NEWSLETTER

CALIFORNIA ASSOCIATION OF CRIMINALISTS

FIAT JUSTITIA PER SCIENTIAM

JULY 1990

A MESSAGE FROM THE PRESIDENT

After just a brief month in office, I am looking forward to an exciting year. In considering all that is going on in our organization and forensic science, we want to maintain our leadership role for which CAC has come to be known. Let us take a proactive rather than reactive stance where possible. In so doing, those that serve the organization in various capacities will be invaluable. I'd like to take this opportunity to thank all those who have agreed to serve on various committees. Your commitment to the organization is to be commended.

The Spring 1990 Seminar was made a success by the San Mateo County Sheriff's Laboratory. Thank you all for your effort. A number of presentations were noteworthy and all presenters are to be applauded. Vender support was excellent, which in turn made the casino night a great success.

Currently, we are pursuing mechanisms for investment of the endowment fund as we await a bequeathal to the organization.

The DNA Quality Assurance Committee has put together a draft document which will become a major cornerstone for PCR procedures. A special thanks goes to Carol Rhodes and her committee and its associates for all of their hard work. It is work like this that continues to keep CAC as a leader in the field of criminalistics.

If you have any thoughts or concerns regarding anything in which CAC is or should be involved, do not hesitate to call myself or any member of the board of directors. We look forward to serving you and the organization.

Eston

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UPCOMING PROFESSIONAL MEETINGS

ASSOCIATION OF OFFICIAL ANALYTICAL CHEMISTS September 10-13, 1990 The 104th International Meeting and Exposition in New Orleans, For further information contact Margaret Rigdell, 1111 North 19th Street, Suite 210, Arlington, VA 22209, (703) 522-3023

CANADIAN SOCIETY OF FORENSIC SCIENCE October 1-5, 1990 The Annual Conference of the Canadian Society of Forensic Science will be held at the Skyline Hotel in Ottawa, Ontario, Canada. The theme of the conference is FORENSICS 90. For further information contact Fredricka Monti, Canadian Society of Forensic Science, Suite 215 - 2660 Southvale Crescent, Ottawa, Ontario, Canada K1B 4W5, (613) 731-2096.

CALIFORNIA ASSOCIATION OF CRIMINALISTS October 19-21, 1990 The Fall Semi-Annual Seminar at the Long Beach Ramada Renaissance Hotel. For further information contact: Dave Hong, Los Angeles County Sheriff's Dept., 2020 Beverly Blvd., Los Angeles, CA 90057, (213) 974-7018.

SOUTHWEST ASSOCIATION OF FORENSIC SCIENTISTS October 23-27, 1990 The Fall Meeting will be held at the Tucson Ramada Downtown. For further information contact Nora Rankin, Tucson Police Department, Crime Laboratory, P.O. Box 1071, Tucson, AZ 85702

INTERNATIONAL ASSOCIATION OF FORENSIC SCIENCES October 24-31, 1990 The IAFS meeting will be held in Adelaide, Australia, in October, 1989. For further information, contact Dr. W. J. Tilstone, President IAFS, Forensic Science Center, 21 Divett Place, Adelaide SA 5000. (08) 226-7715 FAX (08) 224-0174

NORTHEASTERN ASSOCIATION OF FORENSIC SCIENTISTS October 26-27, 1990 The Annual Meeting will be held at the Biltmore Hotel in Providence, Rhode Island. For further information, please contact: Kirby Martir, Yonkers Police Dept. Forensic Laboratory, Suite 605, 87 Nepperham Avenue, Yonkers, New York 10701 (914) 964-3468

SOCIETY FOR VECTOR ECOLOGY November 14, 1990 The 22nd Annual Society for Vector Ecology Conference will contain a **Forensic Entomology Seminar.** The seminar will be held at the Hilton Pavilion Hotel in Mesa, Arizona. For further information, please contact: Dr. James P. Webb, Jr., Orange County Vector Control District, P.O. Box 87, Santa Ana, CA 92702 (714) 971-2421

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JOB OPENINGS

CRIMINALIST I

The **City of Tucson Police Department** is recruiting for a Criminalist who has experience in the scientific analysis of physical and chemical evidence materials, preferably in a criminalistics laboratory. The examination will be conducted when a sufficient number of applications have been received. Interested applicants should contact Susan Murray, Senior Personnel Analyst, Human Resources Dept., City of Tucson, P.O. Box 27210, Tucson, AZ 85726-7210 for application materials.

CRIMINALIST

The **Las Vegas Metropolitan Police Department** is recruiting a Criminalist II for the Forensic Laboratory. Applicants will possess a bachelor's degree in forensic science, chemistry, or a closely related field including a minimum of 24 semester units of chemistry, and three years experience in a forensic laboratory. This is a civilian, civil service position with a starting salary of $35,694 to $38,607, dependant upon education and experience. The top of the salary range is $46,972. A 5.5% salary increase has been negotiated to begin July 1, 1990. Applications are available from LVMPD Personnel, 601 East Fremont Street, Las Vegas, NV 89101-5613, Attn: Katey Lavelle (702) 799-3979, or Las Vegas Metropolitan Police Department, Personnel Bureau, 400 East Stewart, Las Vegas, NV 89101, (702) 799-3497.

CRIMINALIST

The **Los Angeles County Sheriff's Department** is seeking applicants for the Criminalist position. Qualifications for this position include a Bachelor's Degree in Criminalistics, Chemistry, Biochemistry, or a closely related science. This is an entry level position. Duties will vary with assignment. The salary range is $2649 to $ 3281 a month. Interested applicants should contact the Los Angeles Sheriff's Dept., Scientific Services Bureau, 2020 West Beverly Blvd., Los Angeles, CA 90057-2494, Attention: Harley Sagara

SUPERVISING CRIMINALIST

The **Huntington Beach Police Department** is seeking applicants for a Supervising Criminalist position. This is a non-sworn position that assists the Chief Criminalist in directing and supervising the Scientific Investigation Unit. Requirements include a Bachelor's Degree in criminalistics, chemistry, biology or a closely related field and three years of varied experience as a criminalist. The applicant also must possess a California Department of Health Services Forensic Alcohol Supervisor's License and a valid California Driver's License. Apply by July 31, 1990 to: Personnel Division, City of Huntington Beach, 2000 Main Street, P.O. Box 190, Huntington Beach, CA 92648, (714) 536-5492.

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CERTIFICATION

Mary Gibbons - *Chair*
Jim Bailey
Gary Cortner
Dan Gammie
Steve Renteria
Jim Stam

DNA QUALITY ASSURANCE

Carol Rhodes - *Chair*
Mary Gibbons
John Hartman
Barbara Johnson
Kenneth Konzak
Edward Rhodes
Rebecca Reynolds
Jennifer Super-Mihalovich

ENDOWMENT

Fred Tulleners - *Chair*
Jim Norris
John Murdock
Jim White
Sandy Wiersema

ETHICS

Karen Sheldon - *Chair*
Marty Blake
Linda Hartsrom

FOUNDERS' LECTURE

John DeHaan - *Chair*
Dave Hong
Rich Brown

HISTORICAL

Jack Cadman

TRAINING AND RESOURCES

Pam Smith - *Chair*
Peter Barnett
Steve Cooper
Kristin Garvin
Gary Sims
Lisa Skinner
Jeff Thompson

1990 - 1991 COMMITTEE ASSIGNMENTS

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Dorothy Northey Receives 1990 Distinguished Member Award

President Weirsema presented the 1990 Distinguished Member Award to Dorothy Northey at the Spring Seminar Banquet held at the Westin Hotel in Millbrae, California. The Distinguished Member Award is a fitting tribute to Dorothy, who has continually provided her talent and enthusiasm to the CAC for over 20 years. In this time she has served on a host of committees, including the Ad Hoc Committee on Genetic Marker Typing and the Nominating Committee. She has served as Regional Director North and Membership Secretary. Her latest contribution, for which she was nominated for the Distinguished Member Award, was her guiding influence on Certification Board of Examiners. Dorothy's nominators, two of whom are also Distinguished Member recipients, spoke highly of her work: "Although each of us on the Board devoted a lot of time and energy to the project, none of us approached the amount of work contributed by Dorothy. . . Beyond all her other efforts on this Board, she individually took on the Herculean task of validating the study guide."

Beyond Dorothy's service to the CAC, many members commented on her continued efforts in training newcomers to the profession. Her talent and depth of knowledge in multiple areas of criminalistics has earned her the unofficial, yet highly respected, title of "generalist". The CAC is indeed fortunate to have examples like Dorothy to look to, and we are proud to call her a Distinguished Member.

David Stockwell
Awards Committee

Rebecca Reynolds Receives The Outstanding Paper Award

The Awards Committee is happy to announce the Outstanding Presentation Award for the 1990 Spring Seminar goes to Rebecca Reynolds. Her paper "*Detection of Sequence Differences Between Gc Variants Using the Polymerase Chain Reaction*" was judged the best by the three person reviewing panel. Congratulations to Rebecca and co-authors George Sensabaugh and Dan Gregonis.

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Spring 1990 NWAFS Meeting Abstracts

"Wildlife Forensic Field Manual"

William J. Adrian, Danny Walker, Tommy Moore, and David Oates
Colorado Division of Wildlife
317 W. Prospect
Fort Collins, CO 80526

This paper will deal with the soon to be published Association of Midwest Fish and Game Law Enforcement Officers Wildlife Forensics Field Manual. The manual is designed to give the wildlife field officer a complete, easy to follow and read descriptions of what a wildlife forensic lab can do, what samples it needs and how to submit those samples. It also gives the officer up-to-date procedures on what can be done in the field (i.e., matching carcasses, determining the sex of headless carcasses, determining the sex of field dressed birds, determining time of death, characteristics of wound, age determinations of big game animals and determining species and sex using various bones.

"Simultaneous DNA Probing for RFLP's In Parentage Testing"

Dale D. Dykes, Moses S. Schanfield, and Shirley A. Miller
Analytical Genetic Testing Center, Inc.
7808 Cherry Creek South Drive, Suite 201
Denver, CO 80231

DNA phenotyping in cases of disputed parentage should utilize highly polymorphic loci to maximize results with a minimum number of probes. Stripping and reprobing membranes is often used to yield further information such as additional exclusions or to increase inclusionary estimates. However, careful selection of probes which identify non-overlapping banding patterns from different loci eliminate the expense and loss of signal associated with reprobing. For this study, which utilized non-isotopic detection of bands with biotinylated probes, we selected a series of probe combinations to be used in simultaneous hybridizations of paternity cases. In some cases two gels were run on the same paternity case, and each membrane was simultaneously hybridized with 2-3 probes. Probes were biotinylated using ONCOR labelling kits and bands were detected with ONCOR detection kits which used standard alkaline phosphatase staining methods. The probes tested were pS194, pL336, p144-D6, pL159-1, pL355-8, pL427-4, and pR365.

Using non-isotopic detection methods and simultaneous hybridization, paternity cases could be resolved in 24 hours. Minimum exclusion probabilities with two probes were 95-96%, where as using 2-3 probes on two separate membranes gave exclusion probabilities in excess of 99.9%. Multiple exclusions were identified in greater than 90% of the cases with falsely accused fathers. Inclusionary estimates (PI) were generally greater than 10,000 when four or more probes were used. Simultaneous probing and non-isotopic detection clearly reduces the cost of testing and at the same time maximizes the test results.

"The Inherent Error In Size Determination of RFLP's Using Molecular Weight Markers"

Dale D. Dykes, Shirley A. Miller, Moses S. Schanfield, Ph.D., and John Danilovs, Ph.D.
Analytical Genetic Testing Center, Inc.
7808 Cherry Creek South Drive, Suite 201
Denver, CO 80231
and
Immunological Associates
15425-E S.W. Koll Parkway

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Beaverton, OR 97006

The basic premise inherent in using molecular weight (MW) standards to determine the size of RFLP bands is that a band of 1 Kb will migrate the same distance as a 1 Kb standard on the same gel regardless of the experimental conditions. Given this premise it should be possible to compare data bases between laboratories. However, a comparison of RFLP's hybridized with probe p144-D6 from two laboratories clearly demonstrated a shift in position for the same samples when compared to MW standards. Comparison of laboratory protocols indicated that gel concentration might be a major factor affecting the observed band differences. Although the initial comparisons were done using identical amounts of genomic, it was proposed that the amount of genomic might also have a significant effect upon RFLP band sizing.

Parallel experiments were performed to determine the influence of gel concentration and sample amount (g) upon the observed RFLP size. The results indicate that both experimental parameters dramatically influence the observed band sizes. This implies that pooling data bases is not justified if gel conditions and sample amounts are not identical. Furthermore, we found that genomic samples cannot be adequately compared to a MW standard unless the standard is STABILIZED with restricted genomic DNA at a concentration similar to the genomic samples in question. This new application for sizing DNA RFLP's permits accurate and consistent measurements when comparing fragments at various gel and sample amounts.

"Design and Performance of A New Infrared Microscope"

W.D. Perkins, D.W. Schiering, and E.F. Young
The Perkin-Elmer Corporation
2305 Bering Drive
San Jose, CA 95124
and
The Perkin-Elmer Corporation
761 Main Avenue
Norwalk, CT 06859

A new infrared microscope incorporates a number of unique features. Viewing is stereoscopic and is done through a commercially available binocular microscope. The same stereoscope can be used for sample manipulation and preparation using a special sample preparation stage. High numerical aperture, low magnification, pre-aligned Cassegrain optics are used to couple energy to the sample. The lower power of the Cassegrains provides unusually large working distance while the higher power of the stereoscope allows detailed examination of the sample and precise positioning of the remote aperture blades. The microscope can be used in both transmission and reflection and accepts either room temperature or cooled detectors. Examples of system performance using typical forensic samples will be presented.

"Sexual Assault Combing Evidence Survey Results"

Rex Riis
South Dakota Forensic Lab
500 E. Capitol
Pierre, SD 57501

This paper will address the results of a 1989 survey of the Northwest and Midwestern Associations of Forensic Scientists who are involved with combing evidence examinations.

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"Confocal Microscopy: A Brief Overview"

Tracor Northern, Inc.
2551 Beltline Highway
Middleton, WI 53562

This paper will briefly cover the theory of confocal imaging and the different types of confocal microscopes commercially available. Additionally, stereo pairs, 3-D reconstruction and surface feature data obtained with a confocal microscope coupled to a digital video image analyzer will be presented.

"Biochemical Identification of Exotic Deer Species"

Peter A. Dratch
National Fish and Wildlife Forensic Laboratory
1490 East Main Street
Ashland, OR 97520

The growth of deer farming in recent years has resulted in the increase sale and transport of non-native species, both as live animals and as venison. Identifying the deer species from a blood or meat sample can be critical in determining whether a game violation has occurred.

This paper describes biochemical methods for differentiating North American elk from the closely related European red deer, which is farmed around the world. Isoelectric focusing and PAGE reveal diagnostic differences in hemoglobin and post-transferrin. European fallow deer are not farmed in several states. They can be differentiated from the endangered Mesopotamian fallow deer by a fixed allelic difference at glucose phosphate isomerase.

"Photographic Enhancement Of Footprints On A Notebook Cover"

Donna I. Shepherdson
Bureau of Forensic Services
Department of Law Enforcement
2220 Old Penitentiary Road
Boise, ID 83712

A variety of techniques were utilized in an attempt to enhance footprints on a notebook cover. Several chemical enhancement and photographic techniques will be discussed in this paper, including ammonium thiocyanate and 8-hydroxyquinoline.

"Bend Over Truck, I Want To Examine Your Tires"

Donna I. Shepherdson
Bureau Of Forensic Services
Department of Law Enforcement
2220 Old Penitentiary Road
Boise, ID 83712

Making successful test impressions from tires can present the examiner with many problems. Two methods will be presented; the ink method and an easy method.

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"Results From the 1989 NWAFS Flammable Liquid Proficiency Test"

Dale C. Mann
Washington State Patrol Crime Laboratory
County City Building
930 Tacoma Avenue, B-70
Tacoma, WA 98402

The compiled test results from the 1989 NWAFS Flammable Liquid Proficiency Test will be presented.

"Production of Phenyl-2-Propanone via the 1-(Phenyl)-2-Nitropropene Intermediate"

Thomas B. Netwal, M.S.
Colorado Bureau Of Investigation Laboratory
690 Kipling, Suite 4000
Lakewood, CO 80215

This paper will describe the synthesis of Phenyl-2-Propanone, P-2-P, utilizing a relatively uncommon or obscure pathway which incorporates the intermediate known as 1-(Phenyl)-2-Nitropropene. An account of the laboratory seizure, documents recovered, analytical techniques, and analytical profiles of this compound will be presented.

"A Hank of Hair, A Piece of Bone...."

Larry W. Campbell
British Columbia Coroners Service
4595 Canada Way
Burnaby, British Columbia
Canada
This paper will deal with a multi-disciplinary investigation into a police shooting in Vancouver, B.C. Ballistics, hair and fibre, forensic pathology and serology all contributed to a surprising conclusion. A review of the evidence will be presented.

"Improved Discrimination of Sheet Glass Sources"

Robert D. Koons
FBI Laboratory
FSRTC, FBI Academy
Quantico, VA 22135

Optical and physical properties have long been accepted as reliable discriminators of sheet glass sources. However, recent improvements in manufacturing quality have lessened the discriminating power of these measurements. Research into the methods of elemental analysis of glass fragments for improved discrimination of sources will be discussed.

"The Determination of Sex of Hair and Meat of Game Species in Wyoming"

Janet M. Hough
University of Wyoming
Department of Zoology and Physiology

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Laramie, Wyoming 82071

This paper will address a variety of methods that were tried during the course of the grant, to attempt to sex hair and meat of game animals. Different embedding methods, and staining techniques will be demonstrated by slides. The epoxy resin embedding technique, which had success, will be the emphasis of the presentation.

"Prospects For The Individualization of Soils Evidence"

John P. Wehrenberg
Department of Geology
University of Montana
Missoula, MT 59812

It is possible to individualize soils evidence in those cases where the following conditions are met: 1) It can be shown that movements of the suspect in the time interval between the commission of the crime and when he is taken into custody are limited to a geographic region called the "universe of the crime." 2) There exists a mathematically sufficient database that contains analyses of well-defined comparative parameters of soils in a region called the "soils database region." 3) The universe of the crime is entirely located within the soils database region.

Los Angeles County, California, is used to construct a realistic quasi-database to examine the comparative parameters and their statistically significant ranges of values for soils in a restricted jurisdiction.

"What You See Is Not Always What You Get"

Julie Long and Charles Baker
Division of Forensic Science
554 W. Broadway
Missoula, MT 59801

We will report on a rare PGM race variant encountered in a sexual assault case which will stress the need to utilize both conventional and PGM subtyping techniques.

"PCR Genetic Markers of Forensic Analysis"

Randall K. Saiki, P. Sean Walsh, Shanavaz Nasarabadi, Russell G. Higuichi, and Henry A. Erlich
Department of Human genetics
Cetus Corporation
1400 Fifty-Third Street
Emeryville, CA 98608

The polymerase chain reaction (PCR) is a DNA amplification technique that is well-suited to the forensic analysis of DNA samples extracted from evidentiary material. By amplifying specific regions of human DNA that possess a high degree of sequence variation, information about the origin of a particular biological specimen can be readily obtained. The amplification of the human multi-allele gene, HLA-DQ, and its application to individual identification will be discussed. Other polymorphic markers will also be described.

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"DNA-Based Testing For The Analysis Of Wildlife Samples"

*N.J. Casna, W. Gergits, S. Nawoschik, L. Lundgren, M. Baldassare, J Wos*ka, and E. Camposano
Animal Identity Laboratory
Lifecodes Corporation
Saw Mill River Road
Valhalla, NY 10595

DNA probes can be used to generate a DNA profile that is useful for the purposes of individual identity, population/species differentiation and breeding management. DNA isolated from blood and tissue samples of various wildlife species, including: moose, big horn sheep, bald eagles, dolphins, etc. were hybridized with human derived probes. The results obtained were quantified by digitizing and computer analysis. These DNA profiles can be used to distinguish among individuals and to match blood and tissue samples as originating from the same source. Genetic differences were observed between populations of the same species. The application of these techniques to wildlife forensics and conservation will be discussed.

"Mammoth or Modern Proboscidean Ivory"

Edgard O. Espinoza, and Mary-Jacque Mann
National Fish and Wildlife Forensics Laboratory
1490 E. Main Street
Ashland, OR 97520

At issue is the importation of a carved ivory object. Was it made from banned elephant ivory or from the tusk of a long extinct mammoth? Through visual and scanning electron microscopic examinations, a non-destructive method for differentiating modern from ancient proboscidean ivory was developed. The focus of this method is the apparent angulation of an optical phenomenon known as Schreger lines. Schreger lines are a function of the sinusoidal dentinal tubules within the tusk's dentine. The density of these tubules per unit area is greater in ancient proboscidean ivory than it is in modern elephant ivory. This density difference results in visibly acute Schreger angles in mammoths and obtuse angles in elephant ivory.

"A Scheme For The Class Characteristic Identification of Ivory and Ivory Substitutes"

Edgard O. Espinoza, Mary-Jacque Mann, and Kent A. Oakes
National Fish and Wildlife Forensics Laboratory
1490 E. Main Street
Ashland, OR 97520

There are fifteen commercially available sources of ivory and ivory substitutes. Nine of these sources are endangered species, two are unprotected animals and four are natural or synthetic ivory substitutes. The identifiable class characteristics of some of these sources were known, for others the level of usable knowledge varied from little to nothing. The recognition of endangered ivory sources necessitated the development of a systematic class characteristic identification scheme which would encompass all fifteen of these ivory sources. This scheme and its morphological, physical and instrumental components will be presented.

"Osteology and Sex Identification in Wildlife Forensics"

Danny Walker
Wyoming State Archaeologist's Office
Wyoming Recreation Commission
Department of Anthropology

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University of Wyoming
Laramie, WY 82071

Osteological analyses and identification are becoming increasingly common in forensic science. Such studies were pioneered during World War II identifications of human remains. Recently, several similar techniques, some new, have been successfully applied to wildlife forensics. Various techniques used in identifications of illegal, and legal, wildlife parts are becoming known to the general public. It is also becoming increasingly common for attempts to be often made for circumvention and destruction of those specific pieces of evidence. New osteological characters for identifying sex in big game have recently been established. Some of these characters are also valid for other animal species as well.

"Non-radioactive DNA Fingerprinting in Elk"

Clay Michael Stern, Robert S. Cook
Department of Fishery and Wildlife Biology
Colorado State University
Fort Collins, Colorado 80523

This paper deals with the development and application of a non-radioactive restriction fragment length polymorphism (RFLP) assay. Individual-specific DNA banding patterns were obtained in elk (Cervus elaphus). DNA was purified from whole blood, fresh and frozen tissue, and hybridized using the bacteriophage M13mp18 as the probe. The probe is labelled by random priming with dUTP linked to a hapten steroid and visualized by an enzyme-catalyzed color reaction. Increased stringency of the post-hybridization washes and enhanced membrane blocking has reduced the usually dense background associated with non-isotopic hybridization techniques. The resulting DNA fingerprints are adequately sensitive and polymorphic to differentiate, or match individuals. The non-radioactive nature of the technique allows it to be safely performed in any laboratory.

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ETHICAL DISCUSSION
SERIES II, PART 4

This ethical discussion relates to the issue of testimony in court. The C.A.C. Code of Ethics provides that a criminalist will not knowingly mislead the jury. (Article III, Sections B, E, F, H, and I, e.g.) However, certain types of testimony are often presented repeatedly, where there may not be any particular thought given as to whether they may be misleading. Consider the following hypothetical.

Facts: The police criminalist routinely gives testimony in driving under the influence cases. A general line of questioning has developed with the prosecutor, almost to the point of being a script, as follows:
Q: Based upon your training and experience as well as testing you have done yourself, do you have an opinion as to a blood alcohol level at which all persons are under the influence for purposes of driving?
A: Yes, sir. Numerous studies have shown that all persons will be under the influence when their blood alcohol level is .08% or more.

The following occurs on cross-examination:
Q: What do you mean by the term "under the influence"?
A: I mean that the individual is no longer able to drive as safely as he could have when he was sober; that is, there is more risk that he will have an accident.
Q: Are you familiar with the legal definition of "under the influence'?
A: No. I'm a toxicologist, not a lawyer. I just gave you the toxicology definition.

The "legal" definition of under the influence is found in California Jury Instructions Criminal (No. 16.831) as follows:

A person is under the influence of an alcoholic beverage when as a result of drinking such alcoholic beverage his physical or mental abilities are impaired to such a degree that he no longer has the ability to drive a vehicle with the caution characteristic of a sober person of ordinary prudence under the same or similar circumstance.

Issues: The "legal" definition of under the influence may not be completely clear, but it is certainly clear that it is an objective standard--i.e., a comparison of the defendant with alcohol in his system to the hypothetical normal sober person, rather than a comparison of the defendant in his questioned state to his own sober state. The criminalist is therefore not using the same definition that the jury is charged to apply to the defendant. The question of whether the defendant was under the influence is an ultimate issue for the jury to decide. It is proper for an expert to render an opinion on the ultimate issue for the jury's consideration, but is it proper for the criminalist to render an opinion on whether the defendant was "under the influence" when he is applying a definition to the term which is not the definition to be applied by the jury? Note that the difference in definitions would not have been disclosed at all had not the defense counsel asked. Further, it appears from the response that the witness is being somewhat less than candid: Why does he not know the legal definition, when he testifies on the subject on a regular basis? Is there a toxicology definition for under the influence at all? Is not the term itself a legal term rather than a toxicology term?

Consider the provisions of Article III of the C.A.C. Code of Ethics, particularly Section B: "The ethical expert does not take advantage of his privilege to express opinions by offering opinions on matters within his field of qualification to which he has not given formal consideration." The criminalist is certainly aware that the jury will be charged with applying the "legal" definition of "under the influence" to the facts of the case. If the criminalist has not given thought to the legal definition of the term, what justification does he have for using the term by applying a different definition? Consider, too, Section E: "In all respects, the criminalist will avoid the use of terms and opinions which will be assigned greater weight than are due

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them. Where an opinion requires qualification or explanation, it is not only proper but incumbent upon the witness to offer such qualification." Is it not reasonable that the jury will assign great weight to the term "under the influence," since it is ultimately their duty to determine if the defendant was under the influence?

Should the witness answer the prosecutor's question at all, if he is not to use the legal definition? Assume that the criminalist does not fully understand the legal definition. (E.g., the definition requires that a comparison be made between the caution of the defendant at the time his physical or mental capabilities have been impaired to the caution of the normal, sober driver of ordinary prudence under the same or similar circumstances; the criminalist may not know how to measure caution.) Would such failure to understand the definition excuse his use of a different definition?

If it is acceptable for the criminalist to use a definition other than the "legal" definition, is it then acceptable for each criminalist to use his own definition? For example, would it be ethical for an independent criminalist to use the following definition: "A person is under the influence when the alcohol has impaired his abilities to such an extent that he can no longer operate the controls on a vehicle"? Under this definition, very few drivers would ever be deemed under the influence.

As related questions, how many expert witnesses routinely testify in this area without knowing the definition of under the influence? And how many who know the definition can explain the definition? It seems that recently a number of criminalists have altered their opinion of the level at which all persons are under the influence--at about the same time the legislature changed the presumptive level. Is it ethically proper for a criminalist to consider the statutory level in forming his own opinion of the blood alcohol level where all persons are under the influence?

Please send your responses, including the reasoning for your opinions to:

V. Parker Bell
225 East Third Ave.
Escondido, CA 92025

It would be especially appreciated if some of the "younger" members of the association would respond. Please try to cite specific sections of the Code of Ethics in your responses. If you wish to remain anonymous, please so indicate in your response.

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HEAVIEST ELEMENT DISCOVERED

(by Thomas G. Kyle, Los Alamos, New Mexico)

(in the Journal of Irreproducible Results)

(Volume 35, Number 1, January/February 1990)

The heaviest element known to science was recently discovered at one of the national laboratories. Th e element, tentatively named administratium (Ad), has no electrons or protons, thus having atomic number zero. It does, however, have one neutron, 75 associate neutrons, 125 deputy neutrons and 11 assistant deputy associate neutrons. This gives it an atomic mass of 312. The 312 particles are held together in the nucleus by a force that involves the continuous exchange of meson-like particles called memoons.

Since it has no electrons, administratium is inert. Nevertheless, it can be detected chemically because it seems to impede every reaction in which it takes part. According to Dr. M. Languor, one of the discoverers of the element, a very small amount of administratium caused one reaction that normally occurs in less than a second to require over four days to go to completion.

Administratium has a half-life of approximately 3 years, at which time it does not actually decay. Instead it undergoes an internal reorganization. A tendency has been observed for the atomic mass to actually increase during each reorganization.

ORAL CONCEPTION - IMPREGNATION VIA THE PROXIMAL GASTROINTESTINAL TRACT IN A PATIENT WITH AN APLASTIC DISTAL VAGINA - CASE REPORT

(by Douwe A. A. Verkuyl)

(British Journal of Obstetrics and Gynecology)

(Volume 95, Pages 933-934, September 1988)

(from Journal of Irreproducible Results)

(Volume 35, Number 2, March/April 1990)

The patient was a 15-year-old girl employed in a local bar in Mafeteng, Lesotho. She was admitted to the hospital after a knife fight involving her, a former lover, and a new boyfriend. Who exactly stabbed the woman was not quite clear, but all three participants in the small war were admitted with knife injuries. The girl has some minor lacerations of the left hand and a single stab wound in the upper abdomen.

Precisely 278 days later the patient was admitted again to the hospital with acute, intermittent abdominal pain. Abdominal examination revealed a term pregnancy with a cephalic fetal presentation. The uterus was contracting regularly, and the fetal heart was heard. Inspection of the vulva showed no vaginal; only a shallow skin dimple was present below the external urethral meatus and between the labia minora.

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An emergency lower segment caesarean section was performed under spinal anaesthesia and a live male infant weighing 2800 g was born.
The whole story did not become completely clear during that day but, with some subsequent inquiries, the whole saga emerged.

The patient was well aware of the fact she had no vagina, and she had started oral experiments after disappointing attempts at conventional intercourse.

Just before she was stabbed in the abdomen she had practiced fellatio with her new boyfriend and was caught in the act by her former lover. The fight with knives ensued. She had never had a period, and there was no trace of lochia after the caesarean section. She had been worried about the increase in her abdominal size but could not believe she was pregnant, although it had crossed her mind more often as her girth increased and as people around her suggested that she was pregnant. She did recall several episodes of lower abdominal pain during the previous year. The young mother, her family and the likely father adapted themselves rapidly to the new situation, and some cattle changed hands to prove that there were no hard feelings.

A plausible explanation for this pregnancy is that the spermatozoa gained access to the reproductive organs via the injured gastrointestinal tract. It is known that spermatozoa do not survive long in an environment with a low pH, but it is also known that saliva has a high pH and that a starved person does not produce acid under normal circumstances.

It is likely that the patient became pregnant with he first or nearly first ovulation. The fact that the son resembles the father excludes an even more miraculous conception.

As this issue of the Newsletter goes to press, we are saddened to learn of the death of

Dale Dykes

on Wednesday, July 11, 1990. Dr. Dykes is survived by his wife and two children.

Two memorial funds have been established:

Dale Dykes Memorial Fund
Forensic Science Society Foundation
Endownment Fund
P.O. Bax 666
Colorado Springs, CO 80903

and

Dale Dykes Memorial Fund
Frontier Bank
Attention: Gail Gomez
6565 East Evans
Denver, CO 80224

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CAC MERCHANDISE

Show your colors (or colours) at home, at work, or at play. Be the first (and probably the only) person on your street to have one of these. Limited stocks are on hand at CAC Seminars and by mail (via John DeHaan (California DOJ/CCI, in Sacramento). Special order items and colors are available on request. All CAC clothing items bear a specially embroidered emblem. These goodies are offered to you at cost, so you won't find a better deal.

The current offerings are listed here. if you would like to see a particular product offered, contact John DeHaan at BFS-CCI, 4949 Broadway, Room A-104A, Sacramento, California 95820, (916) 739-4380.

We are pleased to announce that the long-awaited **LADIES SCARVES** are available now and sale-priced at just $12.00 each. White with red and blue trim, they have the CAC logo silk-screened at one end.

MEN'S TIES with the CAC logo embroidered in silk are also available for $12.00 Choice of Blue or Burgundy.

We have, at last, gold **CAC NAME BADGES**. Get your own personalized one for just $6.00. There are also **MUGS** ($6.50), **SWEATSHIRTS** (Hooded for $16.00, and Plain for $12.50), **GOLF SHIRTS** ($15.50), and **SWEATERS** ($16.50 to $17.50) in stock. We are also considering ordering **POLO SHIRTS** in blue and white. Contact John for more information.

A full range of FORENSIC SCIENCE SOCIETY items are also available. Many of them are listed below.

REMEMBER - We have gone to considerable trouble and expense to get these special items. Please show your support for the CAC!

Listed below are some of the other items that are available for sale:

Hats (one size fits all, mesh and foam, various colors with white: $5.50

Patches: CAC logo only, black-on-white: $5.00

Vests (sleeveless acrylic pullovers): $16.50

Sweaters or Vests are available in: black, brown, burgundy, tan (camel), light blue, red and navy. (100% Orlon available at extra cost)

Forensic Science Society Ties: Embroidered FSS motif: $6.50 (navy brown, burgundy) Woven multiple scale/microscope motif: $6.50 (burgundy)

Plaques: $20.00

Publications:

The following publications are available from the CAC. These are available at the CAC table at our semi-annual seminars. For further information, contact John DeHaan.

Explosion Investigation, Yallop $25.00

Science Against Crime, Kind/Overman $15.00

Eight Peak Index of Mass Spectra $65.00

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Measurement of Breath Alcohol $13.00

Bibliography on Ethyl Alcohol, Holleyhead $25.00

The Controlled Substances Act: A Resource Manual of the Current Status of the Federal Drug Laws, Alexander Shulgin $25.00

CAC Policy Manual, complete with By-Laws, Officer Duty Statements, CAC Policy Statements, Ethics Enforcement Procdure with Binder: $20.00

Index to CAC Seminars - free to members, $10.00 to non-members.

CAC Abstracts (with index, in a three ring binder with the CAC logo) - $25.00 for members, $50.00 for non-members

Three Ring Binders: Blue & Grey with CAC Logo: $10.00

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Notice to Contributors

The California Association of Criminalists Newsletter is published four times a year (January, April, July, and October) by the California Association of Criminalists, a non-profit, professional society dedicated to the furtherance of forensic science in both the public and private sectors.

This newsletter publishes material of interest to its readers and is pleased to receive manuscripts from potential authors. Meeting announcements, employment opportunities, course announcements, etc. are also solicited.

Advertisements are also accepted, although a fee is charged for their inclusion in the Newsletter. The acceptance of any advertisement is at the sole discretion of the Editorial Secretary.

This Newsletter is prepared using Ventura Publisher™ Ver. 2.0, running on an IBM compatibe 386/25MHz microcomputer and printed on an HP Laserjet™ II printer. Because of its mode of preparation, the Editorial Secretary requests that, if possible, all submissions to the Newsletter be made in the form of files contained on 5.25 inch IBM formatted diskettes (Either 360KB or 1.2MB) or on 3.5 inch IBM formatted diskettes (Either 720KB or 1.44MB). The following word processing programs can be accommodated: Wordperfect 4.2, 5.0 or 5.1; Wordstar 3.0, 4.0 and 5.0; Microsoft Word; XyWrite, and Multimate. Because of its widespread availability, Wordperfect 5.0 or 5.1 is preferred. Output from wordprocessing programs not listed above should be submitted in ASCII format. If possible, the submitted files should contain as few enhancements (bold, italic, centering, multiple typefaces) as possible. Drawing and images can also be directly imported, contact the Editorial Secretary for details and acceptable file formats. FAX submissions are also accepted. The FAX number for the Editorial Secretary is (415) 553-1483.

The deadlines for submissions to the newsletter are December 15, March 15, June 15, and September 15.

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