



NEWLETTER California Association of Criminalists NEWLETTER

JUNE 1981

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This Mailing includes the following items:

1. Abstracts from the Spring Seminar
2. Safety in the Forensic Laboratory - Compiled by Joe Rynearson
3. Board meeting minutes 6 March 1981
4. Board meeting minutes, 14 & 15 May 1981
5. Business meeting minutes, 15 May 1981
6. Bylaws changes enacted at the Spring Seminar
7. Questionnaire regarding Spring 1982 meeting at Redding

Submissions for the Sept. Newsletter should be sent to George Sensabaugh,
School of Public Health, University of California, Berkeley.

GUEST EDITORIAL

OUR ETHICAL RESPONSIBILITIES

[The following is an editorial that appeared in the Southwestern Forensic News; the writer is Jerry O'Donnell, Albuquerque, P.D. Criminalistics Laboratory. It is reprinted here with his permission.]

On my desk is a plaque given me by a former student some years ago. It proclaims, "I have my faults, but being wrong is not one of them." Such statements are grist for the philosopher's mill. (I must be a philosopher. I have a diploma that says I am.) Whatever, the entire idea of "right" and "wrong" has to be viewed in a different light by the expert witness than, say, a taxi driver.

Juries are always impressed by expert witnesses, regardless of their actual level of competence. People whose entire association with science consists of struggling at a snail's pace through Chem 101 can hardly help being awed by someone who has 75 hours of college chemistry with nearly a four-point, just as those of us who can't hit a barn door with a handgun are awed by people who qualify in the high 90's. This tendency to be taken pretty much at face value puts a considerable ethical burden on those of us who make at least part of our living impressing juries.

Few of us would give, or have given, testimony that we knew was "wrong"--i.e., that was factually inaccurate. However, except for those cases in which we actually make an identification, as in a drug case, our testimony tends to be conclusions rather than fact. In a gunshot residue case, for example, the only facts are that x nanograms of barium and y nanograms of antimony were found in the swabs taken from the subject's hands. Anything beyond this is a conclusion--speculation, if you will. (A defense attorney once told me that it is a conclusion if I reach it but speculation if anyone else reaches it, not an entirely trivial remark.) Conclusions that reach far beyond the actual physical evidence have value only if the witness has sufficient experience to be able to draw parallels with situations he has seen. Much of the area known as "criminalistics" is like this. Hair comparisons, soil comparisons, paint comparisons, glass, wood chips, all the types of evidence where actual identification cannot be achieved and comparative results are obtained, require a considerable amount of experience on the part of the examiner before any meaningful conclusion can be arrived at.

Such a situation is ready-made for abuse. Anyone can pass himself off as an "expert" and give testimony as to his "opinion" regarding the interpretation of facts. We are all too familiar with psychologists in this regard; the prosecution has its set of psychologists who state with considerable assurance that the defendant was sane at the time of commission of the crime, and the defense has its set of psychologists who testify with equal assurance that the defendant could not possibly have been sane. Thus, too, with the "isomers" of cocaine, and so on. So long as the "expert" has reasonable-appearing credentials and someone is willing to hire him, he can at least be heard, regardless of any real qualifications he may have in the area of his testimony.

If this Association has any function other than social, we must expose such frauds. It is too much to ask of judges that they be able to screen someone's qualifications, and prosecutors are so universally afraid of expert witnesses that their treatment of them is likely to be cursory at best. Besides, prosecutors are totally goal oriented: "He didn't do us any harm; let's just let him go and not say anything." But if this or any other forensic science association does not have as one of its goals (and therefore responsibilities) the exposure of charlatans and others who sell testimony with little regard for its impact and no regard for their actual qualifications for the giving of such testimony, Who does?

STUDENT AFFILIATE ATTENTION

If you wish to remain an affiliate, you must notify the Membership Secretary before November of your continuing student status and current address. Otherwise, your membership will be terminated. Send your note to Dorothy Northey, Contra Costa County Crime Lab., P.O. Box 391, Martinez, CA 94553.

PROVISIONAL MEMBER ATTENTION

If you believe you are qualified for elevation to full membership, please notify the Membership Secretary, Dorothy Northey. The criteria for elevation are listed in the March 1981 Newsletter.

ASSOCIATION ACTIVITIES

1. Northern Section Meetings

On March 27, Dorothy Northey and Don Stottlemeyer co-hosted a retirement dinner honoring Allan Gilmore at Spenger's in Berkeley; more than 50 people attended. Dorothy and Don entertained those present with a humorous slide show tracing Al's career from birth to retirement. Al was given a retirement gift of lathe parts to use in his hobby of antique clock reconstruction.

On 1 May, the Contra Costa Laboratory sponsored a film and pizza night featuring films on crime scene processing for evidence techs.

Future regional meetings are scheduled for:

- 12. Sept. Contra Costa Volleyball Tournament
- 2. Oct. San Mateo City Lab
- 8 or 15 Jan. SERI
- 26 Feb. or 5 Mar. Institute of Forensic Science.

Please note these dates. Suggestions for speakers or topics should be passed on to Mary Gibbons, (415) 653-3530.

2. Southern Section Meetings.

A dinner meeting is planned for 23 July hosted by DOJ Riverside. Anthony Stein from Systems Technology will be speaking on their alcohol impairment testing program.

3. Northern Trace Group

An April meeting was held at U.C. Berkeley at which the quality assessment of microscope equipment was discussed. Dave Stoney described the silvering of microscope slides.

Alameda County S.O. Laboratory hosted the June meeting. Terry Spear arranged for Dr. Walter Jennings from U.C. Davis to talk on gas chromatography.

The steering committee (Steve Shafer, Marty Blake, John Thornton and Chuck Morton) met in July and added to their number Terry Spear and Gordon Deeg. To highlight this meeting, Chuck's car was broken into and his briefcase containing the group's archives (!?) and organization plans was stolen.

A meeting is planned for 30 July at San Mateo at which analytical methods for fiber analysis will be discussed.

ASSOCIATION ACTIVITIES (Contd.)

4. Southern Serology Group

The group met in January at Orange County and discussed the Blake system for rape evidence examination, an unusual haptoglobin sample, hazardous chemicals in the serology lab, and training for rape evidence techs.

In March, the Group discussed serology papers at the AAFS meeting, data from the quality assurance samples and more on the safety issue. Keith Petersen Inman was elected group chairman for the upcoming year, taking over from Jim White.

In May, the group met with remnants of the Northern Biology group at the CAC Seminar. The principal topic of discussion was the value of approaching rape evidence material in a systemic fashion; Ed Blake outlined his scheme and was questioned on it. There was additional discussion on preservation and storage of reference standards.

The July meeting agenda included further discussion on the semen analysis scheme, GLO development, and Lewis typing.

5. Southern Controlled Substance Group

In association with the January section meeting, the group met to discuss reports on LSD methods of analysis and information on "China White."

6. Northern Biology Group

The group, dormant for the last year, has invested responsibility for revitalization in Gary Sims. He will be contacting people shortly regarding a Sept. or Oct. meeting.

CAC ASSESSMENT OF TRAINING NEEDS AND RESOURCES

The Training Resources Committee under the leadership of Steve Shaffer has embarked on an ambitious 2 year plan to assess the training needs and resources of the organization. The immediate goal of the committee is to determine common practice at the bench level, to determine consensus minimum levels of acceptable and competent practice, and to determine reference and resource materials routinely relied upon by practitioners. Recognition of needs and resources will then be used as the basis for a program to address the needs. The assessment is being undertaken in five basic areas: general criminalistics, controlled substances, firearms and toolworks, physiological fluids, and trace evidence. Further information on this program is to be found in the minutes of the 6 March Board Meeting, included in this mailing. Many members will be involved in this project and its objectives deserve the wholehearted support of every member.

UPCOMING MEETINGS

1. California Association of Criminalists - Northwest Association of Forensic Scientists Joint Meeting, 4-7 November, 1981. Sahara Tahoe-South Shore. Contact Rico Toqueri, Floyd Whiting or Richard Berger, Washoe County Sheriff, P.O. Box 2915, Reno, NV 89505.
2. California Association of Criminalists, 13-15 May, 1982. Lake Shasta. Contact Joe Rynearson, Redding DOJ Laboratory, 1515 North Old Oregon Trail, Redding, CA 96001 (Preliminary information on this meeting is included in this mailing; please respond to help Joe plan.)
3. International Congress of Forensic Haemogenetics, 30 September-3 October, 1981. Berne, Switzerland. For further information, contact Prof. R. Butler, Blutspendedienst SRK Zentrallaboratorium, Dpt. Diagnostik, Wankdorfstrass 10, 3000 Bern 22, Switzerland.
4. Mid-Atlantic Association of Forensic Scientists, 24-25 September, Virginia Beach, VA. Program Chairman is Robin Porter, Bureau of Forensic Science, Box 999, Richmond, VA 23208, (804) 786-4706.
5. Southwestern Association of Forensic Scientists, 6-7 November, Oklahoma City, OK. Program Chairman is Don Flynt, OSBI, Oklahoma City, P.O. Box 11497, Oklahoma City, OK 73136.
6. Northwestern Association of Forensic Scientists, 23-24 October, Allentown, PA. Contact: Alex Stirton, NEAFS, Box 133, Limeport, PA 18060, (215) 691-6110 ext. 256.
7. Society of Forensic Toxicology, 4-6 November, Chicago, Illinois. Contact Dr. Eleanor Berman, Division of Biochemistry, Cook County Hospital, 1835 W. Harrison St., Chicago, IL 60612.
8. Canadian Society of Forensic Science, 24-28 August, McMaster University, Hamilton Ontario. Program Chairman is Brian Dixon, Centre of Forensic Sciences, 25 Grosvenor St., Toronto, Ontario, Canada M7A 2G8.
9. National Law Enforcement Explorer Conference, 17-22 August, Columbus, Ohio. Law Enforcement Exploring is a branch of the Boy Scouts in cooperation with the International Association of Chiefs of Police and the National Sheriffs Association. For further information about Law Enforcement Exploring or the conference, contact the Exploring Division, Boy Scouts of America, P.O. Box 61030, Dallas/Fort Worth Airport, Texas, 75261.

SAFS SPRING 1981 SYMPOSIUM

PRELIMINARY PROGRAM
(Incomplete)

General:

"Sex Crimes", presentation with color slides, by Dr. James S. Bell, Deputy Chief Medical Examiner of Tennessee.

Drug Analysis:

"China White", by Andrew Allen, DEA Special Testing and Research Laboratory, McLean, VA.

Serology:

"Court Interpretation of Forensic Science Phraseology", by Richard Tanton, Palm Beach County Sheriff's Office Crime Laboratory, West Palm Beach, FL.

"Conventional Electrophoresis for PGM (locus 1) Subtypes, AK, EsD, ADA, and Gc using IEF Agarose and a Single Buffer System", by Kenneth Cockerham, Acadiana Criminalistics Laboratory, New Iberia, LA.

"Identification of Foreign Bodies other than Spermatozoa in Vaginal Smears", by George Duncan, Broward County Sheriff's Office Crime Laboratory, Ft. Lauderdale, FL.

"Theoretical and Practical Applications of Y-Chromosome Fluorescence for Sex Determinations in Forensic Science", by Mark Armitage, Southern Micro Instruments, Inc., Delray Beach, FL.

"Discussion of Unique Cases/Technical Results", moderated by Shirley Phillips, Louisiana State Police Crime Laboratory, Baton Rouge, LA.

"Group Specific Component (Gc) Phenotyping of Old Bloodstains", by George Borghi, Dade County Dept. of Public Safety Crime Laboratory, Miami, FL.

"Chi-square Utilization in Forensic Serology", by Travis Owen, Acadiana Criminalistics Laboratory, New Iberia, LA

"Courtroom Presentation of Scientific Testimony", by Richard Tanton, Palm Beach County Sheriff's Office Crime Laboratory, West Palm Beach, FL.

"Discussion of Examination Protocol in Rape Cases", moderated by Dan Nippes, Regional Crime Laboratory, Ft. Pierce, FL.

Toxicology:

FORUM: Presentation by Toxicologist and Forensic Pathologist as to the role perceived by each in the overall scheme of the Forensic Pathology-Toxicology system followed by question/answer/discussion: Maury Phillips, U. of Tenn.; Dr. James Bell, U. of Tenn.; Dr. George McCormick, Bossier City, LA.

"Analytical Toxicology of a Benzphetamine Overdose", by Maury Phillips, U. of Tennessee.

"A Case of Benzphetamine Poisoning", by Dr. Jay Brooks, U. of Tenn.

"A Cocaine Fatality", by Francis Touchet, Southwest Louisiana Crime Laboratory, Lake Charles, LA

Silent Witness, International Association of Chiefs of Police, Gaithersburg, Maryland, 1977 -- This fascinating little paperback book is subtitled, "The Emergence of Scientific Criminal Investigations", and is part of the police history series of the IACP. It consists entirely of reprints from Police Chief magazine, The Detective newspaper, and related periodicals from the period of 1902 to 1939. It is a most fascinating look back at the people and practices of early modern scientific investigation. Although its scope is limited, for the most part, to people from the U.S., it provides much insight to the how's and why's of the pioneers in police investigation. There are such authors and topics as: "Science for Law Enforcement", by Chief August Vollmer, 1922, "The Bertillion System", by Chief Sylvester, 1902, "California Identification Bureau", by Superintendent C.S. Morrill, 1922, "Handwriting for Identification", by Superintendent C.D. Lee, 1922, "The Bureau of Forensic Ballistics", Calvin H. Goddard, 1926, "No Two Gun Barrels Alike", by Captain Crossman, 1927, "Finding and Handling Evidence", by Inspector Guthrie, 1933, "The Usefulness of Laboratory Reports", Wilmer Souder, NBS, 1938, "Photographing the Crime Scene by Lieutenant Burke, 1936, "Beware the Amateur Expert", 1933, and "Scientific Standards in Criminal Investigation" by L.J. O'Rourke, 1936. In case modern day practitioners tend to get too swell-headed about all the novel things they have come up with, this little book should be required reading to make them aware of the sometimes vintage origins of the practices we use today. Altogether a very worthwhile book. Available from IACP, Gaithersburg, MD for \$6.60.

Explosion Investigation, by H. J. Yallop -- This is the second in the series of monographs by the Forensic Science Society and is the long-awaited book on explosives and their identification by a world renowned expert in the field. The book covers such topics as: the chemical constituents of explosives, crime scene examination, identification of the explosive, types of initiators, suspects and background investigations, explosions in moving vehicles, and explosive-related injuries. The sections on identification of explosives will be of most interest to laboratory investigators. Since it was intended that the book constitute a guide for all forensic practitioners whether they have access to advanced instrumentation or not, the treatment of chemical identification might seem archaic to an American reader. The chemical, physical, and microscopical properties of explosives and residues are important to all examiners, however, and are treated in great depth in this text. The book is available from Forensic Science Society for approximately \$50.00

Identification and Analysis of Plastics, by Haslam, Willis, and Squirrel, by Heyden and Sons, 2nd Edition, 1980 -- This is a comprehensive manual for the identification of any plastic-like compound. The instrumental methods described include visible and UV spectrophotometry, atomic absorption, emission spectroscopy, X-ray fluorescence, infrared, NMR, gas chromatography, pyrolysis, automatic titration, and a variety of other lesser known methods. Full descriptions are offered for sample preparation as well as interpretation of results. The plastics included in this text are vinyl resins, polyesters, nylons, polyolefins, fluorocarbon polymers, rubber-like resins, thermosetting resins, natural, cellulose epoxy, polyether and silicone resins, as well as plasticizers, fillers, and solvents. Since it provides an entire spectrum of applicable analytical techniques no matter what the application or the resources of the individual laboratory might be, this updated edition of Haslam et al should be in every library. Priced at \$56.00.

EMPLOYMENT OPPORTUNITIES

1. TEACHING POSITION, Northeastern University, Boston. Requires Ph.D. or comparable degree, forensic laboratory experience, and research record. Responsibilities include coordinating graduate Forensic Chemistry program, teaching, and research. Send letters of interest and resume to Dr. Robert Croatti, Associate Dean, Criminal Justice Program, Northeastern University, Boston MA 02115.
2. LABORATORY DIRECTOR, Sacramento County. Requires B.A. or B.S. with a major in Criminalistics or a relevant natural or physical science and four years experience in analytical work. Responsibilities include supervision of 11 criminalists. Send resume to R.D. Reynolds, Chief Investigator, District Attorney's Office, P.O. Box 749, Sacramento, CA 95804.
3. FORENSIC SEROLOGIST, Forensic Chemist, Suffolk County, New York. Requires B.A. or B.S. in a natural science and one year experience in the speciality area. Contact Andrew Varanelli, Director, Criminalistics Laboratory, Suffolk County Office Bldg. #77, Veterans Highway, Hauppauge, N.Y. 11788.
4. CRIMINALIST I and II, OPENINGS ANTICIPATED - L.A. Sheriff's Lab. Resume to Barry A.J. Fisher, Chief Criminalist, Los Angeles County Sheriffs Dept., 2020 W. Beverly Boulevard, Los Angeles, CA 90057.
5. CRIME LABORATORY ANALYSTS (29 Positions), Florida State Lab System. Requires B.S. or B.A. with major in natural or physical science and two years experience in a forensic laboratory. Persons with no experience may be accepted as a trainee. Contact Sandra DeLopez, Chief, Bureau of Personnel Management, Dept. of Law Enforcement, P.O. Box 1489, 408 N. Adams St., Tallahassee, Florida 32302.
6. CRIMINALIST, Oakland Police Lab. Requires graduation from college with degree in criminalistics or related science and two (2) years experience. Graduate work may be accepted in lieu of experience. Closing 7 August. Contact Jan Bashiuski, Oakland Police Criminalistics Laboratory, 455 Seventh St., Oakland, CA 94607, (415) 273-3386.
7. CRIMINALIST/SENIOR CRIMINALIST, Orange County Sheriff's - Coroner's Laboratory. Requires BA or BS in criminalistics or related science. Senior position requires 2 years additional experience. Contact Larry Ragle, Orange County Sheriff's-Coroner's Laboratory, 550 N. Flower, Santa Ana, CA 92702, (714) 834-4481.

CALIFORNIA'S ROLE IN THE FORENSIC SCIENCES

The October 1980 issue of INFORM has the above title. It summarizes early developments and current activities in California. Copies may be obtained from Dr. William Eckert, St. Francis Hospital, Wichita, KA 67214.

ETHICAL DILEMMA
Peter Barnett
Forensic Science Associates

Section IV D. of the CAC Code of Ethics states that "the principle of 'attorney-client' relationship is considered to apply to the work of a physical evidence consultant". This has generally been interpreted, at least in California, to mean that the results of laboratory examination or consultation done by a consulting criminalist for a defense attorney cannot be discovered by the prosecution. There are a number of cases in California which hold that this principle is correct. Other states, however, have different discovery rules than California.

In considering the rationale behind any discovery rules it is necessary to consider the reason for restricting or allowing discovery by one side of the information possessed by the other side. The arguments for discovery include such considerations as the constitutional right to confrontation by witnesses, attempts to minimize the surprise tactics which thwart the attempts to get at the "truth", and the so-called "fairness doctrine". The reason for preventing discovery, especially by the prosecution of evidence obtained by the defense in a criminal case, is primarily based on the principle that it is the obligation of the State to prove the case against the defendant and that the defendant's right to self-incrimination includes the right not to have his own efforts used against him.

Another reason to restrict the discovery information obtained by the defense is that, if such discovery were available, it would tend to make the defense reluctant to use consultants for fear that information harmful to the defense would be made available to the prosecution. If all of the information developed by the defense consultant were made available to the prosecution, the defense attorney would not want to run the risk of having such potentially harmful information discovered except in the most unusual circumstances. Even in situations where the prosecution's evidence has only been corroborated by the defense's re-analysis such corroboration could be useful evidence for the prosecution and the defense attorney would not want this information to become available. Although this principle has been accepted in courts in California it is not the case in other states. For example, in Nevada the work of the defense consultant is routinely available to the prosecution. In Alaska, if the defense attorney intends to call the consultant as a witness the consultant's reports must be made available to the prosecution. In a recent case the defense consultant working in California was retained by defense counsel in Alaska to re-examine various items of physical evidence. The evidence was obtained from the prosecution laboratory, re-examined in California, and returned to Alaska. Several attempts to contact the defense attorney resulted in phone calls not being returned to the consultant. A telephone call was received from the District Attorney who indicated that he wanted to know the results of the consultant's re-examination of the evidence. Repeated efforts to contact the defense attorney were not successful. The prosecution attorney was insistent on learning the results

of the re-examination of the evidence. In this instance there were several possible solutions to the dilemma:

1. The consultant could discuss the case openly with the defense attorney.
2. Because there was no indication at that time that the consultant was to be called as a witness he had no obligation, under Alaska law, to discuss the case with the district attorney.
3. A consultant residing in California is not obligated under discovery rules of another state.
4. The consultant has no obligation to discuss the evidence without the express approval of the defense attorney.

Please indicate your solution, and the reasons therefore, on the attached sheet.

Responses to the April dilemma were somewhat diverse: Dave Sanchez indicates that he would determine what he felt was the correct answer to the technical problem and then select a criminalist to testify who agreed with his position. If he could not find a criminalist who agreed with that position he would testify himself.

Another respondent selects the third alternative, that is ignoring the prosecution's request for a particular witness. This individual cites Section II. E. of the Code of Ethics, "Where test results are inconclusive or indefinite, any conclusions drawn shall be fully explained". A third response selects alternative three and states "The superior only has a right to persuade the criminalist if the criminalist is scientifically unfounded".

Response to the July Ethics Dilemma:

I would select alternative _____. The applicable section(s)
of the CAC Code of Ethics is (are): _____

Comments:

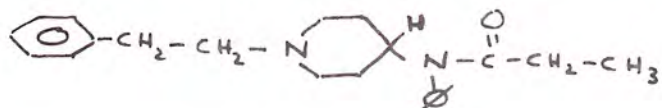
Return To:
Peter D. Barnett
Forensic Science Associates
P. O. Box 8313
Emeryville, Calif. 94608

THE SYNTHESIS OF FENTANYL
AND RELATED COMPOUNDS

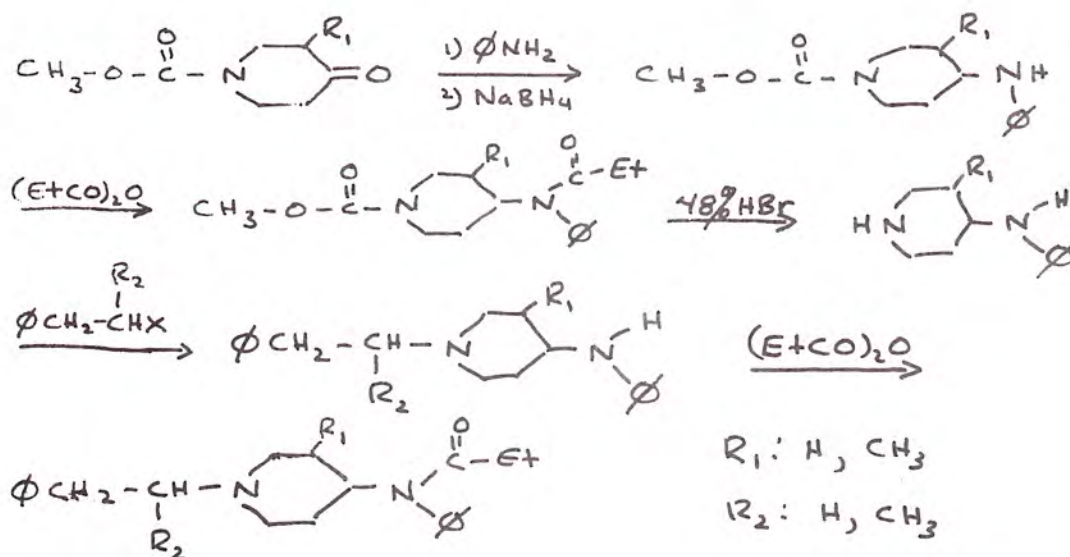
FAMES L. NORRIS

Santa Clara County Laboratory of Criminalistics
(Presented at the May Seminar, Los Angeles)

Fentanyl, a drug which has enjoyed wide interest in recent months, has the following structure

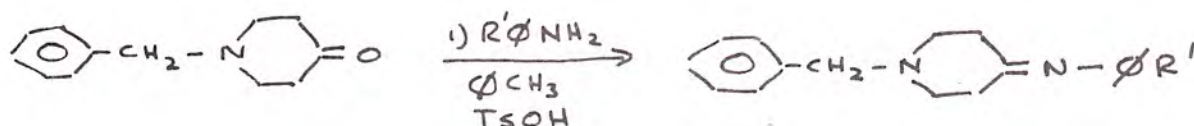


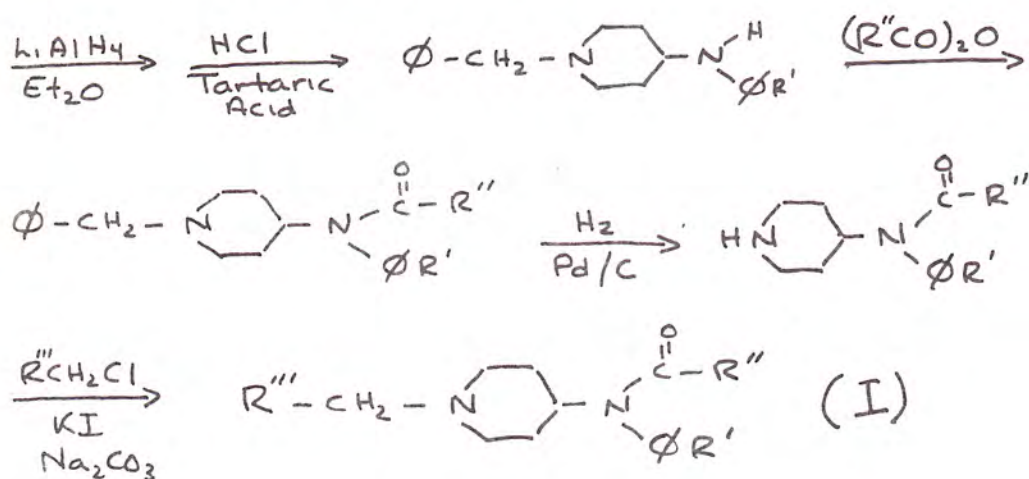
The synthesis of Fentanyl and related compounds can be carried out in a variety of ways. The following are some of the most commonly employed methods:



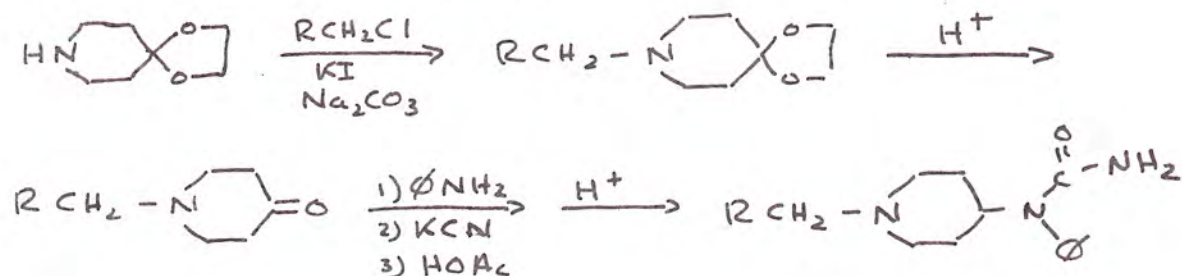
The starting material in this synthesis can be prepared from 4-piperidone ethylene ketal. (Aldrich #17,836-5)

A second synthetic pathway is as follows:





A combination of these two methods will allow one to prepare a wide variety of Fentanyl derivatives. Another method, which is somewhat less versatile, starts with a commercially available starting material:



The relationship between structure and physiological activity can be illustrated by the following table:

$ \text{L-N} \begin{array}{c} \diagup \text{R}' \\ \diagdown \text{N} \begin{array}{c} \diagup \text{C}(=\text{O})\text{-R} \\ \diagdown \phi \end{array} \end{array} $			
<u>L</u>	<u>R'</u>	<u>R</u>	<u>E.D.₅₀ (mg/kg)</u>
$\phi\text{CH}_2\text{CH}_2\text{-}$	$-\text{CO}_2\text{CH}_3$	C_2H_5	0.0006
$\phi\text{CH}_2\text{-CH}(\text{CH}_3)\text{-}$	$-\text{CO}_2\text{CH}_3$	C_2H_5	0.0007
$\phi\text{CH}_2\text{CH}_2\text{-}$	$-\text{COCH}_3$	C_2H_5	0.0005

In addition, Fentanyl is reported to possess 5000 times the analgesic potency of morphine. The safety margin ($\text{LD}_{50}/\text{ED}_{50}$) for Fentanyl is 1:255, which, fortunately, is very high.

Chemicals which might be encountered in a laboratory that is manufacturing Fentanyl or its derivatives include:

1-benzyl-4-piperidone	Petroleum ether
aniline	propionic anhydride
toluene	ethanol
4-toluenesulfonic acid	Hydrogen gas
diisopropyl ether	10% Palladium on Carbon
Lithium Aluminum hydride	b-phenethyl chloride
ethyl ether	4-methyl-2-pentanone
hydrochloric acid	Sodium carbonate
benzene	Potassium iodide
Potassium carbonate	Sodium borohydride
Hydrobromic acid	Potassium cyanide
Acetic acid	4-piperidone ethylene ketal

References:

United States Patents: 3,164,600 4,179,569 3,998,834

Janssen, Brit. J. Anaesth. (1962), 34, 260

Van Bever, Niemegeers & Janssen, J. Med. Chem. (1974), 17, 1047

It is our opinion that Countywide adoption of this system would help maintain the integrity of the physical evidence that is collected.

* Prepared by John Murdock and edited by the staff of the Contra Costa County Sheriff-Coroner Criminalistics Laboratory, P.O. Box 391, Martinez, CA. 94553 -- March 1981

CHEMICAL MAKEUP OF WOOD-TONE

EXTERIOR LATEX STAINS

James White

Orange County Forensic Science Services

I had the recent occasion to study the chemical makeup of 22 brands of wood-tone exterior latex stains. The enclosed table may be of value for inclusion in the newsletter.

This data should be considered as secondary source material. The samples were given to me by the investigator in the case in labeled evidence bottles and were obtained from retailers or manufacturers in Southern California.

As an emphasis of this, one sample (Tibbetts), labeled as being an "acrylic alkyd" (35 series), was a vinyl acrylic. This may be true representation of the manufacturer of this paint, or a misunderstanding between the retailer and the investigator and be in actuality a Tibbetts 9 series latex ("vinyl acrylic").

Resin classification was made by infrared absorption spectroscopy. Spectra obtained were compared to reference spectra in "Infrared Spectroscopy. Its use in the Coatings Industry" published by the Federation of Societies for Paint Technology (121 S. Broad St., Philadelphia, PA 19107). In some cases the resin composition was confirmed by contact with the manufacturer.

Infrared spectra were obtained by soaking the paint in acetone for 30 minutes, removing the paint and casting a film on a salt block from the acetone. For micro samples, the chip was soaked in acetone which was then dried in a mortar to form a micropellet.

For the vinyl acrylics, an additional discriminator was the presence or absence of n-dibuthylphthalate, which may be a reflection of from whom they buy their vinyl acetate.

- Method:
- a) Soak paint for 1 hour in diethylether (2 mg paint in 50 ul EtoEt), inject sample into GC/MS (4', 3% OV-17 column, 200°C) and monitor mass 149. The different phthalates are differentiated by retention time.
 - b) Possible alternative method without mass spec. Reflux for 30 minutes with phthalate free diethylether, dry down ether and determine infrared spectrum (c.f. White, J.M. Isolation and Identification of Sub-Milligram Quantities of Plastic Components. CAC 39th Semi-annual Seminal, Ventura, CA. May 1972).

Elemental profile (EDX) was also a useful discriminator. The major inorganic components appeared to be CaCO_3 , TiO_2 and Magnesium Silicate (Talc) or Aluminum Silicate and Iron Oxides (brown pigment).

Manufacturers	Product Description	Resin (by IR)
Tibbetts	35 - series (may have been a mislabeled "9" series)	vinyl acrylic
Fuller	667	vinyl acrylic
	609	acrylic
Behr	plus 10 solid color stain	vinyl acrylic
Spectratone	71 - series	vinyl acrylic
Colony	76 - series	vinyl acrylic
Benjamin Morre	#62 latex	vinyl acrylic
Pratt Lambert	latex	acrylic
Dutchboy	latex	acrylic
	super latex	vinyl acrylic
Cal Western	show and display color	vinyl acrylic
White Line	acrylic latex	vinyl acrylic
	acrylic stain	vinyl acrylic
Major paint (Standard Brands)	7686	acrylic
	8319	vinyl acrylic
	7442	not identified
Dau	acrylic stain	vinyl acrylic
Pittsburg	acrylic latex base	acrylic

Manufacturers	Product Description	Resin (by IR)
Magicolor	latex stain	vinyl acrylic
Vista	3000 series	acrylic
	1000 series	vinyl acrylic
Sinclair	staintek	acrylic
Frazee	duratec	vinyl acrylic
Dun Edwards	latex	vinyl acrylic
	acrihue	acrylic
Old Quaker	acristain	vinyl acrylic
Pervo	8000 series	acrylic
	7200 series	vinyl acrylic
Martin Senour	711-2816 flat latex	acrylic
Ameritone	W2500 series	acrylic
	W600 series	acrylic
	W00 series	vinyl acrylic
Olympic	overcoat	
	latex stain	acrylic

Woolite Safely Soaks Sperm Cells From Cloth

Celia C. Hartnett
Santa Barbara Regional Lab

Tease a few fine threads from suspected stain or cotton swab directly onto microscope slide. Cover with cover slip. Add a drop of Woolite to the edge of the coverslip and allow it to go under by capillary action. You can actually observe sperm cells being loosened and floating away from the threads under the microscope.

Or add a drop or two of Woolite to a small portion of the stain in a test tube to extract.

Eliminates the need to ultrasonicate, centrifuge, etc.

References:

E.E. Hueske, "Techniques for Extraction of Spermatozoa from Stained Clothing: A Critical Review, "Journal of Forensic Sciences, Vol. 22, No. 3, July 1977, pp. 596-598.

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