



TOXTALK

Publication of the Society of Forensic Toxicologists

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Rolla N. Harger: 1890 - 1983

by Kurt M. Dubowski, PhD

During the golden decades of American forensic toxicology's development, 1920-1960, Rolla Harger became the acknowledged leader in the field in the Midwest. His leadership took not only the form of pioneering scientific developments in the emerging field of toxicology, but also stimulating, inspiring, and challenging all who dared to enter the arena of application of science to law. His dedication to this field was evident in his involvement in professional activities, formal and informal communications, and often vigorous public and private debates with colleagues around the nation. Many consider him their mentor as his voice was heard at meetings; and file cabinets are filled with voluminous correspondence from Rolla Harger to friends and fellow scientists, meticulously documented with reprints and calculations and tabulations, and much treasured by the recipients.

Born in 1890, he came to Indianapolis from Decatur County, Kansas -- by way of Yale University. Undergraduate education at Washburn College, Lawrence, Kansas, was followed by graduate studies at the University of Kansas (A.M., 1917) and service as a research biochemist for the U.S. Department of Agriculture. Further graduate work at Yale University in organic and biochemistry led to the Ph.D. degree in 1922, and an appointment as Assistant Professor of Biochem-

istry and Pharmacology at the Indiana University School of Medicine. He never left that institution, though his titles and responsibilities changed over the years to Professor of Biochemistry and Toxicology, chairman of the Department of Biochemistry and Pharmacology (1933-1956), and Professor Emeritus since 1960.

For about 25 years after his arrival at IU, Dr. Harger served as the unofficial state toxicologist, until in 1948 his former star student Dr. Robert B. Forney, Sr., assumed that position officially. Pioneering Harger studies on the toxicology of heavy metals, anesthetic gases, and volatiles led to more than 100 publications, many of which are classics in their field. However, Dr. Harger and his many collaborators are justifiably best known for their many world-class contributions to the human analytical and forensic toxicology, pharmacology, and pharmacokinetics of ethanol. As the inventor in 1931 of the Drunkometer, the first practical breath-alcohol analysis device, he pioneered and firmly established the application of breath-testing to traffic law enforcement, and remained the unchallenged dean of that field for the next three decades. After his official retirement, he pursued innovative studies on asphyxia and the investigation of explosions and continued to be a formidable and sought after expert witness and inveterate scientific meeting attendee and contributor. Among his many outstand-

ing former students are Dr. Robert B. Forney, Distinguished Professor of Pharmacology and Toxicology at IU, and Robert F. Borkenstein, the inventor of the Breathalyzer, who was an early Drunkometer trainee.

A founding member of the National Safety Council's Committee on Alcohol and Drugs, Dr. Harger served on and guided that body for more than 45 years, also finding time to serve as the third President of the American Academy of Forensic Sciences and to become a charter diplomate of the American Board of Forensic Toxicology.

Among his honors too numerous to mention, three stand out: the first Widmark Award (the Nobel Prize of the alcohol/drugs/traffic field); the Gradwohl Award of AAFS (recognizing the country's premier forensic scientist); and the National Safety Council's Distinguished Service to Safety Award.

Rolla Harger has indelibly enriched and enhanced forensic toxicology by outstanding scientific contributions, insistence on scientific excellence and rigor, and uncompromising professional attitudes and integrity.

New Members

SOFT welcomes our following colleagues as:

FULL MEMBERS

Jerome A. Freitag, MS ✓
 James D. Hutchison, Jr., BS ✓
 Lazaro Lopez, DDS
 James R. Oehldrich, MS
 Joerg N. Pirl, PhD ✓
 Gene Rugotzke, MS ✓
 Gary R. Siglar, MS
 G. Fred Townsend, MS ✓

ASSOCIATE MEMBERS

Drew C. Richardson, MS ✓
 Ausrine K. Valaitis, BS ✓
 Sally L. Watford, BS ✓
 Carl P. LeBel, BS ✓

Register Now!

Please use the registration form enclosed with this newsletter to register for the 13th annual SOFT meeting now.

Breathalyzer Testing — The Question of Radio Frequency Interference

by Yale H. Caplan, PhD
 Office of the Chief Medical Examiner
 Baltimore, MD

In the fall of 1982, the Smith & Wesson Company issued a customer advisory indicating the possibility that radio frequency signals may interfere with Breathalyzer test results. Since its introduction in the fifties, the Breathalyzer has been used throughout the entire world and has been responsible for the testing of a major portion of those people arrested for drunk driving. The implications from this advisory were, therefore, immense. In an effort to ascertain whether there was any validity to this claim, over 18,000 simulator validation tests (reference tests following every subject test) conducted during a nine month period in the State of Maryland were studied. It was logical that if radio signals were interfering with subject tests, then this would be reflected in the simulator validation (reference) tests. The study utilized Models 800, 900, and 900A Breathalyzer units. The target value was a simulated equivalent of a 0.100% blood alcohol concentration. The results showed a mean value of 0.098%. Data were normally distributed indicating that there was only a 1 in 5000 chance that a validation test result would exceed 0.110%. The statistics were striking and the results of this study, in conjunction with other specific studies of the direct responses of the instruments to radio frequency signals, lead to the conclusion that Breathalyzer tests, as conducted in the State of Maryland, were accurate and not adversely affected by radio frequency signals.

Haloperidol Overdose

by Larry J. Lewellen, MS, and
 Everett T. Solomons, PhD
 Georgia Bureau of Investigation
 Division of Forensic Sciences
 Atlanta, GA

History: A 28 year old female with a history of suicide threats was found dead at her home with several "empty packets" of haloperidol. The patient was being treated with haloperidol and benztropine.

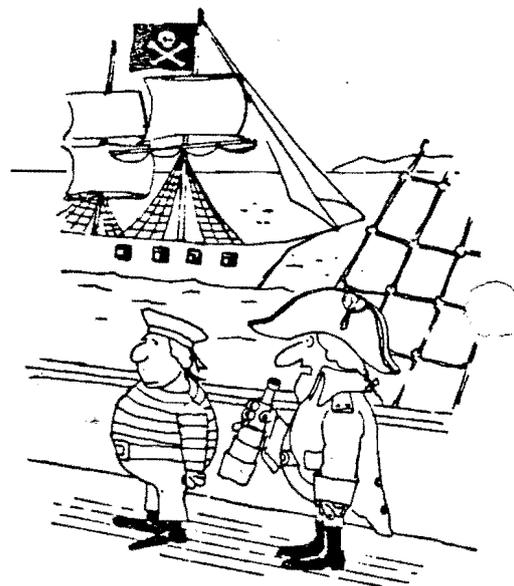
Analysis (General): Following a strong base extraction with ether, the blood extract was analyzed by GC-NPD before derivatization and after derivatization with S:1-Prep.

Results: Prior to derivatization haloperidol was not detected and a small tailing peak eluted approximately 1 min after haloperidol. After derivatization, a large symmetrical peak with the same retention time as haloperidol was detected.

Identification: Analysis of the peak by gas chromatograph and GC/MS was consistent with the structure of 4-(4-chlorophenyl)- α -(4-fluorophenyl)-4-hydroxy-1-piperidine-butanol, which is the reduced derivative of haloperidol. This compound was then prepared directly by reduction of haloperidol with sodium borohydride. GC/MS analysis of the product was consistent with that from the unknown case.

Comments: The blood sample was positive for 100 mcg/dl of the reduced haloperidol product and a trace amount of benztropine was also detected. Considering the circumstances of the case and the levels of the metabolite found, death was attributed to a haloperidol overdose. A cursory examination of the literature does not indicate the *in vivo* formation of this metabolite in humans.

Question: Have any of the readers encountered this substance in your experience? If so, please contribute a comment to the newsletter.



"Look on the bright side. Maybe it's not a pirate ship — maybe it's just highly toxic."

13th Annual Meeting

October 11-14, 1983

Book Cadillac Hotel, Detroit, Michigan

AGENDA

TUESDAY - October 11

8:30 - 9:00 Workshop Registration Crystal Ballroom
4th floor
9:00 - 6:00 Capillary GC Workshop Crystal Ballroom
4th floor
(may run late)
5:30 - 7:00 General Registration English Room
mezzanine
6:00 - 8:00 Wine & Cheese Reception English Room
mezzanine

Note:

Exhibitors will set up in the Founder's Room on Tuesday.

WEDNESDAY - October 12

8:00 **AAFS AWARDS COMM. BREAK**
8:30 - 9:00 Registration Founder's Room
at Crystal Ballroom door
9:00 - 9:15 Opening and Welcome Crystal Ballroom
9:15 - 12:30 Scientific Session (papers) Crystal Ballroom
12:30 - 2:00 Break for lunch (open lunch)
2:00 - 5:30 Scientific Session continued Crystal Ballroom
8:30 - 6:00 Exhibit Area Open Founder's Room
4th floor
6:00 Board of Directors' Meeting Normandie Room
4th floor

THURSDAY - October 13

8:30 - 6:00 Exhibit Area Open Founder's Room
4th floor
9:00 - 12:30 Business Meeting Crystal Ballroom
12:30 - 2:00 Luncheon Grand Ballroom
4th floor
2:00 - 5:30 Scientific Session (papers) Crystal Ballroom

FRIDAY - October 14

8:30 - 9:00 Workshop Registration Crystal Ballroom
9:00 - 3:00 Laboratory Management Workshop
(may run late) Crystal Ballroom

Note:

Exhibits will be dismantled on Friday.

WORKSHOPS

Capillary Gas Chromatography Workshop October 11, 1983

8:30 - 9:30 INTRODUCTION: Definition of terms and ideas attendant to Capillary GC and a discussion of the rationale for its use
9:30 - 10:15 EQUIPMENT: An examination of the specific equipment requirements and options available
10:15 - 10:30 Break
10:30 - 11:30 CHARACTERIZATION PROCEDURES: Discussion of methods of characterizing chromatograms such as: retention indices, relative retention times, etc., and factors which influence them
11:30 - 1:00 Lunch
1:00 - 1:30 SPECIAL DETECTORS: Experience in the use of capillary-n/p and capillary GC/MS
1:30 - 2:15 OPTIMIZATION: Discussion of factors which influence chromatographic performance and how to approach optimization of resolution, column efficiency, peak shape, and analysis time
2:15 - 2:30 Break
2:30 - 3:00 OPERATIONAL TECHNIQUES: Presentation and discussion of some of the useful techniques to make Capillary GC more effective and to avoid some problems
3:00 - 6:00 LABORATORY: During the entire workshop there will be several instruments operating, running a series of demonstrations. Attendees will have the opportunity to examine these at breaks and during lunch. This session will provide time for more detailed interaction with the instrumentation.
6:00 DISCUSSION: Additional time for answering specific questions or further elaboration on any phase of the workshop

Faculty

David T. Stafford, PhD, University of Tennessee Toxicology Lab
3 North Dunlap, Memphis, TN 38163
William H. Anderson, PhD, Office of the Chief Medical Examiner
901 North Stonewall, Oklahoma City, OK 73117
George Hime, MS, Office of the Chief Medical Examiner
1050 North West 19th Street, Miami, FL 33136

Laboratory Management Workshop
Friday, October 14, 1983
9:00 A.M. to 3:00 P.M.

Special Discount Air Fare to Detroit

The FUNWAYS HOLIDAYS, official travel agent for the 13th annual SOFT meeting, has arranged for special discount air fares for travel to Detroit. For further information, call 1-800-327-6667 and ask for the Special Service Desk.

Laboratory Profile

Wayne County
Medical Examiner's Office
Detroit, Michigan

Population
2.5 million

Staff

Chief Medical Examiner Werner U. Spitz, MD
Toxicologist Joseph R. Monforte, PhD
Chemist IV Robert Gault, PhD
Chemist I Sam Patrash, BS
Chemist I Mohammed Moiz, BS
Medical Tech. III Rosemary Furlong

Instruments

5 gas chromatographs, 1 UV/VIS Spectrophotometer, 1 spectrophotofluorometer, 1 CO-oximeter, 1 visible spectrophotometer, 1 RIA, and 1 EMIT system

Drug/Chemical Deaths (1982)

Narcotic abuse 213
Prescription drugs 51
Other Chemicals 7
1982 TOTAL = 271

Most Commonly Encountered Substances in Narcotic Abuse Deaths

Morphine and Quinine

Most Commonly Encountered Prescription Drugs

Tricyclics 12
Propoxyphene 11
Barbiturates 7

Other Chemical Deaths

Nitrous Oxide 2
Dichloromethane 1
Methanol 2

The oldest Wayne County Medical Examiner's Office laboratory records date back to 1918.



EDUCATIONAL RESEARCH AWARD

Applications are now being accepted for the 5th SOFT Educational Research Award. Students pursuing graduate studies related to forensic toxicology are invited to submit a detailed research proposal, curriculum vitae, and letter from their advisor to:

Yale H. Caplan, PhD
Office of the Chief Medical Examiner
111 Penn Street
Baltimore, MD 21201

For further information you may call Dr. Caplan at (301) 396-3844.

JOBS

Division of Forensic Science Missoula, Montana

Forensic Scientist III
Grade 15

The Montana State Department of Justice, Division of Forensic Science in Missoula, Montana, has an opening for a Forensic Scientist III position with a salary range of \$20,785 to \$24,640. Closing date for applications will be September 16, 1983.

Duties & Responsibilities

Responsible for the analysis and identification of drugs and toxic substances in toxicological fluids and tissues submitted to the Forensic Laboratory for examination. Will be required to prepare written reports and give expert oral testimony in a court of law as to the results of the examination.

Qualifications

A Bachelor's degree in a physical or biological science, with a minimum of three years experience as a Forensic or Clinical Toxicologist. Must be an active member of a recognized Forensic Society and be well established in the field.

Application Procedure

Interested parties should submit a State of Montana application form and any additional information relative thereto, to Ronald L. Rivers, MD, State Medical Examiner, Division of Forensic Science, Department of Justice, 275 West Front Street, Missoula, Montana 59802. Affirmative Action/Equal Opportunity Employer

TOXICOLOGIST

Toxicologist with a Bachelor's degree preferably with experience in drug screening and clinical toxicology. Responsible position. Person should be able to lead and solve technical problems. Salary: \$22,348 to \$27,225 per year depending upon experience. Excellent fringe benefits. Opportunity for future promotion. Contact: Dr. Naresch C. Jain, Rancho Los Amigos Hospital, 7601 East Imperial Highway, Downey, CA 90242. Telephone: (213) 922-7973. All inquiries will be kept in confidence.

SPECIAL HOTEL ROOM RATES

The 13th annual meeting organizers have arranged for special hotel room rates with the Book Cadillac Hotel. The rates are:

\$45.00 for a single
and

\$55.00 for a double

To make use of these special rates, you must make your reservations with the:

Book Cadillac Hotel
1114 Washington Boulevard
Detroit, MI 48226
(313) 256-8000

NOT LATER than September 26, 1983

Meeting Highlights

New & Old Officers and Board of Directors' Meeting October 15, 1982 Rosslyn, VA

- It was decided that a principal task for the coming year would be to develop the necessary by-laws revisions. Dr. Caplan discussed the steps to be followed to expedite this including the development of a final draft, legal review, notification of the membership, and voting, perhaps utilizing a mail ballot. Dr. Balkon assumed primary responsibility for moving this project.
- A committee would be developed to work on evaluated methods.
- Promotion of members was discussed and it was suggested that associate members be notified about the possibility for promotion, however, it is the member's responsibility to apply for promotion.
- Dr. Balkon will make contact with ASCLD regarding their accreditation of crime laboratories doing toxicology work.
- \$1000.00 was authorized for attorney expense in relation to by-laws and other matters.

Officers and Board of Directors Telephone Conference Call December 2, 1982

- Committee appointments were discussed and approved (list published in ToxTalk, Volume 7, Number 1).
- Expenditure of up to \$600.00 was approved for new membership directory.
- Dr. Balkon represented SOFT at the recent First Inter-American Congress in Forensic Science held in Sacramento, California, in November. (Expenses for the plane fare were provided by SOFT as approved by the Board of Directors, October 13, 1982.)
- Future meetings were discussed (list published in ToxTalk, Volume 7, Number 1).
- Total net proceeds from the 1981 meeting were approved for transfer to the ERA fund.
- Problems with responsiveness from our legal counsel which also affects our incorporation were discussed and efforts will be made to resolve the situation.
- The Board of Directors approved a budget of \$1500.00 for expenses related to the ToxTalk newsletter for 1983.
- Workshops for the Detroit meeting were discussed. The capillary column gas chromatography workshop will be an all day affair.

Officers and Board of Directors' Meeting February 16, 1983 Cincinnati, OH

- 1984 meeting in St. Louis will be held at the Hotel Breckenridge, October 10-13, 1984. Dr. Alphonse Poklis will be the meeting chairman.
- By-laws revisions and tax exempt status were discussed by Dr. Dubowski and Mr. Prouty. Amendments will be mailed to membership to expedite this process.
- Membership is increasing at a good pace according to Dr. McCurdy.