

ARCS & SPARKS

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Greetings

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Science and Crime: **THE FBI LABORATORY**

by John Edgar Hoover, Director, Federal Bureau of Investigation, United States Department of Justice

It was inevitable that scientific method and procedures would play a prominent role in the history of crime detection. Due to their character, science and crime are natural opponents. Science flourishes with discovery while crime thrives in concealment.

Predictably, in this era of rising crime, the utilization of scientific methods of examination has received renewed impetus among law enforcement agencies.

Amid another wave of reckless criminality that threatened every region of the Nation, the FBI Laboratory was formed in 1932. Meager though its early beginning was, it brought to every authorized law enforcement agency in the United States the services of a crime laboratory which has grown to be the largest of its kind in the free world. From the outset — as they still are today — the services of the FBI Laboratory, located in Washington, D. C., have been extended to the law enforcement community on a cost-free basis, including

the travel and testimony of expert FBI examiners at local and state trials. With the establishment of the FBI Laboratory, crime, for the first time, found no sanctuary anywhere in the United States from the incisive probing of scientific method.

During its first full year of operation, the FBI Laboratory made 963 examinations. Today, the growing importance of combating crime with science is evident in the fact that in the past fiscal year the FBI Laboratory conducted more than 330,500 examinations. This record level of activity resulted from the receipt of nearly 224,000 specimens received from Federal, state, and local law enforcement agencies in each of the 50 states, the Commonwealth of Puerto Rico and a number of foreign countries.

Personnel of the FBI Laboratory are selected for their educational background in the physical and biological sciences. Although all have substantial training in



A general view of the electronic data processing center in the cryptanalysis-translation section, FBI Laboratory, Washington, D.C.



In the metallurgy unit of the FBI Laboratory the metallograph is used to study the crystalline structure of metals.

the basic sciences, extensive-on-the-job training in the law enforcement aspects of their respective specialties is provided. This training is significantly enhanced by the presence of a number of employees who helped to pioneer the early development of the FBI's role in scientific crime detection. Some of these hold Doctoral degrees in major science fields, and their wealth of experience has guided and stimulated the dynamic union of science with investigation.

Due to a wide variety of examinations required by the countless situations in which criminal acts manifest themselves, personnel of the FBI Laboratory must be highly specialized in their respective areas of experience. This specialization not only adds to their proficiency but lends convincing credibility to an examiner's testimony in court.

The work of the FBI Laboratory is divided into four major sections: Document, Physics and Chemistry, Cryptanalysis-Translation, and Radio Engineering. Each of these has a number of units which facilitate the prompt and thorough handling of diverse evidentiary specimens.

The Document Section, for example, has personnel experienced in handwriting, hand printing, typewriting, indented writing, obliterated writing, paper, ink, printing, charred paper, shoe print, tire tread, and other related examinations. The nature of its work is well illustrated by a document, purportedly prepared in 1940, which was received for examination from another Government agency. The document was quickly unmasked as a fraud when FBI Laboratory examinations established that it had been prepared from a style of type which was not in use until 1950; the watermark in the paper was from a run manufactured in 1958; and the signatures thereon were written with ball point pens which were not produced in quantity until 1943.

The Physics and Chemistry Section of the FBI Laboratory has units which specialize in chemistry, toxicology, spectrography, neutron activation, firearms, tool

marks, metallurgy, petrography, explosives, hairs and fibers, and serology examinations.

Of all the forensic sciences, however, none have received more notice in crime detection literature than those examinations associated with firearms. One of the most unusual of such examinations encountered by the FBI Laboratory resulted from the crash of a commercial airliner in a pasture at Danville, California, in May, 1964. The last radio message from this ill-fated flight was that of an agonized male voice, presumably the pilot, shouting, "—ve been shot, we've (I've) been shot. Oh my God help." A few minutes later the plane disintegrated in a thunderous impact with the ground which killed all three crew members and the forty-one passengers aboard. The grotesquely mutilated remains of the victims as well as fragments of the shattered aircraft were spread over a half-mile area. Amid this grisly scene, FBI Laboratory and Identification experts located a revolver with six empty shell casings still in its chambers and a piece of metal tubing. The tubing had an indentation which appeared to have been caused by a bullet.

Through fingerprints, two hands located at the crash site were identified with a foreign passenger who was visiting the United States. He had purchased the gun found at the crash scene the evening before the flight and told an acquaintance the day of his departure that he intended to shoot himself. FBI Laboratory examination determined that particles of human flesh lodged in the weapon had the same blood type as the foreign passenger, and this tissue was intermingled with woolen fibers similar in all characteristics to those from the clothing he wore at the time of this disaster.

It was determined that the piece of metal tubing was from the upper corner of the back of the pilot's seat. Spectrographic analysis of residue rimming the indentation in this tubing determined that it contained lead and antimony commonly found in bullets. The location of this dent was directly in a line of fire between the pilot's back and anyone standing in the aisle slightly behind his and the copilot's seat.



FBI Agent operating multichannel analyzer and solid state detector used for gamma ray studies in conjunction with analyses by neutron activation.



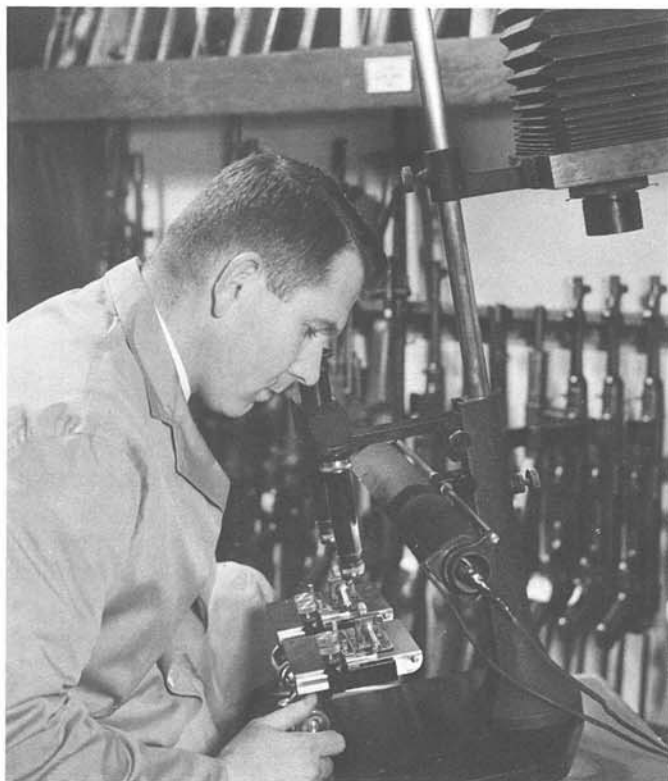
Ultraviolet, visible and near infrared spectrophotometer examination being conducted by FBI Laboratory technician. 1.5 meter emission spectrograph and FBI National Automotive Paint File at left.

As its name implies, the Cryptanalysis-Translation Section is concerned with coded and foreign language communications uncovered during the course of FBI investigations or referred to the Laboratory by local law enforcement agencies.

The Radio Engineering Section of the Laboratory is not only involved in examining evidence of an electrical nature but also supervises the planning, engineering, installation, and maintenance of the FBI's nationwide communications system.

It is a pleasure for me to share this brief glimpse of

FBI Laboratory activities with the readers of "Arcs and Sparks." The equipment and methods used in our scientific operations are not far removed from those utilized by many industrial facilities throughout the country. For this reason, a continuing FBI Laboratory research program is constantly alert for new scientific developments and improved techniques elsewhere which may be enlisted in the struggle with crime. Science has given law enforcement an impressive capability which must be vigorously applied by our profession to confront the awesome challenges our rule of law faces now and in the future.



FBI Laboratory examiner compares the markings of two bullets.



Blood grouping, serology section, FBI Laboratory, Washington, D.C.

FBI Laboratory technician checks x-ray diffraction and x-ray fluorescence instrumentation. Power supply for use with Wadsworth concave grating spectrograph is shown in lower right.



JOHN EDGAR HOOVER

Director, Federal Bureau of Investigation
United States Department of Justice
February 1, 1968

John Edgar Hoover was born January 1, 1895, in the District of Columbia. He was educated in the public schools of the District of Columbia and received Bachelor of Laws and Master of Laws degrees from The George Washington University. He holds honorary degrees from The George Washington University, Pennsylvania Military College, New York University, Kalamazoo College, Westminster College, Oklahoma Baptist University, Georgetown University, Drake University, University of the South, University of Notre Dame, St. John's University Law School, Rutgers University, University of Arkansas, Holy Cross College, Seton Hall College, Marquette University, Pace College, Morris Harvey College and The Catholic University of America.

Mr. Hoover entered the Department of Justice in 1917, and in 1919 he was appointed Special Assistant to the Attorney General. From 1921 until 1924 he served as Assistant Director, Bureau of Investigation, and in May, 1924, he was named Director. Mr. Hoover received a commission in the United States Army Reserves in 1922 and resigned his commission on April 24, 1942, in view of the importance of the intelligence work of the FBI, of which he was Director. At that time he held the rank of Lieutenant Colonel in Military Intelligence. He has been admitted to practice law before the bar of the District Court of the United States for the District of Columbia, the United States Court of Claims and the United States Supreme Court. Mr. Hoover is a Mason, both Royal Arch and Scottish Rite, 33° and a Shriner. He is a member of Kappa Alpha Fraternity; Omicron Delta Kappa; Delta Theta Phi; Alpha Phi Omega; and Zeta Sigma Pi. He is a member of many national and statewide law enforcement associations; a trustee of The George Washington University; member, Board of Directors, Boy's Clubs of America; member, National Court of Honor, and honorary member, National Council, Boy Scouts of America; Active Member, Grand Council, Order of DeMolay. He is a member of the Columbia Country Club, Washington, D. C. He has authored three books, "Persons in Hiding," 1938; "Masters of Deceit," 1958; and "A Study of Communism," 1962.

On 3-8-46, Mr. Hoover was presented the Medal of Merit by the President of the United States. On 11-13-54, he was awarded the Cardinal Gibbons Medal by the National Alumni Association of The Catholic University of America for outstanding service to his country. On 5-27-55, President Eisenhower presented Mr. Hoover the National Security Medal for his outstanding service in the field of intelligence relating to National Security. On 1-27-58, President Eisenhower presented Mr. Hoover the President's Award for Distinguished Federal Civilian Service. On 4-28-58, he received the U. S. Chamber of Commerce "Great Living Americans" award. On 5-5-58,



John Edgar Hoover, the Director of The Federal Bureau of Investigation, United States Department of Justice.

he received the Freedoms Foundation's "George Washington Honor Medal" for his speech, "The American Ideal." On 6-16-59, he was presented the "American Citizenship" award by the Junior Order United American Mechanics. On 8-4-61, the U.S. Senate passed a resolution commending Mr. Hoover upon his 37 years of "distinguished service to the United States" as Director of the FBI. On 12-7-61, Mr. Hoover received the Mutual of Omaha Criss Award for "his outstanding contribution to the personal security and safety of the American public." On 2-22-62, he received the Freedoms Foundation's "George Washington Honor Medal" for the second time. On 8-14-62, the Order Knights of Pythias conferred its first annual Distinguished Service Award upon Mr. Hoover. On 11-9-62, the Jewish War Veterans of the U.S.A. presented Mr. Hoover their highest award, the "Gold Medal of Merit," which was inscribed "In recognition of outstanding and meritorious service in the battle for civil rights and liberties. His integrity and devotion to justice will be remembered forever." On 11-16-63, Mr. Hoover received the "Pro Deo et Juventute Award" from the National Catholic Youth Organization in New York City. On 12-4-63, Mr. Hoover was the recipient of the "Brotherhood Award" from the Brotherhood of Washington Hebrew Congregation "for his unswerving devotion to the betterment of brotherhood among all races, creeds and colors." On 11-24-64, Mr. Hoover received the "Sword of Loyola Award" because "his life has been one of selfless devotion to country and God." On 12-12-64, Mr. Hoover received the "Gold Medal" of The Pennsylvania Society "for distinguished achievement." He was awarded the "Grand Cross of Honour" by The Supreme Council, 33°, Scottish Rite, on October 19, 1965.



Dr. Maurice F. Hasler

1907 - 1968

The scientific world suffered a great loss on July 16, 1968, when an auto-train collision took the life of Dr. Maurice F. Hasler. For more than 34 years Dr. Hasler devoted his life to the design, development and production of spectrochemically oriented analytical instrumentation. At his death Dr. Hasler was chairman of the Board and Director of Research and Development of Applied Research Laboratories and on the Board of Directors of Bausch & Lomb.

Active in many scientific societies, Dr. Hasler was the recipient of several awards, authored more than 50 papers on the science of spectroscopy and had a group of significant patents issued in his name, the first issued in 1940 and the last in May 1968. However, Dr. Hasler

reached one of his most rewarding goals when he witnessed the opening of the Hasler Research Center in Goleta, California in 1963.

ARL had its beginning in 1934 in Los Angeles. Under the direction and leadership of Dr. Hasler it has grown to international proportions. The peak of Dr. Hasler's career was reached on May 27, 1968 when he personally officiated at the dedication and open house ceremonies of ARL's new 100,000 square foot, 10-acre headquarters plant site in Sunland, California. This new facility was the culmination of ARL's past 34 year history and, along with the continuing growth of the company, it will act as a living legacy to the memory of Dr. Maurice F. Hasler.



DR. EUGENE SAWICKI

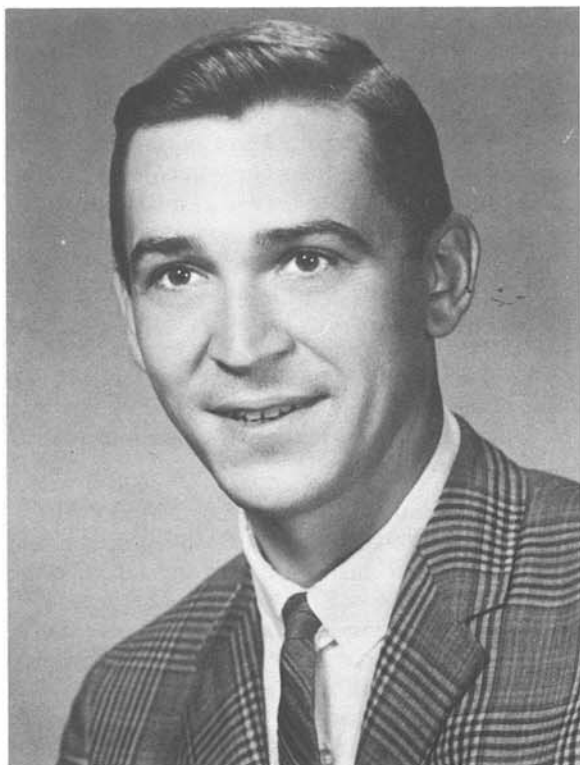
Chief of Particulate Chemistry
National Center for Air Pollution Control, HEW
Cincinnati, Ohio

The 1968 Anachem Award was presented to Dr. Eugene Sawicki of the National Center for Air Pollution Control for his outstanding contributions in the field of analytical chemistry.

Annually the Anachem Award is presented to an outstanding analytical chemist. The selection of the recipient is based on service to analytical chemistry through research, administration, teaching or other activities advancing this division of chemistry as a profession.

The principal goal of Dr. Sawicki's group is to determine in detail the composition of urban atmospheres, especially compounds that are physiologically active. Dr. Sawicki and his co-workers have developed many new methods of separating and analyzing the highly complex mixtures that characterize the air of American cities.

Specific innovations made under Dr. Sawicki's direction include combinations of techniques, such as column with thin layer chromatography; quenchofluorometric and quenchophosphorometric analysis; methods for analysis of aldehydes; quantitative procedures for application of analysis of particulate pollutants from motor vehicles and application of analytical methods to medical investigations of cancer-causing pollutants in urban air.



DR. HOFFMAN

Presents Paper At IUPAC Symposium

Dr. Robert F. Hoffman recently presented a paper entitled "Use of Numerical Methods in the Prediction of Polymer Adsorption" at the Macromolecular Symposium of the International Union of Pure and Applied Chemistry. Dr. Hoffman is Manager of Development for the Chemical Division of Thiokol Chemical Corporation, Trenton, N.J.

The Symposium was held at the Royal York Hotel, Toronto, Canada, and was attended by approximately 1,000 people representing about fifteen countries. Included were the United States, England, Italy, Germany, France, Israel, Japan, the U.S.S.R., and Czechoslovakia.

Highlights of the Symposium were lectures delivered by such distinguished speakers as Dr. Herman Mark and Dr. Paul J. Flory, both pioneers in international polymer chemistry; numerous papers contributed by many experts in various branches of polymer science; and a reception at the Casa Loma hosted by the Polymer Industries of Canada.



10th ANNUAL ROCKY MOUNTAIN SPECTROSCOPY CONFERENCE

HILTON HOTEL, DENVER, COLORADO

August 19-20, 1968



L. to R. — Ray Vogel, Schlumberger Co., Research Laboratories, Urbana, Illinois, Gordon Snyder, Beckman Instruments Company.



L. to R. — Dr. Carole Burnham, Loyola University, Chicago, Illinois, and mother Mrs. E. Darabaner.



L. to R. — Merlyn Salmon, Fluo-X-Spec., Denver, Colorado, Harlan Hoffmann, Van Waters and Rogers, Mrs. Salmon, Frank Tindall, Duval Corporation, Tucson, Arizona.



L. to R. — Mrs. Brennan, Bob Brennan, U.S. Geological Survey, Program Chairman, Russell Lewis, Marathon Oil Company, Conference Committee, Bill Wiginton, Marathon Oil Company, Chairman SAS, Mrs. Lodge, Dr. James P. Lodge, Jr. (Banquet Speaker) Program Scientist, National Center for Atmospheric Research, Boulder, Colorado.



L. to R. — J. MacDawell, Barringer Research, Toronto, Canada, J. B. Willis, C.S.I.R.O. Melbourne, Australia, T. Wangh, Kansas Geological Survey, K. Galle, Kansas Geological Survey.



L. to R. — L. K. Crisler, Dow Chemical Co., Rocky Flats, Colorado, Hal Madisen, Beckman Instruments Co., Bob Hilbig, Dow Chemical Co., Rocky Flats, Colorado, Ann Holst, Jean Barton, (Standing) — R. C. Reinke, Dow Chemical Co., Rocky Flats, Colorado.



17th ANNUAL SOUTHEASTERN SECTION SAS

PARLIAMENT HOUSE MOTEL
BIRMINGHAM, ALABAMA

October 5, 1968



Feature speaker of the meeting, Dr. John Walters, University of Wisconsin.



L. to R. — Jack Witten, U. S. Navy Dept. Washington D.C., Joe Guidry, Freeport Sulphur, New Orleans, La., Prof. Bill Tiffin, University of Florida, Gainesville, Fla., Ivan L. Glaze, Program Chairman, American Cast Iron Pipe Co., Birmingham, Ala.



At the registration desk, Peggy Stewart, Stewart Laboratories, Knoxville, Tenn. with Prof. William T. Tiffin, University of Florida, Gainesville, Fla.



L. to R. — Anna Yoakum, Cy Feldman, Howard Bedell, Peggy Stewart, Robert Smith, Oscar Hurtt, Mrs. W. R. Kennedy, John Walters, Robert Micheals.

ANACHEM CONFERENCE AND INSTRUMENT EXHIBIT

STATLER HILTON HOTEL,
DETROIT, MICHIGAN

September 25-27, 1968



L. to R. — Sam Cohen and Paul Blume, Ford Motor Company.



Conference Committee L. to R. — James Burkel (Registration Committee) Food and Drug Administration, James Haigh (Registration Committee) Food and Drug Administration, James Burns (Arrangements) Ethyl Corporation, John Cramer (General Chairman) Wyandotte Chemical Corporation.



L. to R. — Fred Totman, Applied Research Laboratories, Sam Cohen, Ford Motor Company, Blanche Parseghian, Ford Motor Company, John Mann, Climax Molybdenum, R. H. Maurer, Climax Molybdenum, J. J. Cramer, Wyandotte Chemical Corporation.



Dr. Eugene Sawicki, recipient of the Anachem Award, being congratulated by John J. Cramer (right) General Chairman, and Lella R. Trafelet, Anachem Award Chairman and Richard B. Luers, Jr. (left) Anachem President.



TWELFTH ANNUAL CONFERENCE ON ANALYTICAL CHEMISTRY IN NUCLEAR TECHNOLOGY

Sponsored by
ANALYTICAL CHEMISTRY DIVISION OF THE
OAK RIDGE NATIONAL LABORATORY
Union Carbide Corp., Nuclear Div.

GATLINBURG, TENNESSEE

October 8-10, 1968



A. C. Stern, University of North Carolina.



G. E. Boyd, ORNL and G. T. Seaborg, Chairman, U.S.A.E.C.



L. T. Corbin, M. T. Kelley, ORNL, G. T. Seaborg, Chairman U. S. Atomic Energy Commission, A. Ghiorso, University of California, Lawrence Radiation Laboratory, T. Sylvia, ORNL, and A. R. Fritsch, U.S.A.E.C.



G. T. Seaborg, Chairman, U.S.A.E.C., L. T. Corbin, ORNL.



C. F. Metz, Los Alamos Scientific Lab. and R. E. Eby, ORNL.



L. T. Corbin, ORNL, and G. Phillips, Atomic Energy Research Establishment, Harwell, England.



M. Ganivet, Centre d'Etudes Nucleaires de Cadarache, France.



R. G. Gutmacher, University of California, Lawrence Radiation Laboratory, Livermore, California.



R. P. Larsen, Argonne National Laboratory, J. C. White, A. E. Cameron, ORNL, C. F. Metz, Los Alamos Scientific Laboratory and L. J. Brady, ORNL.



Jim Walls Jr., Executive Director of the Gatlinburg Chamber of Commerce, Gatlinburg, Tennessee, and G. T. Seaborg, Chairman of the U.S. Atomic Energy Commission.



L. to R. — G. E. Boyd, ORNL, A. Ghiorso, University of California, Lawrence Radiation Lab., Glenn T. Seaborg, Chairman, U.S.A.E.C.



L. to R. — A. Ghiorso, University of California, Lawrence Radiation Laboratory, Glenn T. Seaborg, Chairman, U.S. Atomic Energy Commission, L. T. Corbin, Oak Ridge National Laboratory.



M. T. Kelley, Director Analytical Chemistry Division.



L. to R. — M. T. Kelley, ORNL, G. E. Boyd, ORNL, Glenn T. Seaborg, Chairman, U.S.A.E.C., A. Ghiorso, University of California, Lawrence Radiation Lab., L. T. Corbin, ORNL.



J. G. Carrière, (left), President, Spectroscopy Society of Canada, presenting the award for the best paper printed in Volume 12 of "Canadian Spectroscopy" to Dr. Fernand Claisse, Laval University, Quebec, P.Q., for the paper entitled "Generalization of the Lachance-Trail Method for the Correction of the Matrix Effect in X-Ray Fluorescence Analysis", of which Dr. Claisse was co-author with Dr. M. Quintin, University of Paris, France.



J. G. Carrière, (left), President, Spectroscopy Society of Canada, presenting a plaque to Dr. A. H. Gillieson in recognition of his outstanding services to The Spectroscopy Society of Canada.



Banquet Speaker, Douglas M. Lucas, Director of Center of Forensic Sciences, Department of Attorney General of the Province of Ontario, Toronto, Ontario. Topic "The Role of the Scientist in Criminal Investigations".



15th SPECTROSCOPY SYMPOSIUM OF CANADA

ROYAL YORK HOTEL,
TORONTO, ONTARIO

October 21-23, 1968



Mrs. Daniels, R. E. Daniels, General Electric Company, Mrs. Hall, P. R. Hall, General Electric Company.



Dr. Elliott, Willard State University, Ed Shuster, National SAS Secretary, NUMEC, Guy K. Smith, Roswell Park Memorial Institute.



Wm. Sollers, Continental Oil Company, Frank Baugh, Quebec Iron and Titanium Corporation, Denis Blondeau, Johnson & Johnson, Al H. DuFresne, Johnson & Johnson, A. W. Pross, Canadian Industries LTD.



C. J. Leistner, Ultra Carbon Corporation, John Burgener, Tech. Service Labs., John M. Morton, Carleton University, R. Lauzon, Nat. Research Council, Mrs. Bileski, Dan Bileski, Tech. Service Labs, Mrs. Del Hughes.



PACIFIC CONFERENCE ON CHEMISTRY AND SPECTROSCOPY

JACK TAR HOTEL —
SAN FRANCISCO, CALIFORNIA
November 6-8, 1968



Committee — A. C. Jones, Shirley B. Radding, General Chairman, Mrs. Betty Anthonison, Ladies Program, Mr. R. C. Anthonison, Arrangements, Mr. W. C. Thielen, Finance, Mr. Dale H. Smathers, Speakers Reception, T. C. Yao, Exhibits.



R. A. Bauman, University of Alabama, G. N. Gayles, Paul Grant, and J. R. Raphel all International Business Machine.



Wm. C. Thielen, and Pat Bacnand, California Dept. of Public Health.



R. Baney and Duke Dahlin, Ultra Carbon Corp.



Duke Dahlin and C. J. Leistner, Ultra Carbon Corp.



E. C. Snooks, Union Carbide Corp., Charles Weiss, Lawrence Radiation Lab. Berkeley, Manfred Omenzetter, Seamans American Inc., Philip Harten, B. D. Bohna & Co.



C. J. Leistner and D. E. Hughes, Ultra Carbon Corp.

8th NATIONAL MEETING



Dr. L. Donald Shields, General Chairman, ACS, and Walthew Barnes, General Chairman, SAS, for the 8th National Meeting Pacific Conference on Chemistry and Spectroscopy to be held at Disneyland October 6-10, 1969.



JANUARY <i>January 8-10, 1969</i>	Southeastern Section SAS — 17th Annual Symposium University of Florida Gainesville, Florida
FEBRUARY <i>February 27 - March 1, 1969</i>	Tenth Experimental NMR Conference Mellon Institute Pittsburgh, Pennsylvania
MARCH <i>March 2-7, 1969</i>	1969 Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy Cleveland Convention Center Cleveland, Ohio
MAY <i>May 12-15, 1969</i>	20th Annual Mid-America Symposium Sheraton-Chicago Hotel Chicago, Illinois

Do You Want Your News Published?

Our sincere thanks to those of you who forwarded news items and photos for this issue.

If you have news items, awards or photos which pertain to the SAS and would be of interest to its members, we will endeavor to include them in future issues. Photos should be glossy no smaller than 3¼ x 4¼, person in photo should be clearly identified, the event, location and date should be included, please type or print. Photos cannot be returned and the publishers cannot be responsible for incorrect spelling or identification of any item submitted.

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Bay City, Michigan 48706

1969 Pittsburgh Conference

The decision to hold the 1969 meeting of the Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy at the Cleveland Convention Center, Cleveland, Ohio was reached by the Board of Directors of the Conference. The dates for the meeting are set as March 2-7, 1969. The Conference, a Pittsburgh-based corporation, was organized in 1950, and the 1969 Conference will be the twentieth annual meeting. The two sponsoring societies, the Spectroscopy Society of Pittsburgh and the Society for Analytical Chemists of Pittsburgh, are the stockholders of the corporation.

The 1968 meeting was also held at the Cleveland Convention Center and was the first to be held outside of Pittsburgh, a move necessitated by the closing of the Penn-Sheraton Hotel. 7,000 registrants and visitors attended the 1968 Conference in Cleveland.

Dr. Gerald L. Carlson of Mellon Institute has been chosen by the Spectroscopy Society of Pittsburgh as President of the 1969 Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Inc. Dr. Carlson, a native of Kane, Pennsylvania, attended Grove City College where he received his B.S. degree in 1954. That same year, Dr. Carlson joined Mellon Institute and attended the University of Pittsburgh where he subsequently received both an M.S. in 1957 and Ph.D. degree in chemistry in 1961. Upon graduation, he joined the Alcoa Research Laboratories in New Kensington, Pennsylvania, and in 1963 returned to Mellon Institute as a Fellow in the Research Services Division. Dr. Carlson is the author of numerous scientific publications in the field of absorption spectroscopy which is his primary research interest.

Dr. Carlson is an active member of the American Chemical Society, Pittsburgh Section; Spectroscopy Society of Pittsburgh; and Society of the Sigma Xi an honorary research society. He has been associated with the Pittsburgh Conference since 1963 and served as Program Chairman for the most recent Conference held in March of this year.

RAMAN NEWSLETTER

The Raman Newsletter is a means of rapid exchange of information between active workers in the field of Raman Spectroscopy. Published each month its purpose is to disseminate rapidly whatever contributors believe to be of immediate interest to their colleagues. It will contain brief discussions of theoretical or experimental work, unusual experimental techniques and requests for help in locating materials. It will announce meetings and courses along with new publications and instruments.

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Blue - Ultra "F" purity

Green - spectro-tech purity

Red - Ultra standard purity

For ease of selection — in the lab. or off the shelf — all Ultra analytical products carry color-coded purity designations. Product identification labels are color-coded too, for fast, visual inventory control. Not just the labels are new — Ultra purity powders come in white unbreakable, screw-top jars — electrodes in see-through hinged top plastic boxes, flat on top for easy stacking and space conservation. And of course, every box and jar, is over-wrapped and sealed in transparent plastic — protected from contamination until it's opened in your lab. (P.S. We thought you might like to know — the labels peel off without a trace, so you can use those empty plastic boxes for your fishing lures, nails, paper clips or any of those other odds and ends that get scattered about.) To reserve your copy of our new 1969 catalog, ask for "Analytical Laboratory Graphite Products Catalog," Ultra Carbon Corporation, 1310 N. Madison Avenue, P. O. Box 747, Bay City, Michigan 48706.

*Spectro-Tech and Standard Purity-Levels are generally available in rods only.



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