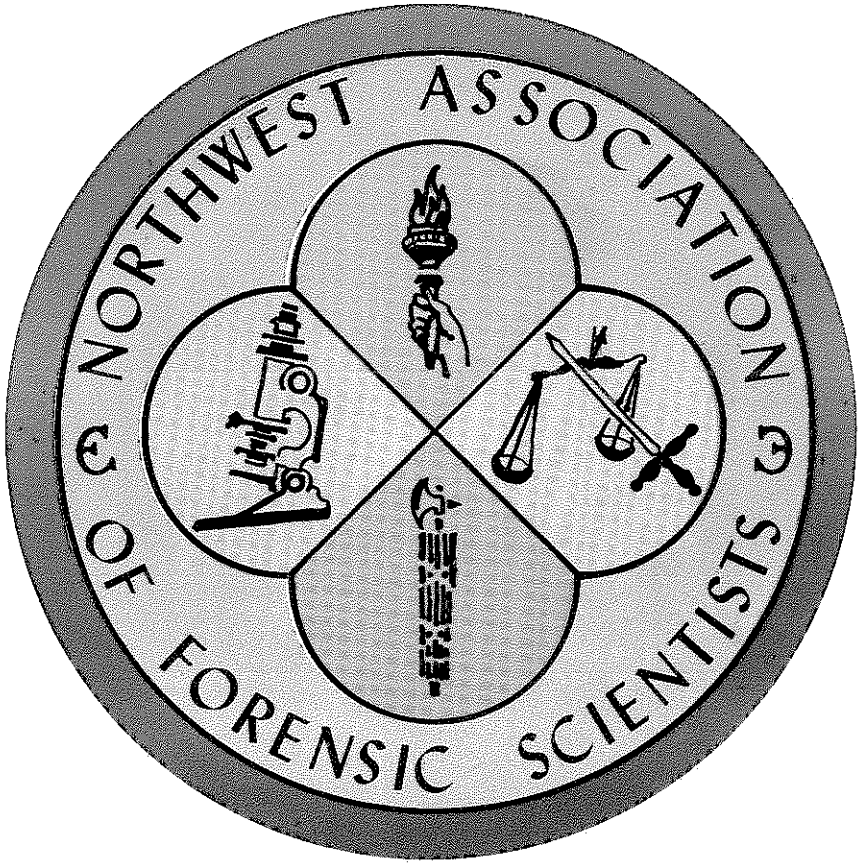
THE NEWSLETTER of



JUNE 1980 — VOLUME VI — ISSUE II

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.

Northwest Association of Forensic Scientists

Executive Committee

President	Jon Spilker
Vice President	Pamela Southcombe
Secretary-Treasurer	Lionel Tucker
Executive Committee Member-at-Large	Brad Telyea
Past President	Arnold Melnikoff

Committees

Ethics	Arnold Melnikoff Jan Beck Charles Vaughn
Membership	Brad Telya Alan Gilmore Ann Ames
Historical	Floyd Whiting
Technical Proficiency Committee	Ken Konzack
Continuing Education Committee	Larry Pederson, James A. Booker, Rogert Seger, Michael A. Howard, Ann Bradley, Carolyn Kirkwood, Kay Sweeney

Upcoming Meetings

Fall Meeting NWAFS
October 8, 9, 10, 1980

Holiday Inn
225 Coburg
Eugene, Oregon

Program Chairman ..... Charles Vaughan

NORTHWEST ASSOCIATION OF FORENSIC SCIENTISTS

Business Meeting
April 25, 1980
Boise, Idaho

I. The meeting was called to order by President John Spilker at 3:30 p.m.

II. The minutes of the previous meeting in October, 1979, in Spokane, Washington, were adopted as published in the Newsletter.

III. Treasurer's Report — See attached.

IV. Committee Reports:

A. Executive Committee Report

1. Brad will contact our new Membership Committee Chairperson, Ms. Vickie, in Missoula, concerning her duties. He will also send all of the pertinent records.
2. It was recommended to the group that the Program Meeting Chairman be given the responsibility for making a list of attendees at meetings. This should be incorporated into the job description.
3. President Spilker will contact the President of the CAC to obtain a copy of their new ethics code.

B. Certification

No formal report, but for your information, the issue was voted down. The issue is considered dead for now.

C. Membership Committee - Brad Telyea

1. As of now, we have 122 members.
2. Five complete applications, five incomplete, for membership.
3. Two resignations: Sandra Lark and James Booker.
4. It was pointed out by Brad that there is a mistake in our constitution - Page Four; Item "C" - should say, "one out of six meetings," not six consecutive.

D. Proficiency Testing Committee - No formal report. There was discussion about changing the name to "Study Group" or "Research Committee."

E. Ethics Committee

No formal report. There was some discussion on the constitution. Some people felt that we should stick to the broad guidelines as described in the NWAFS constitution.

F. Education and Newsletter - No report.

A. Our next meeting will be in wonderful downtown Eugene, Oregon. Consult your favorite newsletter for exact time and dates.

B. The "over the hill gang" in Missoula have been awarded the Spring 1981 meeting. If there are any questions concerning this action, please call any member of the Executive Committee for details.

C. It was decided to give (a vendor's request) list of the attendees at the Boise meeting.

D. It was recommended by Wayne Pierce that we publish a salary survey to be put in the Newsletter, and updated periodically. The motion was noted on and passed. Wayne has volunteered to obtain this information.

VI. New Business: Two items will be presented for a vote at the meeting in Eugene, Oregon:

A. Change term of Secretary-Treasurer from one year to a two or three year term; and,
B. Chapter I, Section 3(e) of the constitution: delete "when notified by the Secretary-Treasurer that a member has failed to attend," from that paragraph in the constitution.

VII. General Topics Discussed:

A. A joint meeting with the CAC was discussed again; the location to be at South Lake Tahoe. It was decided to investigate the issue again. There was also discussion about participation in an international meeting in Sacramento, California. The sponsors wanted to know if we would support such an effort with money and manpower. Our President indicated we had neither so it was moved to let the request rest in "limbo."

VIII. The Boise meeting was a success. Many thanks to Rich, Pam and her group for making it so! Early returns indicate we were in the black with this meeting. We should show a profit of about $351.00.

IX. And finally:
We need suggestions on how to handle all of our old records, bank receipts, minutes, correspondence, etc. At the present time, the Secretary-Treasurer has all of these mailed to him when he takes office. Perhaps the Historical Committee should have these documents.

Northwest Association of Forensic Scientists
Period from 01/25/80 to 05/09/80

Narrative:

Financial report from the Boise Idaho meeting has not been received to this date. Thirty-five members have not paid their 1980 dues.

	CREDIT	DEBIT
Transferred funds from Pam Southcombe	$2,156.84	
Membership Dues Collected	1,345.00	
Postage		$ 97.70
Typesetting Newsletter		338.63
Engraving		19.82
Charge for Printed Checks		14.12
Refund to Terrance Pasco, Overpayment of Dues		5.00
Debit Account Difference Canadian Currency and U.S.		5.78

Balance: May 9, 1980 — $3,020.79

FROM THE PRESIDENT

Proposed constitutional changes to be considered at the Fall 1980 meeting:

Chapter I, Section 3(c)
Change "The membership Committee, when notified by the Secretary-Treasurer that a member has failed to attend six (6) consecutive meetings of the Association will review the status of the said member." to; "The membership Committee shall record the attendance of each member, and should a member not attend one of six (6) consecutive meetings of the Association, review the status of said member."

Chapter II, Section 4
Add: "The Secretary-Treasurer may, and will be encouraged to serve in that capacity for more than one year."

Chapter III, Section 2(e), and Section 4(e)
Change the name of "The Technical Proficiency Committee" to "The Technical Advancement Committee."

Article V Officers
Change "Officers of this Association shall be elected annually at the Fall business meeting and shall hold office for one year or until their successors shall have been elected and qualified." to; "Officers of this Association shall be elected annually at the Fall business meeting and shall hold office for one year or until their successors shall have been elected and qualified (Except that the Secretary-Treasurer shall be allowed and encouraged to serve for more than one year)."

The Executive Committee requests that the Newsletter advise the membership that because of prior financial hardships imposed on the Secretary-Treasurer, and the program chairperson, everyone attending the Association meetings must pay their registration fees at the time of registration.

Sincerely

Jonathan G. Spilker, President

ISOLATION AND IDENTIFICATION OF PSILOCIN FROM PSILOCYBE MUSHROOMS

John A. Kearns
Eastern Washington State Crime Laboratory
Spokane, Washington

The author's interest in the controlled substances, psilocin and psilocybin, has only been of recent; drug abuse previously encountered had been of a different nature. The infulx of a rash of cases involving a variety of mushrooms sparked this newly found interest.

Search of available literature disclosed a number of procedures for extracting psilocybin and psilocin from mushrooms of the genus Psilocybe. All require the extraction of the dried mushrooms with dry methanol, varying only in subsequent isolation and identification of the controlled substances. All trials, utilizing the gamut of procedures, resulted in the producti of a material which, though providing presumptive information by thin layer chromatography and ultraviolet spectrophotometry, could not be cleaned up from botannical oils to provide a definitive infrared spectra corresponding to either psilocybin or psilocin. A procedure was sought which would reduce, or eliminate entirely, the extraction of botannical oils, in the initial stage, producing a material which could be cleaned up to provide a definitive infrared spectra of either psilocybin or psilocin.

REAGENTS:

- Hydrochloric acid, conc. and 0.3N
- Dichloromethane
- Diatomaceous earth, acid washed
- Sodium bicarbonate
- Thin layer chromatography plates
- Potassium bromide, Spectro-quality
- Fast Blue B
- p-Dimethylaminobenzal dehyde

EQUIPMENT:

- Blender, Waring, Commercial
- Chromatographic column
- Separatory funnels
- Evaporating dishes
- Infrared spectrophotometer, Perkin-Elmer 283
- Microsampling accessories, condenser, 1.5mm disk

acid. Mushrooms are blended for 1 to 2 minutes; excessive blending results in heating of the blend from an overheated motor. Blend is fast filtered through glass wool or filter paper and residue is washed with an equal volume of 0.3N hydrochloric acid. A chromatographic column is packed with approximately one inch of a diatomaceous earth secured by glass wool plugs. Filtrate is filtered through column; positive pressure facilitates the passage of filtrate through column.

Second filtrate, which should measure 20-30 milliliters, is transferred to a separatory funnel and washed twice with equal volumes of dichloromethane, discarding the washes. Solution is made alkaline with solid sodium bicarbonate and is extracted with an equal volume of dichloromethane. Extract is transferred to an evaporating dish and allowed to air dry in total darkness. Residue, which is a light gray, is essentially psilocin and will produce an infrared spectra characteristic of psilocin. Preparatory thin layer chromatography will produce a material which gives an infrared spectra identical to standard psilocin (U.S.P.C. Inc., Rockville, MD).

DISCUSSION:

The above procedure isolates psilocin. Presumably any psilocybin is initially hydrolyzed to psilocin, enhancing the chances of isolating some psilocin. The blending of mushrooms with methanol has been used to demonstrate the myriad of compounds in Psilocybe by subsequent thin layer chromatography. The above procedure, slightly altered, has been utilized successfully in isolating mescaline from ground peyote samples.

NOTE: It was discovered, quite by accident, that Fast Blue B is a visualizing agent for psilocin alone. The TLC plate is sprayed first with Fast Blue B; psilocin is marked immediately in intense red. The plate is then oversprayed with p-dimethylaminobenzaldehyde, followed by concentrated hydrochloric acid. As soon as the acid touches the psilocin, the red color changes to a deep royal blue; after a few minutes, psilocybin and the other components develop their characteristic colors.

BARBITURATE ANALYSIS PROBLEMS

by Ernest K. Chan
Forensic Chemist, DEA
San Francisco, California

It is well known that mixed barbiturates are difficult to separate for positive identification. Usually the forensic scientist is aware that a sample contains mixed barbiturates because the dosage form has unique, recognizable characteristics (i.e. "TUINALS"), and extra care and precautions can be taken in the analysis.

The Western Regional DEA Laboratory recently encountered a case involving an unknown drug in a non-descript dosage form. The usual screening, separation, and identification procedure led to a conclusion the product contained a single barbiturate: PENTOBARBITAL. It was later discovered the product contained no PENTOBARBITAL, but contained a mixture of PHENOBARBITAL and AMOBARBITAL.

The analytical results from this case will be shown and the problems involved will be discussed.

by Sgt. Jonathan G. Spilker
P.O. Box 1519
Pendleton, OR 97801

Projectiles used in sporting cartridges are designed to distort and expand, thus increasing the transfer of energy to the target, animal, or victim. The forensic comparison of a suspect and exemplary bullet may identify an individual firearm. By increasing bullet distortion, the amount of useable bullet surface is reduced, thus causing greater difficulty for the examiner. New developments include thinner bullet jackets, hollow bullets, hollow cavities, and explosive charges.

FLURAZEPAM: PHARMACOLOGY AND TOXICOLOGY

by Wayne Pierce
State of Utah
Department of Social Services
Division of Health
Bureau of Laboratories
44 Medical Drive
Salt Lake City, Utah 84113

Flurazepam, a benzodiazepine introduced in 1970, has rapidly become a leading nighttime sedative. Pharmacology and toxicology of flurazepam will be summarized. The biotransformation pathway and its implication in the interpretation of time of ingestion will be discussed with case reports.

Methods for screening and quantitating this drug and its metabolites in blood using nitrogen phosphorus detection gas chromatography will be presented.

NONVERBAL COMMUNICATION: CREDIBILITY AND DISPLAY RULES

by Dawn Craner
Communication Department
Boise State University
Boise, ID 83725

Every communication has both a **report** and a **command** aspect. The report is the what, and the command the how of communication. The report conveys the content, information, or description; the command is the instruction about how this content is to be taken. The command is delivered nonverbally through a variety of visible and audible channels such as proxemic, kinesic, paralinguistic, chronomic, and object channels. Research indicates th most people are very alert to these forms of communication but often only on a subconscio level, and that they generally perceive these behaviors according to unwritten display rules of "appropriate behavior." Analyzing these unwritten codes, especially in relation to speaker credibility, is the substance of this presentation.

By: Daryl Brender

Eastern Washington State Crime Laboratory
Public Safety Building
Spokane, Washington

When evidence from an arson scene is examined the forensic laboratory is normally requested to identify the flammable liquid used and, if possible, the brand. In analyzing for volatile accelerants the Eastern Washington State Crime Laboratory uses mainly capillary gas chromatography and finds that it far exceeds normal packed column gas chromatography.

The column used for arson analysis of flammable liquids prior to May 1, 1980, was a 100 meter SCOT (Silicon Coated Open Tubular Stainless Steel) capillary column with DC550 coating. The instrument used is a Perkin-Elmer 900 Gas Chromatograph with flame ionization detectors. The perimeter of the GC run are: 60°C for 3 minutes, programmed temperature from C to 160°C at 6°C/Min, final temperature held for 12 minutes. This programmed GC run for flammable liquids takes 35 minutes and identifies most types of flammable liquids.

Illustrations 1, 2, and 3 are some gas chromatograph runs using the above perimeters with the SCOT column.

Since May 1, 1980, the Eastern Washington State Crime Laboratory has a 100 meter glass capillary column with OV 101 coating being used for arson analysis. The instrument used is a Perkin-Elmer 910 glass lined gas chromatograph with flame ionization detectors. The perimeters of the GC run are: 60°C initial for 3 minutes, programmed temperature from 60°C to 200°C at 6°C per minute and final temperature held for 10 minutes. This Perkin-Elmer 910 GC has a post clean cycle that is used for 10 minutes at 230°C as part of the program. This GC program takes 45 minutes and identifies most types of flammable liquids and some heavier oils.

Illustrations 4, 5, and 6 are some gas chromatograph runs using the above perimeters with the glass capillary OV 101 column.

In comparing the two capillary columns the chromatograph peaks of the glass capillary are much sharper than the SCOT capillary and of a higher resolution. This glass column's coating has the advantage and capability of going to 250°C, whereas the older SCOT column can only go to 160°C. These advantages outweigh the extra 10 minutes to run a sample on the new system and, therefore, this laboratory's choice of columns was switched to this 100 meter OV 101 glass capillary.

ILLUSTRATION NO. 1

GASOLINE

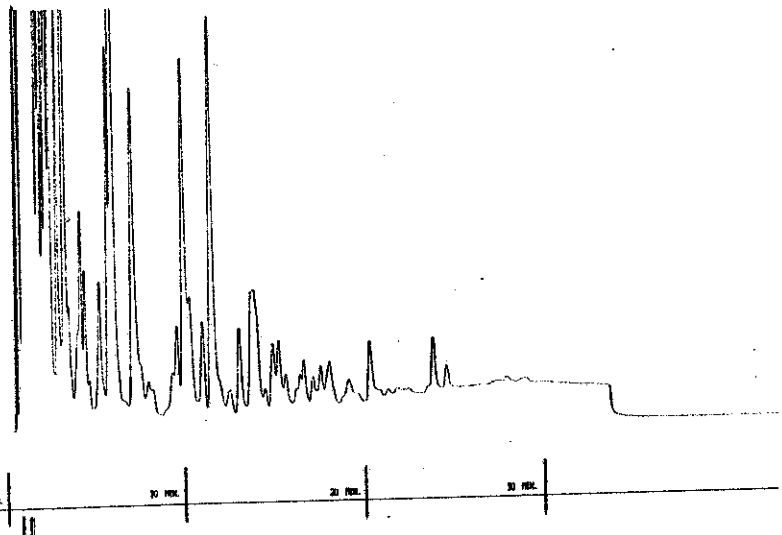


ILLUSTRATION NO. 2

CHARCOAL STARTER FLUID

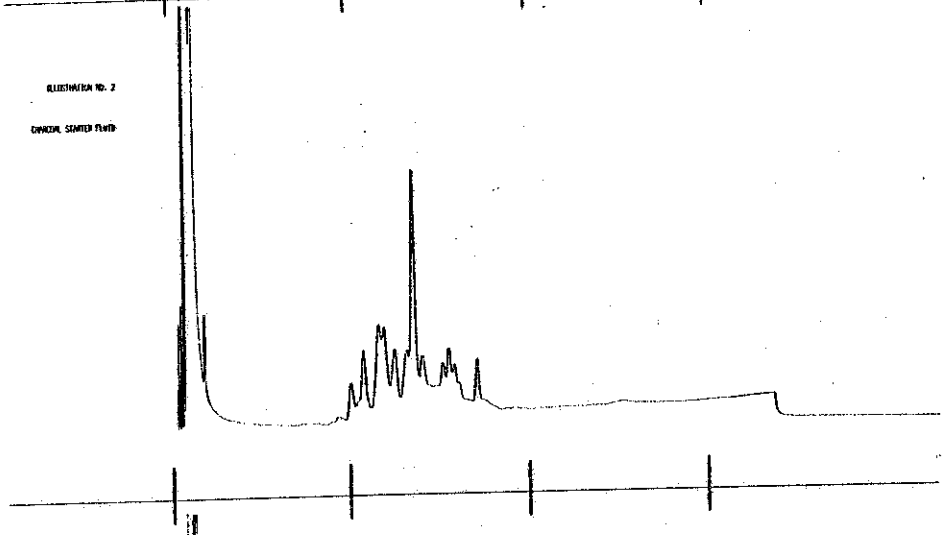
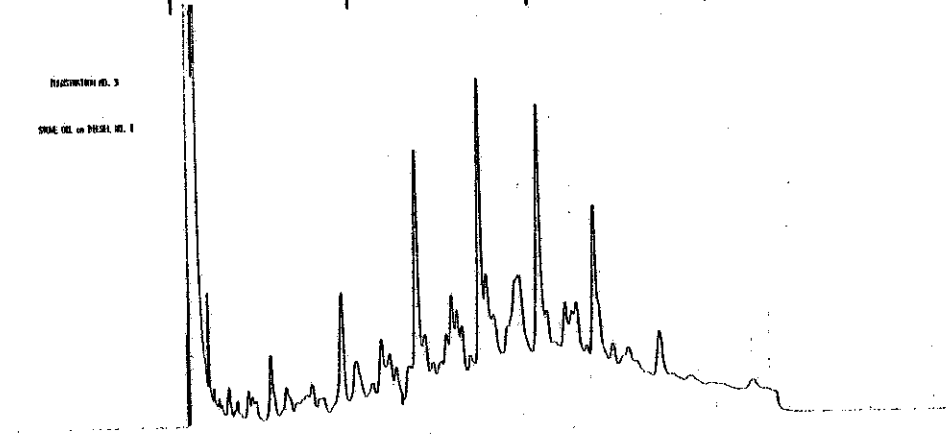
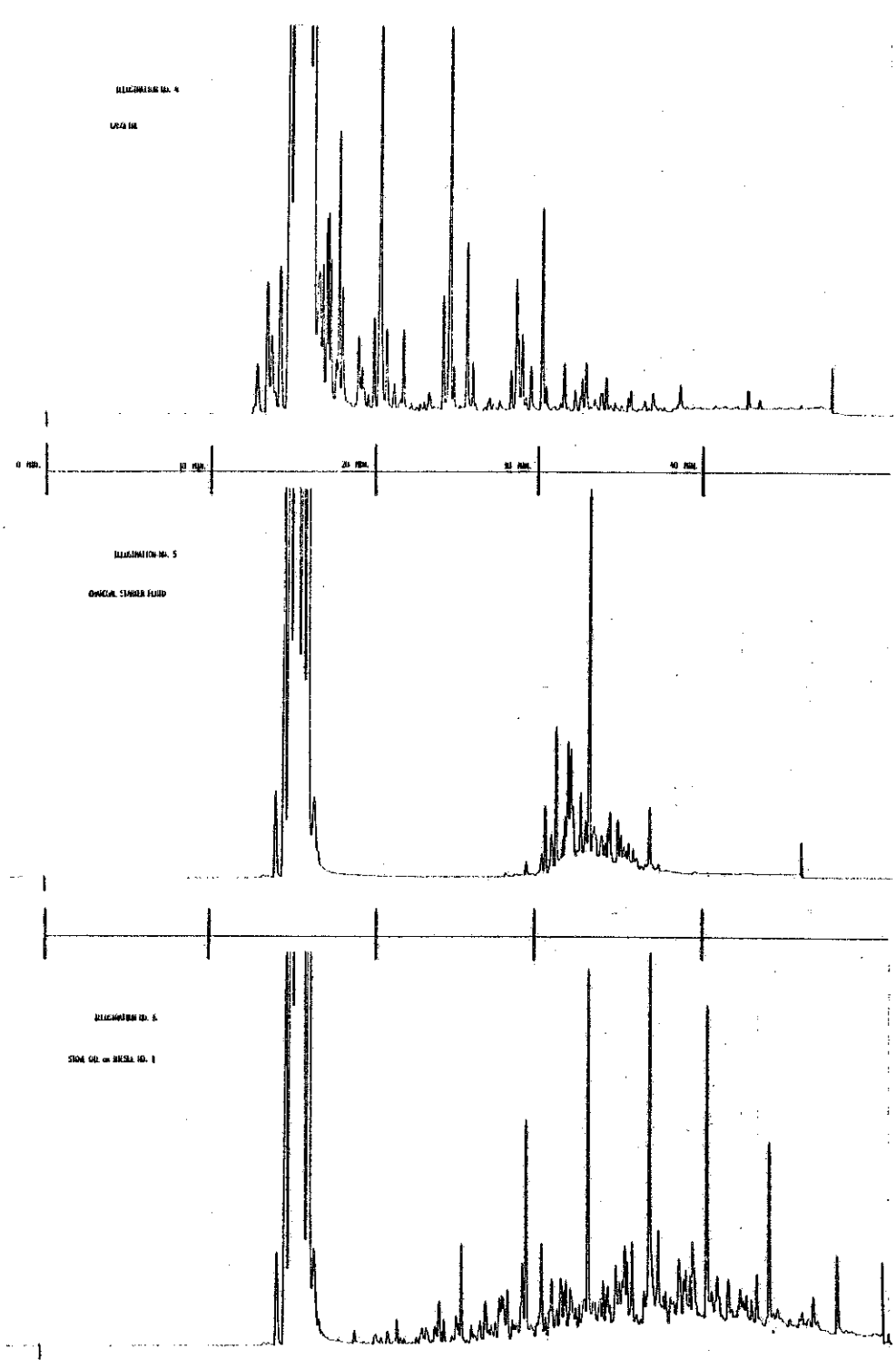


ILLUSTRATION NO. 3

SMOKE OIL on DIESEL NO. 1





by Brian Wraxall
Serological Research Inst.
1450 - 53rd St.
Emeryville, CA 94608

The subtyping of the enzyme phosphoglucomutase (PGM) is potentially significant in the analysis of stains of blood, semen and body fluids. In 1976, Bark et al[1] showed that the enzyme exhibited ten phenotypes instead of three by utilizing isoelectric focusing. Work by Sutton[2] and others showed its applicability to bloodstains, semen, etc. Subtyping by conventional methods using high molarity Histidine buffers has been recently reported in the literature (Kuhnl, 1977[3] and Bissbort, 1978[4]). We report here a simplified method of subtyping without the use of isoelectric focusing equipment, carrier ampholites or high molarity buffers. Ease of interpretation, casework applicability are discussed.

[1] Bark, J.E., Harris, M.J. Firth, M.J. Journal of Forensic Sciene Society 16, 115-120 (1976)
[2] Sutton, J.G., Journal of Forensic Science Society 24, No. 1, 189-192 (1979)
[3] Kuhnl, P., Schmidtmann, U., Spielmann, W., Hum. Genet. 35, 219-223, (1977)
[4] Bissbort, S., Ritter, H., and Kompf, J., Hum. Genet. 45, 175-177 (1978)

FORENSIC TOXICOLOGY TRENDS IN RESEARCH AND SERVICE AT THE CENTER FOR HUMAN TOXICOLOGY

by Bryan S. Finkle, Ph.D.
Center for Human Toxicology
University of Utah
Salt Lake City, Utah 84112

The Center for Human Toxicology is a part of the Health Sciences Center, Colleges of Pharmacy and Medicine at the University of Utah, and is closely allied to the Departments of Pathology and Pharmacology-Toxicology. However, it functions independently to provide research, service and education programs in Toxicology to the University at large, the Community and the National level as required. This paper will take the form of a scientific report on some current activities, pertinent to forensic toxicologists. It will include a discussion of the current status and research programs for the detection and quantitation of cannabinoids in biological samples; a description of two different but related applied research projects concerning drugs and driving impairment and analytical techniques applied in this research. Some new analytical techniques under development and evaluation at the Centr will also be described, these include the use of capillary column GC-MS, negative io chemical ionization MS. The need and development of reference analytical methods for proficiency testing and quality assurance in forensic toxicology will also be discussed. Each of these topics will be supported by case applications which have occurred during the past year at the Center.

limited service laboratories in Kelso, Tacoma, Everett, and the Tri-Cities area (Pasco, Kennewick, and Richland). These laboratories will require experienced personnel to provide controlled substance identification, crime scene assistance, and criminalistics.

There will be twelve positions for the above, including Spokane and Seattle laboratory expansion. Applications will be accepted as of June 18, 1980. The closing date for application will be August 1, 1980.

Minimum qualifications include a Bachelor of Science degree with a minimum of 20 semester hours or 30 quarter hours of chemistry. In addition the following qualifications are required:

Criminalist I:	One year full time paid experience in a laboratory;
Criminalist II:	Two years full time paid experience in a laboratory, one of which must have been in a forensic laboratory, AND qualification as an expert witness in the field of criminalistics (forensic science) in a court of law;
Criminalist III:	Four years full time paid technical experience in an analytical laboratory, three years which must have been in a forensic science laboratory, with demonstrated experience and expertise in the field of criminalistics, AND qualification as an expert witness in the field of criminalistics (forensic science) in a court of law.

Salary Range:	Criminalist I:	$1258 - 1533 per month
	Criminalist II:	1459 - 1737 per month
	Criminalist III:	1610 - 2061 per month

Interested parties should contact the following:

Washington State Department of Personnel
600 South Franklin
P.O. Box 1789
Olympia, Washington 98504

Phone: (206) 753-5368

Utah will establish an expanded, coordinated crime laboratory service in the near future. As a part of the expansion, a crime laboratory coordinator position will be funded beginning July 1, 1980. The successful candidate will be responsible to coordinate existing crime laboratory services, and to develop a central laboratory facility for the state, in the Department of Public Safety. Salary range — $24,384 - $31,536 with appointment at the lower figure. Although exact qualification requirements have yet not been established, an applicant having supervisory and/or administrative experience in a crime laboratory is preferred.

For further information contact:

Bryon Penrod
Director
Bureau of Criminal Identification
Room 300 State Office Building
Salt Lake City, Utah 84114
Phone: (801) 533-5251