Psilocybe cyanescens is characterized by containing both psilocybin and psilocin plus other indoles. Psilocybin levels range from 1.5 to 15.5 mg/g while psilocin levels range from 0.6 to 9.6 mg/g dry weight. I have never found Psilocybe cyanescens or the chromatographically similar species in either pastures or woodlands. They prefer cultivated areas, particularly where bark mulch or sawdust mulch has been used. The chromatographically similar species include Psilocybe baecystis (1.5 to 8.5 mg/g psilocybin and 0 to 5.9 mg/g psilocin); Psilocybe stuntzii (0 to 3.6 mg/g psilocybin and 0 to 0.6 mg/g psilocin); and Psilocybe cyanofibrillosa (0 to 2.1 mg/g psilocybin and 0.4 to 1.4 mg/g psilocin).

Other psilocybes analyzed include P. coprophila, P. montana, and P. inquilina. None of these have been found to contain either psilocybin or psilocin.

Of the many species of Panaeolus in the Pacific Northwest, two have been found to contain psilocybin. The most common species, P. subbalteatus, occurs on well-manured lawns and around horse stables. It contains 1.6 to 6.5 mg/g psilocybin. The other active species is as yet unnamed and contains 0 to about 4 mg/g psilocybin. It is only found on horse manure compost.

At least one species of Conocybe contains psilocybin. One sample of the small, grass-inhabiting species, Conocybe cyanopus, was found to contain 9.3 mg/g dry weight psilocybin.

Other workers using TLC have detected psilocybin in Pluteus salicinus.

page two

Psilocybe or Stropharia cubensis is frequently cultivated in the Pacific Northwest. It is a semitropical species that grows well on rye grain or on straw compost. It contains 0.7 to 13.3 mg/g dry weight psilocybin and 0 to 2.9 mg/g psilocin.

Chemical Analysis. Fresh mushroom samples were freeze-dried, sealed in plastic and stored at -60°C until analysis. After grinding to a fine powder, 250 mg portions were extracted at room temperature for 12 hours in 7 ml methanol, filtered through a 0.5 μm Teflon filter, rinsed with additional methanol and diluted to exactly 10 ml. Analysis was performed on a Waters 200 series high performance liquid chromatograph at 254 nm with a 30 cm x 3.9 mm μ -Bondapak C_{18} column (particle size 10 μm) using 75% water -25% methanol containing 0.05 M heptanesulfonic acid adjusted to pH 3.5 with acetic acid (Waters Pic B-7 reagent) at 2 ml/min flow rate. Results were confirmed with TLC on 5 x 20 cm silica gel plates developed with butanol-acetic acid-water (12:3:5) and visualized with freshly prepared Ehrlich's reagent (10% *p*-dimethylamino-benzaldehyde in conc. HCl). Ten other solvent systems and numerous other spray reagents were also evaluated.



Interamerican Congress of Forensic Sciences

November 2-5, 1982

PRESS RELEASE

June 4, 1982

The inaugural meeting of the Pan-American Association of Forensic Sciences will be held in Sacramento, California November 2-5, 1982, as the first Inter-American Congress of Forensic Sciences. This Congress, hosted by the California Department of Justice - Bureau of Forensic Services and the California Association of Criminalists, will bring together forensic scientists and investigators from all parts of the Americas. Technical sessions in each of the major forensic disciplines will be convened at the Sacramento Convention Center starting on November 2nd. Plenary sessions focusing on the investigation of mass homicide cases and international terrorism will highlight the program Wednesday, November 3rd. A large number of scientific and technical exhibitors will be on hand November 3rd, 4th, and 5th at the Convention Center. Prior to the meeting, tutorial/workshop sessions are planned beginning Monday, November 1st in such areas as: facial reconstruction; blood splatter interpretation; structure fire investigation and forensic photography.

Speakers for this meeting already include representatives of the Metropolitan Police Laboratory of London, the Northern Ireland Forensic Science Laboratory, University of Rome, San Francisco State University, Interpol, Federal Bureau of Investigation, Langley-Porter Institute of San Francisco, the University of North Carolina, California Department of Justice, and many other investigative and research agencies. The program includes such topics as trace evidence, use of dental records, the role of the police surgeon, multi-disciplinary teams, trends in terrorist weapons, targets and propaganda and the prosecution and defense of both mass murder suspects and suspected terrorists. A special inter-disciplinary session will focus on communication and information in the forensic sciences.

Registration fees will be \$150 for participants (\$125 prior to October 1, 1982), \$75 for accompanying persons and will include receptions, luncheons, and evening entertainment. One-day registration and student registration fees are available on request.

The main residence hotel will be the Capitol Plaza Holiday Inn just a few blocks from the Convention Center in downtown Sacramento. This Hotel offers fine rooms, excellent meal service and is within easy walking distance from shopping and sightseeing, all at reasonable rates.

Forensic scientists from all disciplines are invited to submit papers for presentation. Abstracts are due no later than August 1, 1982. Although the official language of the meeting will be English, programs and abstracts will be printed in both English and Spanish.

This meeting has been planned to coincide with the National Association of Medical Examiners (NAME) Meeting to be held November 9 through 13, 1982 in Newport Beach, California.

For further information, contact: John D. DeHaan, President, First Inter-American Congress, c/o Association Management, 800 Howe Avenue, Suite 370, Sacramento, CA 95825.

10TH ANNIVERSARY

The 21st meeting of the Northwest Association of Forensic Scientists will be held October 7th and 8th, 1982 at the Cosmopolitan Motor Hotel, 1030 N.E. Union Avenue, Portland on the 10th Anniversary of the very first meeting held at Boise, Idaho, October 7, 1972.

This fall business meeting will be preceded by a special one day workshop on "Illicit Drug Laboratory Crime Scene Processing" to be presented by Bill Martin and members of the Drug Enforcement Administration, San Francisco Laboratory, on Wednesday, October 6th.

A tentative schedule will be printed in the next issue of the Newsletter. Let's all make the 10th Anniversary meeting a very special meeting with a record turn out. Members or other persons wishing to present papers at the meeting (and we need all the presentations we can get) should submit the attached sheet by August 1st to:

George K. Matsuda
Program Chairman
Oregon State Police Crime Laboratory
222 SW Pine Street, Fifth Floor
Portland, OR 97204

"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, Lieutenant
Oregon State Police Crime Laboratory
222 SW Pine Street, Fifth Floor
Portland, OR 97204

The Newsletter is published four times a year. Contributions should be submitted by February 1, June 1, August 1 and November 15, each year.