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ARCS and SPARKS



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A Special Announcement
to our Friends and Customers:

Ultra Carbon has accepted the resignation of George T. Sermon as its President and General Manager, effective September 14, 1965. Mr. Sermon was instrumental in the founding of our firm some twenty years ago.

Under the direction of Del Hughes, Executive Vice President and General Manager, Ultra Carbon looks forward to the challenge of the next twenty years with genuine enthusiasm. Like myself, Del has been associated with this firm as an officer and director since its establishment.

Over the past twenty years, Ultra Carbon has earned the highest reputation for service, excellence of product, technical and engineering assistance, and research and development. A steady growth in these areas is our prime and foremost goal.

We greatly appreciate the trust and confidence that you have placed in our products and services; and, we are looking forward to a continuing mutually profitable association with you for a long time to come.

Sincerely yours,

ULTRA CARBON CORPORATION

Weston L. Sheldon
President

/jmp

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Cover Story

FOURTH NATIONAL MEETING SOCIETY FOR APPLIED SPECTROSCOPY August-September 1965 Denver, Colorado

The Fourth National Meeting of SAS was held in Denver, Colorado, during the week of August 30 - September 3, 1965, with the Rocky Mountain Section acting as hosts. There were a total of 857 members and guests at this National Meeting. Among the 19 foreign scientists present were many of our friends and neighbors from the Canadian Society of Applied Spectroscopy.

Over 170 nationally and internationally known authorities presented most excellent papers at this meeting. Dr. A. C. Menzies of Hilger and Watts, was the keynote speaker. He reviewed the high points of the XII International Spectroscopy Colloquium which was held July 12-17 at the University of Exeter. (See page 10.) Dr. R. L. Collins, of the University of Texas, described and discussed Mossbauer spectroscopy. Dr. A. Strasheim of the National Council for Scientific and Industrial Research in South Africa presented papers on spark source evaluation and on time resolved spectroscopy. Dr. Sergio P. S. Porto, of the Bell Telephone Laboratories, included his new technique in "Early developments and recent advances in the use of *Lasers* in Raman spectroscopy." Several excellent papers were presented on the use of the Laser probe as well as many papers on the electron microprobe. Dr. E. U. Condon, Head of Astrophysics at the University of Colorado, gave an exceptionally fine banquet speech, "Has spectroscopy a future?" Some listeners commented that this talk was one of the best in a generation. At a National Honorary Membership Award Luncheon, Dr. Edwin K. Jaycox delivered a very fine acceptance speech on his 30 years of work in the field of emission spectroscopy.

Well attended symposia were held on: geologic applications of mass spectroscopy, applications of spectroscopy to semiconductor materials, water analysis, time resolved spectroscopy, and nuclear materials and reactor components. Under the sponsorship of ASTM and under the expert guidance of Dr. R. C. Barras a most excellent symposium was conducted on the continuing "Unsolved problems in spectrochemical analysis". Many U. S. experts of this ASTM group were present on the panel, in addition to internationally famous Dr. H. Kaiser from the Institute of Applied Spectroscopy, Dortmund, Germany.

Spectrochemists and their wives — about 240 in all — attended a tour of the Air Force Academy and the



CONGRATULATIONS and many thanks go to these three who helped make the Fourth National meeting a success. Left to right: Al Myers, general chairman; Marvin Skougstad, co-chairman; and Merlyn Salmon, program chairman.

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Garden of the Gods, ending with the Flying W Ranch Chuck Wagon Dinner (entertainment included). This event gave our guests and members that "Western flavor" for which Colorado is so well known.

The Rocky Mountain Section would like to thank all who participated in making the Denver Meeting a success, especially including session chairmen, S.A.S. sections attending and supporting us with speakers or otherwise. Finally we want to express our appreciation of those exhibitors who gave us their support.

(Continued on next page)



Dr. Edward U. Condon, (left) Professor of Physics and Astrophysics at the University of Colorado, was the banquet speaker. Here he's caught in what must be an interesting conversation with Professor Kaiser, founder and director of the Institute of Spectro-Chemistry, Dortmund, Germany.



One of the most photographed and talked-about modern structures in the United States is the U. S. Air Force Academy chapel. Many of us had an opportunity to see it inside and out during the 'tours. This stainless steel structure serves all denominations.



Tours were a highlight of the Denver meeting. Here's a group about ready to board one of the five buses that will take them on a tour of the U. S. Air Force Academy and the Garden of the Gods, followed by a chuck wagon dinner at a dude ranch near Pikes Peak. Starting at the left . . . T. D. McKinley, E. I. duPont deNemours & Co., Wilmington; V. A. Fassel, Institute for Atomic Research and Department of Chemistry, Iowa State University; Elizabeth Dalaba, Edwards Air Force Base, California; Sarah Degenkolb, U. S. Steel Corp., Cleveland; Clara Smith, Princeton, New Jersey; R. C. Barras, Atlantic Refining Co., Philadelphia; J. M. McCrae, U. S. Steel Corp., Monroeville, Pa.; and S. D. Rasberry, National Bureau of Standards, Washington, D. C.



It's not often you get five photogenic gentlemen together, all with smiles for the camera. Must have been the gay atmosphere at the social mixer in Denver. Starting at the left: Leo D. Fredrickson, Jr., Spectram Laboratories, Inc., Lakewood, Colorado; Blair Roberts, Geochemical Division of Kennecott Copper Corp., Denver; Alfred T. Myers, U. S. Geological Survey, Denver; Frank Leahy, Baird-Atomic Inc., Cambridge, Mass.; and Alvin L. Schalge, Research Laboratory, Marathon Oil Co., Littleton, Colorado.



T. D. McKinley (left) and Robert E. Machaelis, National Bureau of Standards, Washington, D. C., at the mixer.



Dr. Edwin K. Jaycox holds the Honorary Membership Award he received from the Society for Applied Spectroscopy. On hand to present the award was our SAS president, John Ferraro.



Getting together during recess are (left to right): David W. Steinhaus and Harold Burnett, both of Los Alamos Scientific Laboratory, Los Alamos, New Mexico; and John Johnson, Westinghouse Electric Corp., Madison, Pa.



Enjoying the beautiful sights at the Garden of the Gods is the Hurwitz family of Monroeville, Pa. J. K. Hurwitz (with U. S. Steel) and his wife Ruth are shown with their two daughters, Barbara and Elaine (with camera).

PLAN AHEAD

for the

5th National Meeting

JUNE 13-17, 1966

Chicago, Illinois

The Fifth National Meeting of the Society for Applied Spectroscopy will be held at the Sheraton-Chicago Hotel, Chicago, Illinois, during the inclusive period from June 13-17, 1966. Original papers are being solicited in all areas of theoretical and applied spectroscopy and gas chromatography, including X-ray spectroscopy, arc-spark emission, flame emission, atomic absorption, infrared, ultraviolet, visible, Raman, far infrared, NMR-EPR, nuclear particle spectroscopy, activation analysis, and solid state spectroscopy. Anyone desiring to present a paper is encouraged to submit a brief abstract of not more than 200 words to Dr. E. Lanterman, Program Co-chairman, Borg-Warner Corp., Wolf and Algonquin Roads, Des Plaines, Illinois 60018. Titles and abstracts will be accepted up to the deadline date of March 1, 1966. Being conducted concurrently with the meeting will be an extensive exhibit of the most modern instrumentation in the fields of spectroscopy and chromatography.



This happy group of spectroscopists is going to make sure you have an enjoyable and worthwhile time at the Fifth National Meeting. Seated left to right are Elma Lanterman, Harry Wilson and Robert Scholz. Standing are Carl Leistner, Dick Terry, Jim Burroughs, John Forrette, Lloyd Quarterman, Jack O'Neill, John Ferraro, Warren Loseki, Gene Scheckman and Elwin Davis. Good luck to all 13 of you.

LABORA-STORY OF THE MONTH

RCA's Spectrographic Laboratory

SOMERVILLE, NEW JERSEY

The RCA Commercial Receiving Tube and Semiconductor Division has the responsibility for the engineering, manufacturing, and sales of receiving tubes and a wide diversity of solid-state electron devices. The engineering center of this division located at Somerville, New Jersey, houses all activities concerned with the research and development of new materials and processes, design of new electronic components, and pilot-plant and full-scale production of some solid-state devices.

A well equipped emission spectrographic laboratory at Somerville provides valuable analytical data on new materials used in solid-state devices. For example, accurate quantitative methods have been developed for the analysis of tiny emitter dots, weighing only a few micrograms, for use in germanium transistors. The development of new transistors, as well as the improvement of existing devices, is necessary for progress in the transistor field, where the competition between companies is particularly keen. It is in the development of these new devices that the spectrograph has displayed its full power as an analytical tool. The devices tested include not only transistors, but also other solid-state devices such as optical diodes and lasers. The spectrographic determination of dopants and trace impurities in these devices has been an important factor in their development. The sensitivity of the spectrograph has also been invaluable in the detection and analysis of deposits on new solid-state microelectronic devices. These deposits, which can be seen only with the aid of a microscope, have been analyzed successfully by spectrographic methods.

The design and development of microelectronic devices is an important activity at RCA. These devices contain a complete "integrated circuit," with capacitors, inductors, resistors, and active devices all on a silicon wafer which can be as small as a pin head. These integrated circuits may be the most important electron devices of the future, with possible applications in miniaturized computers on space vehicles where size and weight are critical, or in such popular gadgets of detective fiction as wrist radios.

The Somerville laboratory has a 3.4-meter JACO spectrograph with an Ebert mounting and a 14,800 l.p.i. grating, as well as a Sargent polarigraph Model XXI. This laboratory is operated by Mr. A. M. Liebman, supervi-

or; and Miss Jean Zrebiec, technician. Mr. A. M. Seybold is in charge of all analytical services, which are part of the Advanced Materials and Processes Laboratory under Mr. A. S. Rose. This laboratory is not part of the production end of the organization but, instead, develops new materials to be used in new manufacturing processes and provides engineering support or "trouble shoots" existing processes in the factory. The analytical facilities are ideally placed in this arm of the organization, where they can provide valuable engineering data for developmental as well as production-control activities.

The developmental phase of spectrographic work is concerned with new solid-state devices and unusual analytical problems. Other applications of the spectrograph in Somerville include quality control of materials received from outside vendors that serve various functions in solid-state components. Most of these materials are gold, indium, or silicon base alloys. The doped silicon or germanium semiconductor pellet that is the heart of the transistor must be electrically connected to an outside circuit. For this purpose, various conducting films can be applied to the surface of the pellet by solution metalization or vapor deposition. Then, tiny "reforms" are used to mount the metallic-backed pellet to a relatively large metallic stem. This stem is large enough to contain the leads used to connect the pellet to the external circuit.

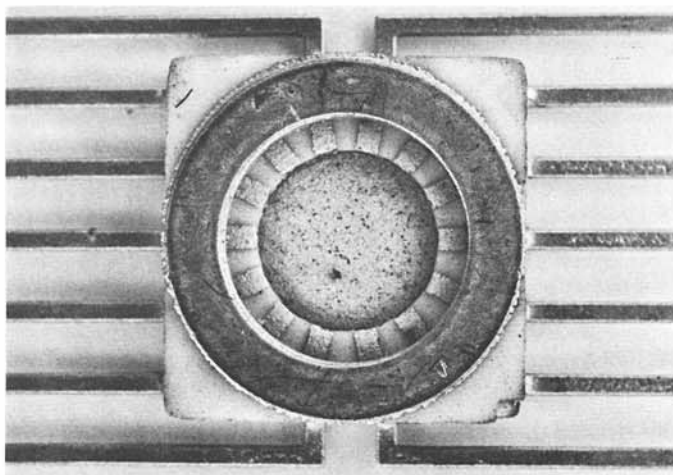
Routine quantitative analyses are run on the lead wires and reforms, and spot checks are sometimes made on the thin conducting films. These analyses help to prevent the use of materials with detrimental impurities or with additives outside specification limits. Such impurities or additives could diffuse into the semiconductor pellet of the transistor and seriously degrade its electrical characteristics.

Other spectrographic work which comes under the heading of "trouble shooting" includes a variety of problems such as the analysis of furnace deposits of various types, of various solvents used to wash or rinse transistor parts, and of plating baths for impurities as well as the parts plated from these baths.

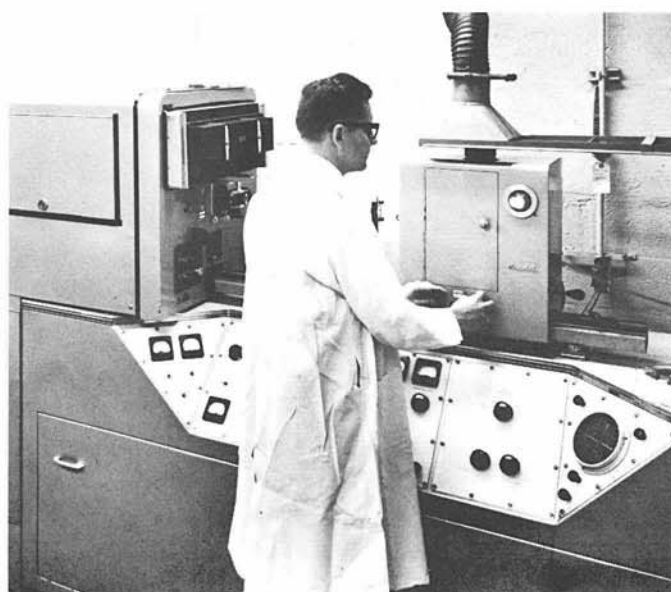
The spectrographic laboratory also performs service work for the RCA transistor manufacturing facilities at Mountaintop, Pennsylvania, and Findlay, Ohio. The types of analytical problems coming from all these loca-



A. M. Liebman, Supervisor of Spectrographic Laboratory, operates the JACO 3.4-Meter Ebert spectrograph. Above, he is shown pulling dark slides from plate holder; right, running a sample.



Typical integrated circuit.

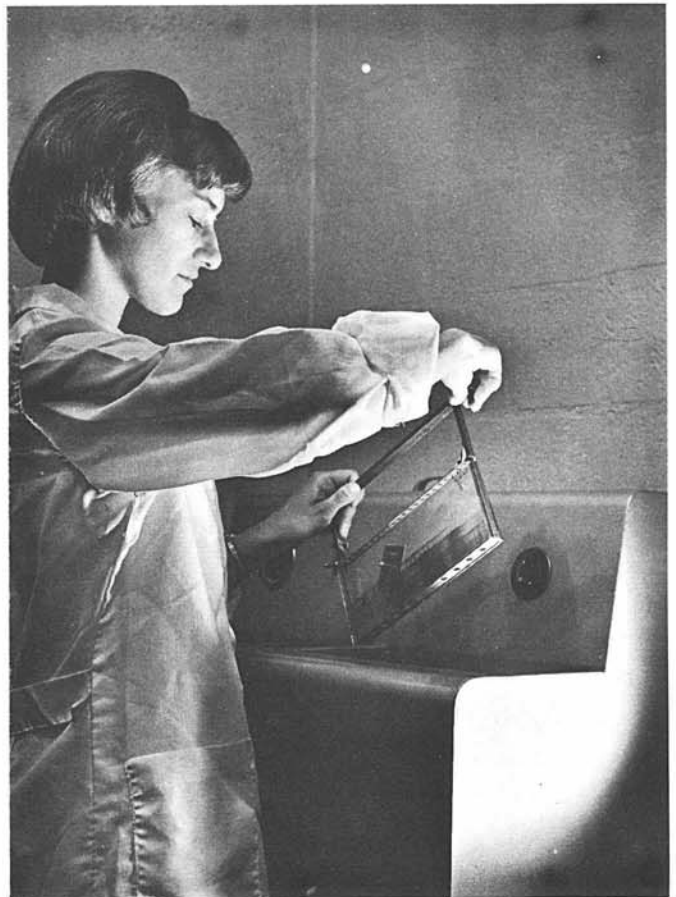
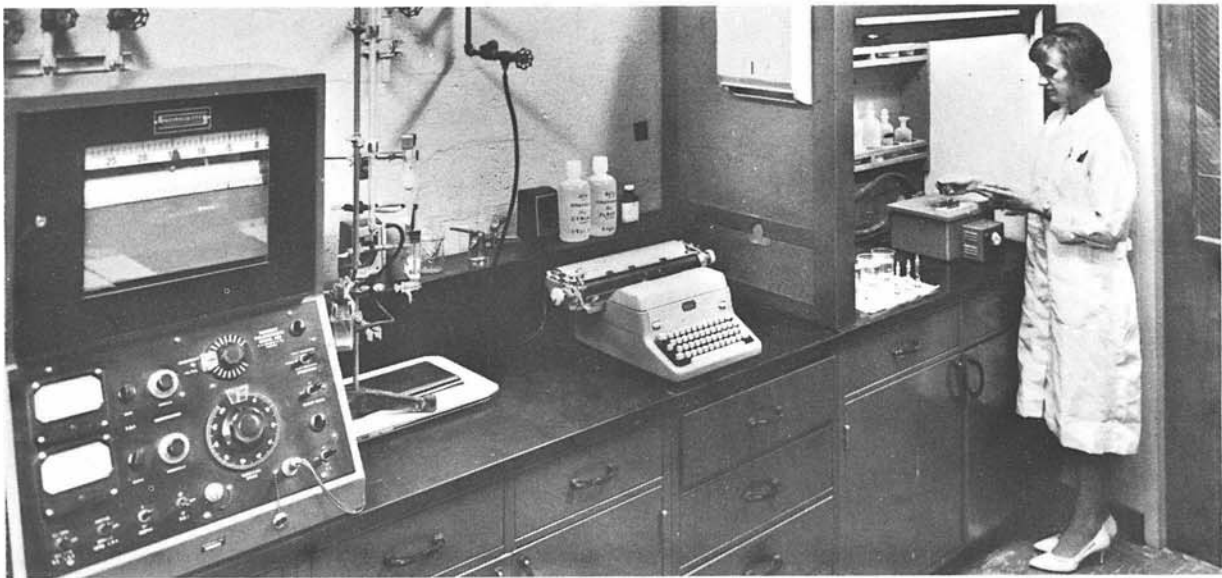


tions and activities are varied. All types of matrices are encountered: metals, glasses (of the multi-constituent type, such as lead and barium borosilicates with alumina and other additives), ceramics, and, finally, semiconductors such as germanium and silicon. These samples come in all types of physical forms: fine wires, small discs, pellets, washers, thin-gauge foil, bars and others. Quantities available range from micrograms to kilograms.

For effective work with all these sample types, a variety of spectrographic techniques has been employed. In the case of many alloys for which certified standards are not available, solution techniques have been very effective. Rotating-disc, porous-cup and vacuum-cup methods have all been used. The specific solution technique is chosen on the basis of considerations, such as the volatility of

the solvent mixture, the strength of the spark discharge, and the exposure time necessary to achieve the required sensitivity.

The graphite-spark method has also been used to great advantage. In addition, the Stallwood Jet, in conjunction with selected atmospheres, is used with the dc arc when the occasion demands. For qualitative work, the dc arc in air has been found satisfactory. In certain cases, special electrodes, buffer mixtures and the like have been used primarily to improve sensitivity and precision. The RCA Somerville installation has become the engineering center for all activities connected with its electronic components and devices. The spectrographic laboratory is well equipped to handle the tremendous variety of problems connected with these activities.



Jean Zrebiec is a technician in the Somerville Spectrographic Laboratory of Radio Corporation of America, Electronic Components and Devices. In the photographs above we see her doing some of her regular duties. Top, preparing chemical samples in the fume hood; above, developing a spectrographic plate in the dark room; center left, reading plates on the JACO microphotometer; and lower left, analyzing plating solution on the Sargent polarigraph.



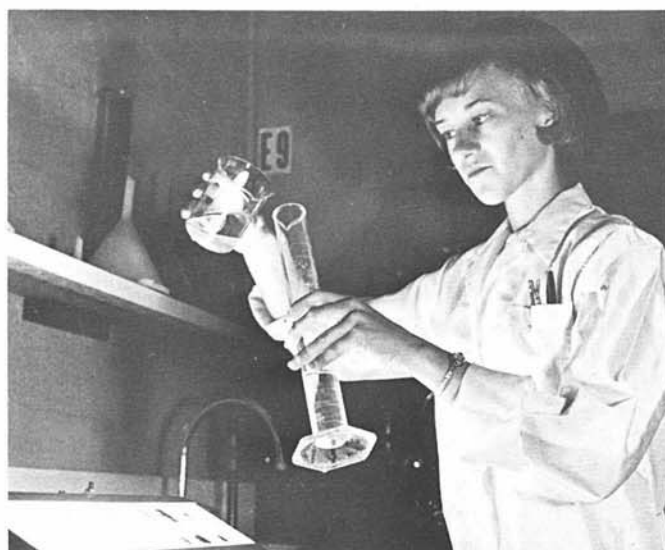
A. S. Rose (right), Manager of Advanced Materials and Processes, discusses test results with A. M. Seybold, Unit Leader in charge of analytical services.



A. M. Seybold visually examines the spectra on a photographic plate.



A. M. Liebman removes foreign deposit from a microscopic integrated circuit for analysis.



Jean Zrebiec prepares developer solution in the dark room.

XII Colloquium

Spectroscopicum Internationale Exeter

The Twelfth Colloquium Spectroscopicum Internationale was held in historic Exeter on July 11 thru 17, 1965. Under the auspices of The British Spectroscopists Coordinating Committee, in collaboration with The Institute of Physics and the Physical Society, the Colloquium attracted scientists from all over the world. The elegant halls of the University of Exeter provided residence and conference area for the visitors.

The technical program included three open discussions on the following themes: sources and sampling in emission spectroscopy, on-stream analysis, and future research requirements. The sessions were held in the

Great Hall where simultaneous interpretation was provided. Each person attending had his own receiver with headphones and used a language-selection switch for each speaker.

In addition, there were thirteen sessions of contributed papers.

Beginning in 1950 in Strasbourg, the Colloquia were subsequently held in Venice, Hoddesdon, Munster, Gmunden, Amsterdam, Liège, Lucerne, Lyons, Maryland and Belgrade. None was held in 1955, 1957, 1960 or 1964.



SIR JAMES COOK, F. R. S., Vice-Chancellor, University of Exeter, during his address to the participants. Looking on is Dr. A. C. Menzies, Hilger & Watts Ltd., Chairman of the Organizing Committee.



GREAT HALL was the scene of many discussions and major lectures. Here the participants are listening to the opening address.



TRAIN DEPOT where the "hellos" began. This is a typical scene at the depot. Most of those attending the congress came to Exeter from London by a special train.



DR. M. ROCA, Junta Energia Nuclear, Madrid, Spain, (left) chats with Professor L. de Azcona, Instituto de Quimica Fisica, Madrid.

DR. J. D. S. GOULDEN, member of the Organizing and Technical Committees, from the National Institute for Research in Dairying, Reading, Berkshire-England.



PROFESSOR KAISER, and his wife, from the Institute for Spectrochemistry and Applied Spectroscopy, Dortmund, Germany.



DR. E. W. SALPETER, Laboratory of Astrophysics, Vatican Observatory, The Vatican, giving a few tips to Gunter Heyden, of Heyden & Son Limited, London, European Sales Division of Ultra Carbon.

(Continued on next page)



HAVING AN OUTING, this group must have just enjoyed one of the typical English country style meals. FREE HOUSE means independent . . . a house not associated with any particular brewery.

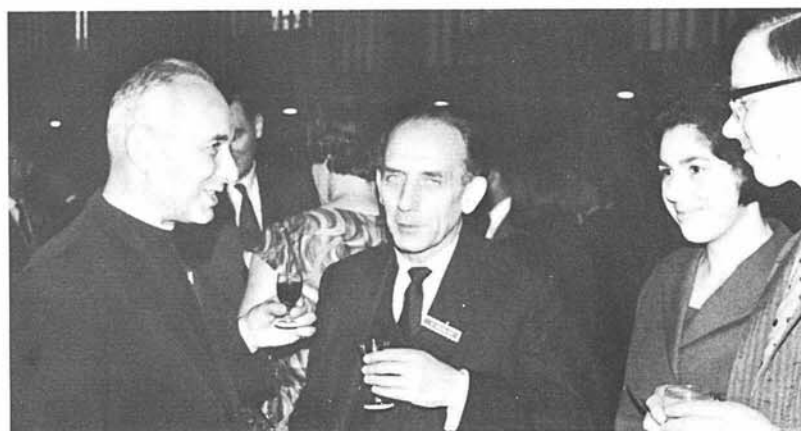


JOLLY GOOD TIME seems to be what Patricia Wakeling of the American Optical Society is telling us. She attended the congress with her mother (facing camera).

PROFESSOR FASSEL of Iowa State (far right) served on the Advisory Committee. Mrs. Fassel (far left) also made the trip. The couple next to Mrs. Fassel is Dr. and Mrs. Rosser. The couple (center, right) is Dr. and Mrs. Victor Mossotti, of Iowa State University.



ON SHOW was a large selection of ultra-pure carbon and graphite rods, preformed electrodes and crucibles by Ultra Carbon.



DR. SALPETER (left) was a delight to chat with. Enjoying the conversation are two young people representing Heyden & Son Limited, Lynda Morriss and James Baxter (far right). Center is an Austrian scientist whose name was unavailable.

ANACHEM AWARD TO JOHN L. HAGUE



Mr. John L. Hague, Analytical Standards Coordinator in the Division of Analytical Chemistry, and Chief, Inorganic Standards, in the Office of Standard Reference Materials at the National Bureau of Standards, received the 13th Annual Anachem Award of the Association of Analytical Chemists. He was honored for his contributions to analytical chemistry, and the Award was presented at the Anachem's Conference October 19, 20 and 21, 1965, in Detroit.

Mr. Hague finished the associates course in Engineering at Arkansas State College, and joined the laboratory apprentice groups at the National Bureau of Standards in 1930. After two years, he transferred to the Norfolk Naval Shipyard in Portsmouth, Virginia, to operate a foundry control laboratory until he returned to the National Bureau of Standards in 1935 to begin service in the Analytical Chemistry Section of the Division of Chemistry. He received his BS in Chemistry from George Washington University in 1938. He was in charge of the ferrous laboratory during World War II and Assistant Chief of the Section from 1952 until 1960. During reorganizations, he has been Acting Chief of Analytical Chemistry (1960), and Chief, Standard Reference Materials (1961-1964).

Mr. Hague is a member of the American Chemical Society, the Society for Analytical Chemistry (London), the Washington Academy of Sciences, Alpha Chi Sigma, the Optical Society, and the American Society for Testing and Materials. He has been Chairman of the Editorial Committee and the Ferrous Division, and is presently one of the Vice-Chairmen of ASTM Committee E-3, and was Chairman (1960-64) of ASTM Committee E-16. In 1958 he was given the Meritorious Service Award (Silver Medal) by the Department of Commerce.

More news from Detroit . . .

DR. HARMON RETIRES



Dr. D. L. Harmon, who served as secretary of the Detroit Section, Society for Applied Spectroscopy, for 24 years, was honored at a retirement banquet on May 25, 1965, in Detroit, with 51 members in attendance.

Dr. Harmon also retired from the teaching staff of the University of Detroit where he served as Professor of Physics.

Dr. Harmon plans to do a bit of traveling and was presented a three-piece luggage set at the banquet. He also plans to teach mathematics and physics at Marygrove College in Detroit.

The photo was taken during Dr. Harmon's farewell speech at the banquet.

Our kind of meeting . . . in our kind of town

16th Mid-America Symposium

The 16th Annual Mid-America Symposium on Spectroscopy was held June 14 thru 17, 1965, at the Sheraton-Chicago Hotel.

Two new areas were added to the program, a one-day session on spectrofluorimetry and spectrophosphorimetry and a one-day session on nuclear particle and gamma-ray spectroscopy. Dr. S. P. McGlynn organized a program of eight papers around the area of basic fundamentals, instrumentation, advances, carcinogenic agents



Hard work pays off. These two proved that when all their efforts in helping to put on the Mid-America Symposium paid off in a very successful meeting. Hats off to Louis R. Pearson, (top) General Chairman, American Can Co., Barrington, Illinois; and Dr. E. L. Grove, Program Coordinator, I. I. T. Research Institute, Chicago.



and organic molecules in solution. William R. Rivkin developed an 11 paper nuclear particle program around fundamentals, medical, crime detection, archeology and industrial and process control application.

Natural compounds was the major theme in molecular absorption spectrophotometry. Other papers were concerned with fundamentals such as color centers, low-frequency motions and optical activity, analytical application and instrumental and cell advances. The sessions for NMR and related topics were largely concerned with studies of organometallic compounds and various types of polymers.

Two major topics in the gas chromatography sessions were sterols and other biological compounds and reaction gas chromatography. Other areas included polymers by oxidative degradation, columns, gas mixtures, toxic hazard control and detectors such as the flame emission — flame ionization detectors.

The two and one-half day emission-atomic absorption sessions highlighted controlled atmospheres, standards, techniques in the biological-medical area, advances in atomic absorption and emission instrumentation and the need for more work in trace-element nutrition. The X-ray sessions were concerned with electron microprobe, vacuum spectroscopy, chemical combination, metals in hydrocarbons, analysis of lake sediments and slurries and production control.

There were a total of 100 papers, only 6 less than the previous year of 106 papers that was a 40% increase over any previous year.

Thirty-three exhibitors used all the space available in the present exhibition hall. All space was sold by February.

In spite of the problems created due to direct conflicts with other programs, the size and quality of the 16th was on par with that of the 15th Mid-America Symposium on Spectroscopy.

Tuesday evening, June 15, a hundred plus registrants and some of their wives attended a cocktail hour and a fine dinner at the Allerton Hotel. After dinner we enjoyed a musical comedy rendition of "La Rhonde" at the Allerton's "Theatre in the Clouds". Those of us who went on the bus tour to see "Chicago at Nite" enjoyed Pat, the bus driver's descriptions and even Chicagoans found him very informative. A beautiful clear night provided the best possible panoramic view of Chicago at night from the Top of the Rock, the Prudential Building.

The Mid-America's Ladies' Program was another first for the conference.

1965 MID-AMERICA

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Barrington, Ill.

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IIT Research Labs.
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Mallinckrodt Chemical Works
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Thomas E. Reichard
Monsanto Chemical Co.
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NMR (Niagara Frontier):

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Canisius College
Buffalo, N. Y.

Nuclear Particle and Gamma Ray Spectroscopy

Dr. William Rivkin
Veterans Hines Hospital
Hines, Illinois

Phosphorimetry

Dr. S. P. McGlynn
Dept. Chemistry
Louisiana State University
Baton Rouge, Louisiana

Gas Chromatography:

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Nelson Armstrong
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Ladies Program:

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Canisius College
Buffalo, N. Y.



A convention highlight, the banquet "On Top of the Town," at the Allerton Hotel, finds (left to right) W. E. Mochel, E. I. duPont deNemours; R. M. Kiral and B. E. Albright, both of Miles Laboratories; and Robert Kennedy, Applied Research Laboratories, U. S. Steel Corp.



Nothing camera-shy about these two. Of course you know it's Nita Stone of General Electric Co., and Peter Badame, Jarrell-Ash Co.



The three talking shop in the foreground are: Dr. Ursula M. Cowgill, Yale University; Joan Westermeyer, National Lead Co.; and Dr. James L. Ogilvie, Monsanto Chemical Co. Far left, in the background, is C. J. Carman, B. F. Goodrich Co.



At the banquet (left to right) . . . Bob Thompson, Aluminium Laboratories, Arvida, Canada; John Hefferren, American Dental Association; Harry Pahl, General Electric Co.; Sandra Hefferren, American Dental Association; Carolyn Parmer; Arnold Halebs, Polymer, Sarnia, Ontario; and John Parmer.

9th Annual at Cleveland

May 25 was the date of the one-day meeting sponsored jointly by the Cleveland Section of SAS and Analytical Group, Cleveland Section of American Chemical Society, and Western Reserve University and Case Institute of Technology. The campus of Western Reserve was the setting for this meeting.



Welcoming smiles at the Cleveland meeting came from (left to right) Eleanor Campbell, Republic Steel Corp.; Jeane Beardsley, Sohio Research and Development, Broadway Laboratory; and Fred Pantalone, Thompson Ramo Wooldridge, Inc.



AWARD TO CHERYL MILLER — Miss Cheryl Miller (second from right) is recipient of the Cleveland Section, Society for Applied Spectroscopy, Award for 1965. At the time of the presentation she was a senior at Western Reserve University. Also shown in the photo are her mother and father, and, at the extreme left, Garnett R. McMillan, assistant professor of Chemistry at Western Reserve.



No introduction needed for Dr. Gillieson, Earl Vance and John Johnson.



In Cleveland . . . Nita Stone, General Electric Co.; Louis E. Owen, Tomorrow Enterprises; and his daughter, Jacqueline.

Dr. Lippincott Receives Hillebrand Award



Dr. Ellis R. Lippincott, member of the Baltimore-Washington Section of SAS, and professor of physical chemistry at the University of Maryland, was presented the 1964 Hillebrand Award during the 736th meeting of The Chemical Society of Washington.

Dr. Lippincott (above left) is shown receiving the award from Dr. Leo Schubert.

Professor Lippincott was cited for "his investigations in infrared and Raman spectroscopy, particularly in the determination of molecular structures and the bond properties of molecules and his insight in determining correlations among molecular bond properties; also for his contributions to pioneering work in spectra at very high pressure, and his contributions to spectroscopic techniques, especially the development of new Raman light sources.

THE HILLEBRAND PRIZE — The high esteem with which William Francis Hillebrand was regarded by his fellow scientists is attested by the establishment of the Hillebrand Prize by the Chemical Society of Washington in the first year following his death on February 7, 1925. In a quarter century, the Prize has taken its place as one of the high honors of American chemistry. The Hillebrand Prize is awarded only to chemists of a single local section.



Dr. Wallace R. Brode, (left) and Phil Miller, National Science Foundation, were among the more than 500 who attended the annual awards dinner.

the grapevine

REMINDER. The Seventeenth Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Inc., sponsored by the Analytical Chemistry Group of the Pittsburgh Section of the American Chemical Society and the Spectroscopy Society of Pittsburgh, will be held at the Penn-Sheraton Hotel in Pittsburgh, Pennsylvania, February 21-25, 1966. It's shaping up as another record-breaker. J. P. McKaveney is President of the Conference.



Bill Hickam

NEW CHAIRMAN of the Spectroscopy Society of Pittsburgh for 1965-66 is William M. Hickam. Manager of the Mass Spectrometry Section at the Westinghouse Research Laboratories, Pittsburgh, Bill is a native of Virginia and received a Bachelor of Science Degree from Randolph-Macon College, Ashland, Virginia and a Master of Science Degree from Virginia Polytechnic Institute, Blacksburg, Virginia. He has done additional graduate work at the University of Pittsburgh continuing his specialty in the field of Physics.

During the past twenty-two years, he has worked in the areas of development for analytical mass spectrometry, positive and negative ion formation, monoenergetic electron sources, and analytical end research application of mass spectrometers. Major contributions have been made by Mr. Hickam on the helium leak detector, the analytical mass spectrometer, and gasket seals for vacuum systems.

Mr. Hickam is a recipient of several awards and is a member of several honor societies. He has written over 30 technical articles and holds three patents. He is a member of the following technical societies: American Vacuum Society, American Physical Society, Society for

Applied Spectroscopy, Spectroscopy Society of Pittsburgh, and ASTM-E-14 Committee on Mass Spectroscopy. Mr. Hickam has been quite active in the operation of the Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy.

Other officers of the Spectroscopy Society of Pittsburgh are: Robert F. Robl, Chairman-elect, Alcoa Research Laboratories; Eleanor L. Saier, Secretary, Gulf Research and Development Laboratories; and Earl Roper, Weirton Steel Co. Division, National Steel Corporation.

BIG TOWN. Just around the corner is the Eastern Analytical Symposium and Instrument Exhibit at the Statler Hilton Hotel, New York City. The dates are November 17, 18 and 19. The meeting will consist of a series of three-hour Symposia of invited papers of extended length by authorities in a number of fields of interest to instrumental analysis, chemists and spectroscopists. The 97-booth Exhibit will feature the newest in scientific apparatus and supplies. Charles W. Pifer, Hoffmann-LaRoche, Inc., is General Chairman.

TEXAS, SUH. The 29th meeting of the Gulf Coast Spectroscopic Group was held at the Sheraton-Lincoln Hotel in Houston, Texas, Friday, October 22, 1965. Mr. C. A. Munson, Chief Chemist, Petro-Tex Chemical Corporation, Houston, was host for the meeting. A program consisting of papers on analytical spectroscopy, chromatography X-Ray spectroscopy and other allied fields were assembled for the all-day meeting by Mr. G. W. Strybos, Jr., Petro-Tex, who was Program Chairman for the session. An exhibit of analytical instrumentation was prepared as well.

UNPACKED? The Ninth Conference on Analytical Chemistry in Nuclear Technology was held in Gatlinburg, Tennessee, on October 12, 13 and 14, 1965, under the sponsorship of the Analytical Chemistry Division of the Oak Ridge National Laboratory. The Laboratory is operated by the Union Carbide Corporation for the U. S. Atomic Energy Commission. The Conference was composed of six sessions embracing Analytical Chemistry of the Transuranium Elements, Symposium on the Role of Analytical Chemistry in Pure Materials Research, Selected Papers on Bio-Analytical Techniques, and miscellaneous subjects.

The conferences were held in the Huff House of the Mountain View Hotel, and at the Greystone Playhouse, Howard Johnson Motor Lodge — Hotel Greystone.

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ULTRA CARBON CORPORATION has 20 years under its belt and reason to be proud. Looking forward to another 20 years are the newly elected officers of Ultra Carbon. Standing around the figure 20 made of Ultra's high purity products are (left to right): Ned Arbury, Secretary; Del Hughes, Vice President and General Manager; Wes Sheldon, President; and Gene Musinski, Treasurer.



WESTON L. SHELDON
President



DEL HUGHES
Vice President and
General Manager



NED S. ARBURY
Secretary

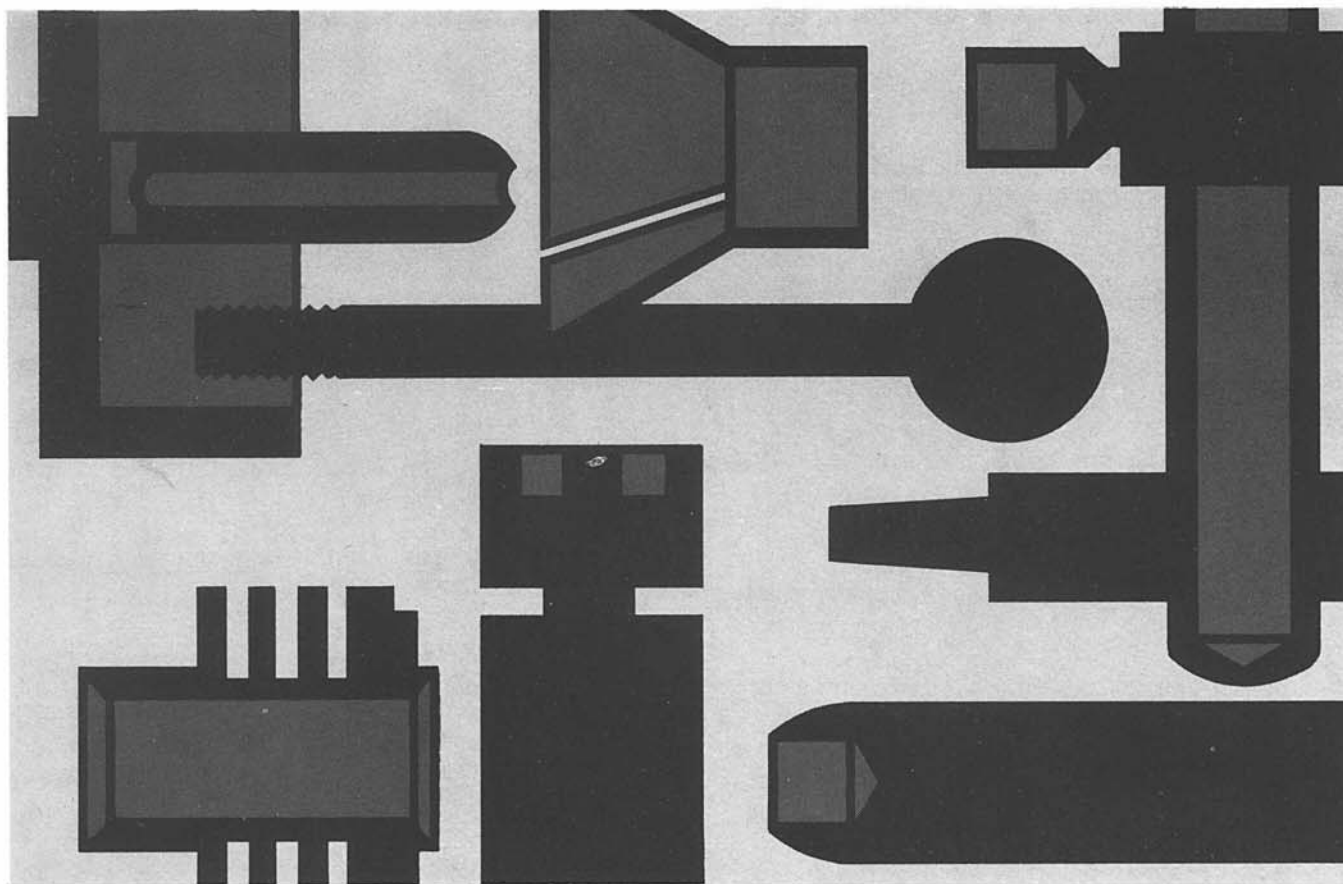


GENE MUSINSKI
Treasurer

the Ultra Carbon story

- 1945....in a small (20 x 30) cement block building in the heart of Bay City, Michigan, a company known as United Carbon Products was born.
- 1947....the company embarked upon a key job supplying high purity graphite to AEC for nuclear work. United Carbon became the first to offer a large variety of preformed spectroscopic electrodes.
- 1949....first to make custom preforms and apparatus of high purity graphite. Established another "first" in offering three density grades for spectroscopic work.
- 1951....a display of special spectrographic shapes at the Pittsburgh Conference was the beginning of a successful program in merchandising special shapes for spectrographic laboratories throughout the world.
- 1952....inaugurated a continuous research program in high purity graphite.
- 1955....first in the field to produce molded spectroscopic electrodes . . . first to publish a complete, comprehensive Spectroscopic Electrodes catalog.
- 1956....entered the electronics market with precision graphite parts, including jigs, boats and fixtures for processing of semiconductor materials and devices.
- 1958....developed carbon bonded abrasives for precision honing and grinding.
- 1959....in conjunction with Micromatic Hone Corp. (now a division of Excello Corp.) UC established a wholly owned subsidiary, Unimatic Manufacturing, Inc. (now, The Carbond Corp.).
- 1960....completed expansion which doubled manufacturing capacity and increased office space. Laboratory facilities for production quality control and R & D were expanded by nearly six times.
- 1961....first to serve glass industry with ultra pure graphite parts for use in production of glass.
- 1961....initiated R & D program for graphite tooling in electrical discharge machining.
- 1963....launched an R & D program on flat glass packaging for integrated circuits.
- 1963....Ultra Carbon Corporation became the new name of the company.
- 1965....Ultra-FGP® flat glass package achieved industry acceptance and placed in production.

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