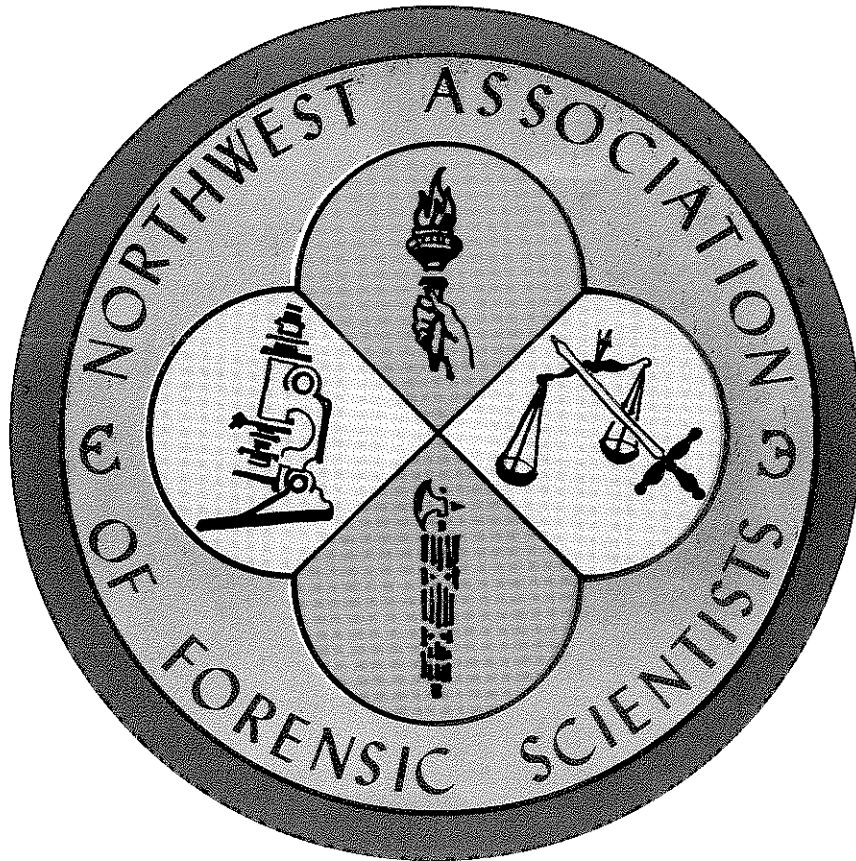


THE NEWSLETTER of




AUGUST 1979 — VOLUME V — ISSUE II

"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:

Daryl Brender
Eastern Washington State Crime Laboratory
Room 100, Public Safety Building
Spokane, Washington 99201

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

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Technical Proficiency Committee KEN KONZACK

Continuing Education Committee LARRY PEDERSON,
JAMES A. BOOKER, ROBERT SEGER, MICHAEL A. HOWARD,
ANN BRADLEY, CAROLYN KIRKWOOD, KAY SWEENEY

UPCOMING FALL MEETING

October 25, 26, 27, 1979

DAVENPORT HOTEL
West 807 Sprague Avenue
Spokane, Washington 99204

Registration — \$40.00
1 Day Registration — \$20.00

PROGRAM CHAIRMEN — DARYL BENDER & GAYLAN WARREN
(509) 456-4144

NORTHWEST ASSOCIATION OF FORENSIC SCIENTISTS
FALL MEETING SCHEDULE

THURSDAY, OCTOBER 25, 1979

- 9:00 a.m. - 9:15 a.m. INTRODUCTION
- 9:15 a.m. - 10:15 a.m. "Know Thee By Thy Dust"
Skip Palenik
McCrone Research Institute
2508 South Michigan Avenue
Chicago, Illinois
- 10:15 a.m. - 10:45 a.m. Coffee and Doughnuts
- 10:45 - 12:00 noon "Needed and New Areas of Research in Forensic Serology"
with group discussion
Brian Wraxall
Serological Research Institute
1450 53rd Street
Emeryville, California
- 12:00 noon - 1:30 p.m. Lunch (Roast Pork Loin Berlin Style)
- 1:30 p.m. - 3: p.m. "Forensic Geology"
Dr. Raymond C. Murry
Assistant Vice President of Research
University of Montana
Missoula, Montana
- 3:00 p.m. - 3:30 p.m. Coffee and soft drinks
- 3:30 p.m. - 4:00 p.m. "Senile Writing"
Robert Phillips
Hartstene Island
Shelton, Washington
- 4:00 p.m. - 5:00 p.m. "Multidimensional Gas Chromatography"
James Hutchison
Criminal Investigation Lab
Missoula, Montana

FRIDAY, OCTOBER 26, 1979

- 9:00 a.m. - 10:00 a.m. "Future FBI Research and Training Facility"
Bell Hernden, Assistant Director
FBI, J. Edgar Hoover Building
Washington, D.C.

10:00 a.m. - 10:30 a.m.	Coffee and doughnuts
10:30 a.m. - 11:00 a.m.	<p>"Isolation and Identification of Psilocyn From Mushroom of the Genus, Psilocybe" John A. Kearns Eastern Washington State Crime Laboratory Spokane, Washington</p>
11:00 a.m. - 11:30 a.m.	<p>"CLIS General Rifling Characteristics File" Gaylan Warren Eastern Washington State Crime Laboratory Spokane, Washington</p>
11:30 a.m. - 12:00 noon	<p>"Differentiation of the Optical Isomers of Propoxyphene by Chemical Microscopy" John A. Kearns Eastern Washington State Crime Laboratory</p>
12:00 noon - 1:30 p.m.	Lunch (Chicken Doria)
1:30 p.m. - 3:00 p.m.	<p>"Forensic Odontology Clinic" William Alexander, DMD Doctors Oral Surgery Practice 7400 Mill Street Eugene, Oregon</p>
3:00 p.m. - 3:30 p.m.	Coffee and soft drinks
3:30 p.m. - 4:00 p.m.	<p>"N-ethylamphetamine - New Drug of Abuse" Robert Sager Drug Enforcement Administration 450 Golden Gate Avenue San Francisco, California</p>
4:00 p.m. - 5:00 p.m.	<p>Topics of interest in forensic science "Erasable Bonded Paper" Bill Dunagan Western Washington State Crime Laboratory Seattle, Washington</p> <p>'LEAA Workshops' Arnold Melnikoff Criminal Investigation Lab Missoula, Montana</p>
6:00 p.m.	Hors d'oeuvres and social hour in Hospitality Room
8:00 p.m.	Banquet Dinner (Prime Rib)

DIAMOND CELL IN INFRARED ANALYSIS

The diamond cell has been commercially available since 1960, but interest for forensic application is considerably more recent. Several papers have appeared concerning its forensic application to vehicle paint, explosives and fibers over the last five years.

The major advantages of the diamond cell in infrared analysis is that you need no sample preparation. Sample can be recovered with only 1 to 10 micrograms of material needed for analysis.

The major disadvantages are high cost (approximately \$3,200) and strong absorption in the 2700 to 1800cm region of the infrared spectra. Pressure changes may produce unpredictable changes in the spectra. The use of a 4X refracting beam condensor is also required. Long scan times are required of 10 minutes for a quick scan and 50 minutes for a high resolution spectra. The diamond anvils have to be periodically realigned as well as cleaned after every analysis. Too much pressure can fracture the diamonds, requiring a \$2,000 repair bill if they are severely fractured. Extremely light particles such as small fibers require electrostatic treating to allow placing them in between two diamond anvils.

To prepare a sample for analysis, the following sample handling techniques are suggested:

1. Place sample on diamond on bottom piston.
2. Drop upper diamond anvil in place as gently as possible.
3. Tighten screw there by applying minimum pressure required to form thin film under stereo microscope, making sure fringe lines are visible. If fringe lines are not visible, realign diamond anvils.
4. 100% comb adjustment in sample beam should be completely dialed out.
5. Place refracting beam condensor in IR and then adjust to 80% transmittance.
6. Use screen or beam attenuator to read 100% transmittance. Adjust to 80% transmittance.
7. Place diamond cell in 4X beam attenuator — obtain at least 80% transmittance at 4000cm with attenuator. Check for real signal, adjust gain so pen just begins to get noisy.
8. Run scan, approximately 10 minutes for quick survey, 50 minutes for good resolution.
9. Remove diamond cell, clean diamonds with 95% alcohol, the recommended cleaning solution.

- 1) N.S. Cartwright and D.G. Rodgers. "A Proposed Data Base for the Identification of Automobile Paint", *CANADIAN SOCIETY FORENSIC SCIENCE*, Vol. 9, No. 4, pp 145-155, (1976)
- 2) Leonard K. Read and Robert J. Kopec, "Analysis of Synthetic Fibers by Diamond Cell and Sapphire Cell Infrared Spectrophotometry", *JOURNAL OF ASSOCIATION OF OFFICIAL ANALYTICAL CHEMISTS*, Vol. 61, No. 3, pp. 526-532 (1978)
- 3) E.R. Lippincott and F. E. Welsh, *Microtechnique for the Infrared Study of Solids*, *ANALYTICAL CHEMISTRY*, Vol. 33, No. 1, pp. 1307-1427, January (1961)
- 4) P.G. Rodgers, R. Cameron, N.S. Cartwright, W.A. Clark, J.S. Deak and E. W. Norman, "The Classification of Automobile Paint by Diamond Window Infrared Spectrophotometry - Part I, Binders and Pigments", *CANADIAN SOCIETY OF FORENSIC SCIENCE*, Vol. 9, No. 1, pp 1-67 (1976)
- 5) F.T. Tweed, R. Cameron, J.S. Peak and Rogers, "The Forensic Microanalysis of Paints, Plastics and other Materials by an Infrared Diamond Cell Technique", *Forensic Science*, Vol. 4, pp 211-218 (1974)
- 6) Willard D. Washington, Robert J. Kopec and Charles Midkiff, "Systematic Approach to the Detection of Explosive Residues", *JOURNAL OF ASSOCIATION OF OFFICIAL ANALYTICAL CHEMISTS*, Vol. 60, No. 6, pp 1331-1340 (1977)

by Arnold Melnikoff

OF THE PRESENCE OF FECAL MATTER

The identification of a stain is always the first step in the sequence leading to speciation and typing. Fecal stains are involved in routing cases as contaminants, but also as primary evidence in rape, animal thefts or butchering, or criminal mischief. Further, it is important to eliminate fecal contamination as a source of amylase, the diagnostic enzyme for localizing saliva.

Presently, there is no easy and conclusive means of identifying fecal matter in the absence of characterizable boli. As pointed out by FBI special agent, Bob Spaulding, work at the EPA lab by Dr. Bunch, et al., has shown that coprostanol is useful as a marker of fecal contamination in water. This fecal steroid is a product of anerobic metabolism of cholesterol by facultative anerobes in the lower gut. The requirement for anerobic conditions make its production in quantity outside the guts of higher animals unlikely. By reviewing the literature and by actual test, it was found that sufficient free cholesterol and coprostanol remained in stains to allow direct extraction by pentane or acetone and characterization by thin layer chromatography. This eliminated the long complicated extraction procedure and gas chromatography identification scheme used in water research. Fruther, a feasibility studt showed that a body fluid identification scheme may be possible, incorporating this test (on 1cm²) followed (after drying) by an amylase test for saliva (phadebat 620nm) and from the same extracted material, a quantitative acid phosphatase test for semen (thymolphthalein monophosphate read at 590nm). The possibility of performing additional tests on the same material, such as alkaline phosphatase, total protein, urease, and ABO type for a complete identification scheme was also presented. It was noted, however, that of the ten common or related steroids tested, coprostanol (5B-coprostan-3B-01), its 3 α isomer and progesterone all had the same Rf on the thin layer chromatography system used. Other sources of interference, such as natural oils, are also being explored. Further studies on both the thin layer chromatography solvent systems and on the body fluid identification scheme are in progress.

TECHNICAL NOTES:

TLC for Coprostanol: Extract 1cm² cutting approximately 1/2 hour, room temperature with few drops pentane.

Spot on silica G or GF plates with 10 coprostanol and cholesterol standards (10 mg/ml in acetone)

Tank—CHCL₃:Ether 9:1

Spray—10% phosphomolybdic acid & heat-blue spots on yellow background (reagent reacts in etoh with metal sprayers)

Ref.: Rosenfeld (1964) Arch. of Biochemistry & Biophysics 108: 384-385 "The Isolation of Coprostanol from Sterol Esters of Human Feces".

Tabak, Bloomhuff & Bunch (1972) DEVELOPMENTS IN INDUSTRIAL MICROBIOLOGY, 13-Chapter 25: 296-307 "Coprostanol: A Positive Tracer of Fecal Polution".

Spaulding, Bob (1975) personal communication

Bunch, Robert L. (1979) personal communication, advice & much assistance.

Additional references available on request.

*Kenneth C. Konzak
Forensic Scientist*

I The minutes of the last meeting held in Reno were adopted as published in the February 1979 Newsletter - Vol V. Issue 1.

II Treasurer's Report by Pam Southcombe

III Reports of Standing Committees:

1. Executive Committee: by Arnold Melnikoff

A. Brad Telyea met with us concerning 2 membership applications.

B. The new tape recorder was shown to the members.

C. No report from Kay Sweeney concerning the CAC request to reprint articles from our NWAFS Newsletter.

2. Peer Review Committee — Kay Sweeney

There are now two existing national peer groups:

Serology-Blood and other physiological fluids

Drugs-Toxicology (including the toxicologists not qualified to be in the present toxicology certification program due to Ph.D requirement.)

The committee is still progressing with the subgroups of:

Firearms

Trace evidence

LEAA says there are too many subgroups to fund at this time.

TENTATIVE COSTS

\$75.00 - application \$50.00 - exam in one specialty (\$125.00 base fee)

\$50.00 for each additional specialty. Maximum would be \$325.00

Serology Peer Review — NWAFS

Don McClaren

Ann Bradley - alternate

Drug - Bill Marshall

Tox. - Daryl Brender - alternate

Continuing cost - basic application fee - probably every 3 years.

3. Proficiency Testing Committee - Ken Konzak

Ken stated his disappointment in the recent bad response to reporting results. For example:

Hairs - 26%

Tox (Nov.) - 100%

Tox (Jan.) - 42%

Serology (Jan.) - 36%

Solid Dosage - 43%

Firearms - 24%

Numerous samples were requested but not reported.

Discussion was held with the following highlights:

A. Some of the samples are too hard to do.

B. Define philosophy of program - improvement of the state of the art or should the samples be routing.

C. If appropriate - vote at Fall Meeting the direction of program.

D. Funding of program - Ken will write budget for future proficiency test programs, to be approved by executive committee. This would help the sponsoring laboratories that don't have funds to send out samples.

4. Membership Committee - Brady Telyea

We had 123 members, but due to two members leaving the field and going back to school, we are now at 121. There are 3 applicants with complete applications, one is short letters of endorsement and 2 with letters of endorsement only.

5. Historical Committee - Floyd Whiting

It was suggested we may try taping our meetings including scientific papers and the business meeting. It was placed as a motion to purchase a suitable recorder for this purpose. It was voted down.

6. Education and Training Committee - Larry Pederson

Larry is preparing grant applications to LEAA for training plus equipment in the following areas:

Drugs-N-P detector; **Glass-Hot** stage, monochromator; **Paint-Pyrolysis**; **Soils-Polarizing** scope

IV New Business

Proposes meeting sites for Spring 1980 meeting were: Jackson Hole, Wyoming and Boise, Idaho. Boise was selected as the site.

Allen Gilmore said that the CAC would like to have the Fall 1980 meeting jointly with the NWAFFS in Sacramento, California. It was pointed out that:

1) We recently had a meeting in California

2) Fall meetings are our busiest in regards to the business meeting.

3) The CAC charter states their Spring meeting has to be in southern part of state.

Floyd proposed to table the discussion until the Spokane meeting. Arnold will find out more about the request in the interim.

There being no further business, the Spring 1979 business meeting was adjourned by President Arnold Melnikoff.

*Pamela Southcombe
Secretary-Treasurer*

**TREASURER'S REPORT
Pam Southcombe**

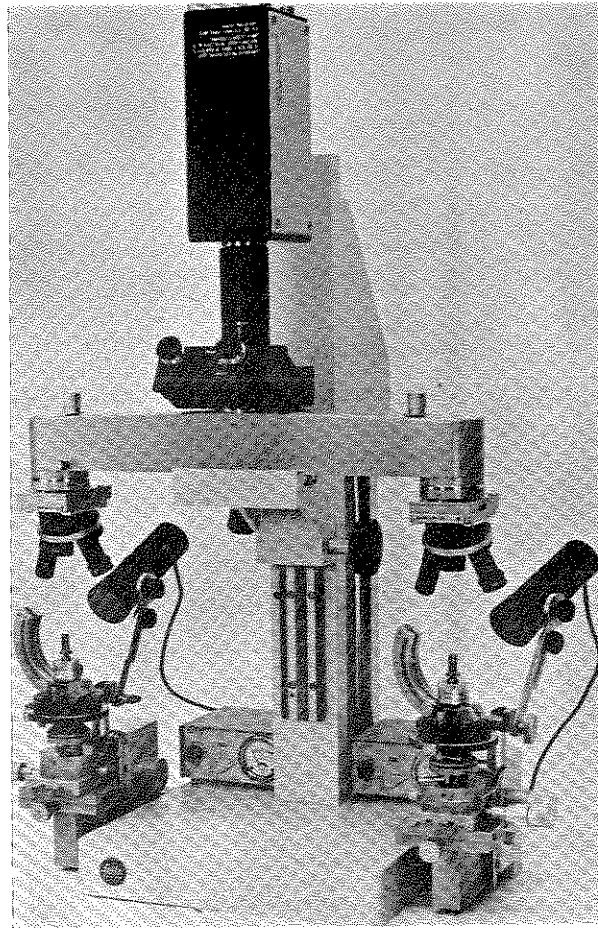
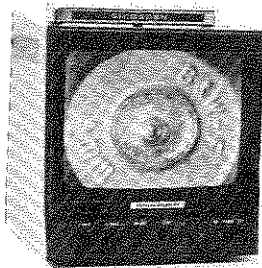
**NWAFS
Vancouver, B.C., Canada
April 1979**


	Credit	Debit
Transferred funds from Floyd Whiting	731.16	
Reno Meeting Receipts	294.36	
Membership Dues (as of March 30, 1979).....	1,065.00	
Newsletter		335.71
Sony Cassette - Idaho Camera.....		79.95
Tapes and Travel Case		23.34
Membership Chairman-Brad Telyea (Stamps).....		15.00
Kopy Kat Printers - Rubber Stamps		14.06
Bank Charges		5.41
Stamps for Treasurer and Petty Cash		25.00
Balance as of March 30, 1979 — \$1,592.05		

The Florida Department of Law Enforcement anticipates having openings for Crime Laboratory Analysts in the areas of Chemistry, Serology, Documents, Microanalysis, Latent Prints and Crime Scene Analysis. There are immediate openings in the first five areas. Journeyman and/or entry level applicants are acceptable with salary commensurate with training and experience.

For further information concerning these positions, please contact:

**Mr. Jack Duncan
Forensic Research and Training Section
Florida Department of Law Enforcement
Post Office Box 1489
Tallahassee, Florida 32302
(904) 487-2500**



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