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ARCS and SPARKS

SPECIAL CANADIAN and CONTINENTAL ISSUE

Published by the Ultra Carbon Corporation . . . for the advancement of Spectroscopy

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Vol. 9 No. 2

ARCS SPARKS

Summer 1961

SPECIAL CANADIAN and CONTINENTAL ISSUE

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THE PRESIDENT'S CORNER

Once again it gives me infinite pleasure to dedicate this issue of Arcs & Sparks to our Canadian and Continental friends. If you would just take a moment, right now, and contemplate on the truly remarkable progress made by both the Canadian Association and the GAMS, it would be most revealing.

In its quietly efficient way, GAMS solidly pushes forward to make substantial progress every year. The quality of the work done on the Continent is a source of admiration the world-around. In Canada, giant plans are underway by the CAAS to stage a spectacular International Conference in 1967, coincidental with the Centennial of Canada. Ambitious work is being accomplished to this highly desirable end.

To all our friends outside the United States we give our warmest welcome and most cordial acknowledgement of their wonderful achievements.

George T. Sermon
President
Ultra Carbon Corp.

COVER STORY

The symbolic maple leaf conveys to everyone a very special feeling about Canada. Synonymous with vitality and growth, the Maple Leaf to us also symbolizes beauty. Particularly in the fall of the year, as spectroscopists travel to Ottawa for the great annual conference, a color show beyond description is theirs for the looking. We're happy to keynote this issue with a "Maple Leaf Cover." As also indicated, this issue features a fine photographic report of the GAMS conference in Paris, France. To all our good friends around the world – "We hope you like this . . . YOUR issue!"

KEY PARTICIPANTS of the record breaking Tenth Annual Ottawa Symposium graciously pose for their photograph. Certainly, much of the success of the program can be attributed to this fine group. Pictured (l. to r.): Dr. R. N. Jones, National Research Council; Mrs. R. N. Jones; Mr. M. Varon, Charge D' Affaires a.i., Embassy of Israel, Guest Speaker; Mrs. M. Varon; and Mr. Carleton Joyce, President, Canadian Association for Applied Spectroscopy.

OTTAWA

HOLDS BIG 10th ANNIVERSARY SYMPOSIUM

A tenth anniversary is always a special event . . . and the big Tenth Anniversary of the famed Ottawa Symposium was most special in a number of noteworthy ways. Held on September 16, 17, 18, 1963 at the National Gallery Auditorium, Lorne Building, Ottawa, Ontario, the Tenth Ottawa Symposium shall long be remembered by all in attendance.

Most noteworthy in the list of "specials" to celebrate the event was the premiere of a brand new, professional edited publication, "Canadian Spectroscopy." With a tastefully designed masthead, excellently conceived contents, and professional appearance, "Canadian Spectroscopy" is sure to unify and inspire spectroscopists throughout all of Canada. It has long been felt that Canadian spectroscopists needed, and deserved, a publication all their own. Certainly, "Canadian Spectroscopy" is an association publication that will not only be constructive to read, but will certainly add much stature to the spectroscopic profession in all of Canada. We, of Ultra Carbon Corporation, through our Canadian distributor Technical Service Laboratories, are most pleased to help sponsor "Canadian Spectroscopy" by using advertising space and are looking forward to years of mutually profitable association.

BUSIEST MAN at the entire conference, in our humble opinion, was Roland Lauzon, National Research Council, shown here registering delegates to the symposium. Not only did Mr. Lauzon dispatch his job with great speed — but he balanced his books to the penny. Our congratulations, Mr. Lauzon.

Reaction to "Canadian Spectroscopy" was unanimous. From this indication, it is a sure thing that readership is assured and every issue will be eagerly awaited. As it progresses, it is felt that Canadian Spectroscopists, whatever their fields, will eagerly seek publication of their papers in this outstanding volume. Under these foregone conclusions, response to advertiser's messages should be most gratifying and this revenue, as it builds, will build an even finer and larger publication.

Also notable among the Tenth Anniversary "specials" was the presentation of the first honorary membership to the association. The honored spectroscopist was Dr. Norman R. Jones, National Research Council in recognition of his outstanding contributions to infrared, ultraviolet and Raman spectroscopy. Dr. Jones addressed the symposium with a provocative subject entitled, "Infrared Spectroscopy — Where Do We Go From Here?" The selection of Dr. Jones for this singular honor met with the complete approval of the entire assemblage.

It seemed natural that the two proceding "specials" should generate a new high in interest in the Tenth Ottawa Symposium . . . and this was certainly the case. Only in the year when the symposium was held jointly with the Analytical Section of the CIC was attendance any greater. This year, some 145 of the finest spectroscopists from Canada and other countries were in attendance. Certainly these registrants represented the majority of leading spectroscopic labs in central Canada and, as informal discussions indicated, took home with them new ideas, new techniques, and new information on improving their own work.

CHALLENGING ADDRESS was delivered at the opening session, Monday morning, September 16th, by Dr. B. G. Ballard, President of the National Research Council, Ottawa. Dr. Ballard expertly set the stage for a program that was unexcelled.

The program was extensive, varied, and interesting to all. Some thirty-one papers were presented covering a vast segment of spectroscopic work. Several areas were of top interest, including Laser Microprobe, and a paper of particular interest to Ultra was a precise evaluation of findings in rotating platform techniques in the analysis of biological material, given by L. S. Valberg, Queen's University, Kingston. Many other excellent papers captured the audience and, once again, the high quality was a credit to both the committees and the participants. The 10th Ottawa must be complimented for this Program . . . it will be hard to beat in the years to come.

There were other highlights which long will be remembered. One of these was the Coffee Party, held Monday, September 16, at 8 p.m. in a large, imposing room in the middle of Canada's Parliament Buildings. Sociability reigned and the conferees agreed that this pleasant custom must be carried on in the future. All registrants eagerly awaited the annual dinner on Tuesday night, September 17 at their favorite restaurant, the Golden Totem at the Ottawa Airport Terminal. Preceding the dinner a most pleasant Social Hour was held with refreshments through the courtesy of Technical Service Laboratories. This delightful tradition for the past five years saw almost 200 people which included registrants, wives, and guests.

Besides the much savored social amenities of the social hour and dinner, the attendees had the pleasure of a stimulating dinner address by Mr. M. Varon, Charge d' Affaires a. i., Embassy of Israel, entitled, "Challenges of The Modern Age — Science and The Developing Nations." It was hard to imagine a more successful symposium than the Tenth at Ottawa. To the Officers, the Committees and their Chairmen we stand in salute and offer a "Well Done!" ●

"GOOD JOB, MR. PRESIDENT" seems to be what is said in this congenial photo. On the left is the current president of the CAAS, Mr. Carlton S. Joyce, Pulp & Paper Research Institute, Pointe Claire, P.Q.; and on the right, J. C. O'Neill, Sales Manager, Technical Service Laboratories, Toronto.

ACCEPTING CONGRATULATIONS at the speaker's table after his stimulating main address entitled "Challenges of the Modern Age — Science and the Developing Nations" is Mr. M. Varon, Charge D' Affaires a. i., Embassy of Israel. His charming dinner companion, to the left in the photo, is Mrs. R. N. Jones.

LOOKING MIGHTY HAPPY about the way the symposium progressed are (l. to r.): Dr. S. S. Berman, and D. S. Russell, both from the National Research Council, Ottawa and both most active in vital committee work which contributed much to the high standards of the symposium.

OTTAWA 10th ANNIVERSARY SYMPOSIUM OFFICERS

Current Officers:

President:	Mr. Carlton S. Joyce, Pulp and Paper Research Institute, Pointe Claire, P.Q.
Vice President:	Dr. Archibald H.C.P. Gillieson, Department of Mines and Technical Surveys, Ottawa, Ontario.
Secretary:	Miss Dorothy Harper, Dominion Tar and Chemical Co., Cornwall, Ont.
Treasurer:	Mr. Peter A. Serin, Eldorado Mining and Refining, Port Hope, Ont.

Symposium Committees:

Chairman: D. S. Russell, National Research Council, Ottawa.

Program Committee:

Chairman: J. H. Kelly, Steel Company of Canada Ltd.
W. N. Fluke, Canadian Westinghouse Co. Ltd.
R. L. Hart, Ontario Hydro Research Labs.
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H. L. Vanesche, Ontario Water Resources Comm.
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Ottawa Arrangements Committee:

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S. S. Berman, National Research Council
E. M. Cameron, Geological Survey of Canada
W. H. Champ, Geological Survey of Canada
J. A. C. Fortescue, Geological Survey of Canada
R. Lauzon, National Research Council

46th Conference and Exhibition of C.I.C. Truly Outstanding

Looked forward to with the greatest anticipation by thousands of Canada's top chemists, the 46th Annual Conference and Exhibition of the Chemical Institute of Canada, held at the Royal York Hotel, Toronto, Canada from June 6th through 8th, proved to be the finest yet.

The wide acceptance and enthusiasm for this 46th Conference might well be credited to the selection of its theme, "Chemistry Furthering Canada's Future." Not only did the program keep in step with this notable theme, but the large exhibition was contemporary proof of the implementation of the meaning behind the theme. As an indication of the excitement created, the registration area checked in more than 1900 registrants for this important chemical event. And, from the comments and unabashed praises we heard, every one of these 1900 who attended went back to their respective laboratories not only well pleased, but looking forward to the 47th to be held next year.

From the moment the doors opened, it was evident that the advanced planning had been smoothly and thoroughly accomplished. The conference clicked like a clock with an expertly devised program. To insure success, several committee meetings were held Wednesday, June 5, 1963, a day previous to the official opening. On the following three days, all Division Sessions were divided into groups for specific study. The breakdown was: Biochemistry, Chemical Economics, Inorganic Chemistry, Organic Chemistry, Physical Chemistry, Protective Coatings, and Chemical Engineering. Highlighting each day were lectures by outstanding authorities in particular fields. All these were extremely well attended.

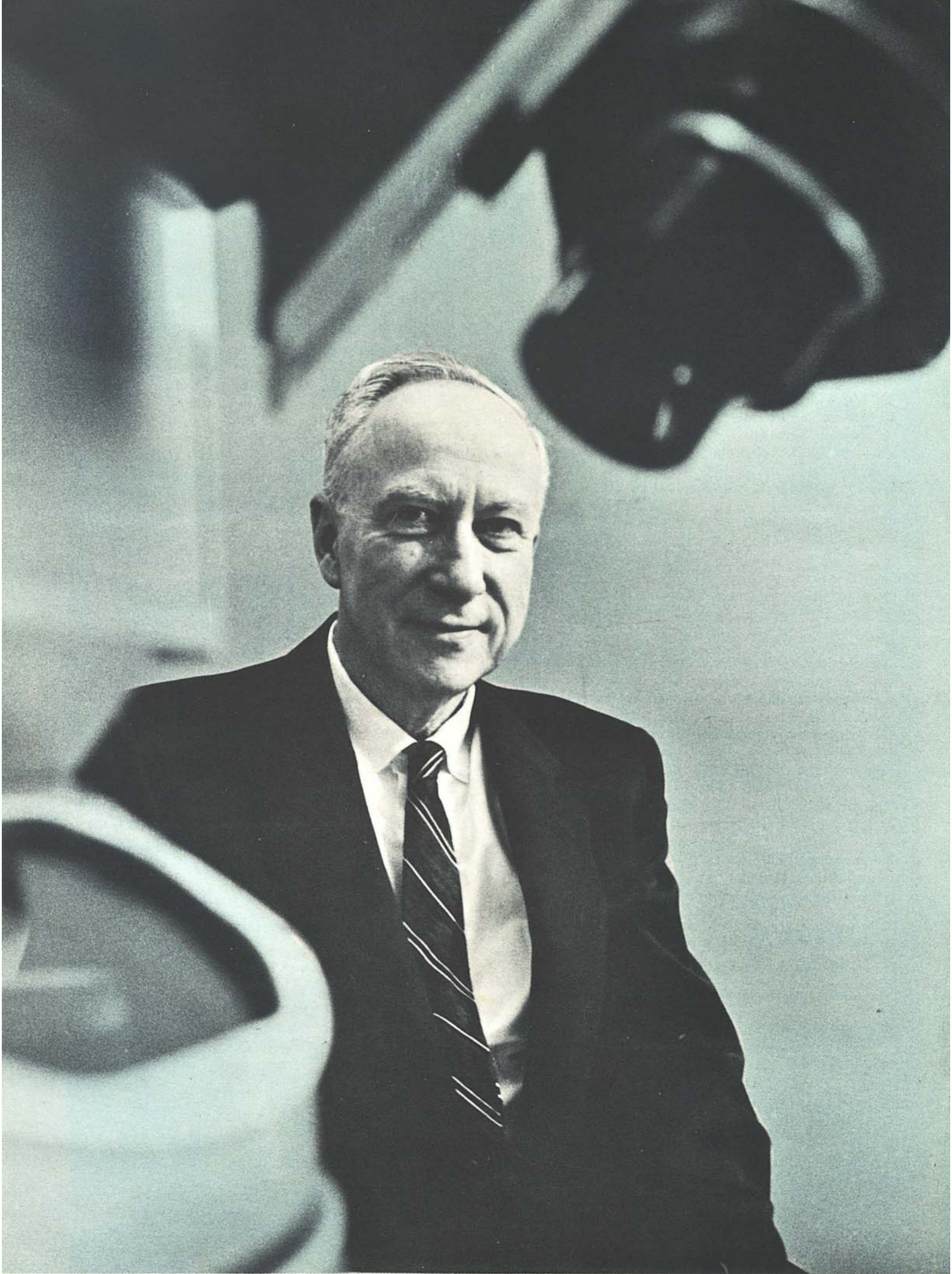
While it is quite impossible to mention all the extraordinary special events on the program, the following will give some indication of the vitality of the meeting: The C.I.C. Medal Award Winner was Peter Yates also the Merck, Sharp and Dohme Lecturer; The Montreal Medal Address brilliantly delivered by C. J. Mackenzie; the first Noranda Lecture given by Neil Bartlett; Election of first officers of the new Association of the Chemical Profession of Ontario — A.E.R. Westman, President, E. A. Crockett, Registrar-Treasurer, and J. A. Drum, Secretary; The Chemical Education Award going to G. B. Frost; these were but a few prominent personalities in the conference.

The carefully conceived program sparkled with successful luncheons, mixers, and receptions. Certainly, no registrant will forget the evening of Friday, June 7, 1963 which witnessed the President's Reception, followed by the magnificent Annual Banquet and capped with the Annual Ball. This brings the ladies into the picture, and everyone felt the Ladies Program superb. With coffee parties, mixers, trips to the new Woodbine Race Track, the Helena Rubenstein Plant, and the new Lash Miller Chemistry Building, University of Toronto, the ladies were pleased beyond measure.

There never was a dull moment, and when the conferees were not listening to interesting papers they were viewing some 89 equally interesting exhibitions of the most modern instrumentation, supplies, and materials in the spacious Canadian Room of the Royal York Hotel. Ultra Carbon Corporation, and its Canadian Distributor, Technical Service Laboratories were pleased to be exhibiting and in attendance. May we meet once again, next year, at this spectacular chemical exhibition.

"LET ME EXPLAIN" is what J. C. O'Neill, Technical Service Labs (on the left) is seemingly saying to Dr. Ogryzlo, University of British Columbia, Department of Chemistry. Whether Jim made his point, or not, we'll never know, but this is a good view of the TSL booth which featured many new developments from Ultra Carbon Corporation.

ROSE BETWEEN TWO THORNS is aptly illustrated by this candid shot of Olivia Pfaff, Sadtler Research Labs, caught between J. C. O'Neill, of Technical Service Labs on the left, and Ultra Carbon Corporation's Nick Grondin, on the right. We don't know what the boys were trying to sell you, Olivia, but it was great having you in the booth.



SPECTROSCOPIST of-the-month

DR. GERALD M. RASSWEILER

Sixty-five General Motors plants use spectroscopy regularly and when GM's Spectrographic Committee meets nowadays the room must be big enough to seat at least 60 members. This year the committee marks its 20th birthday and looks back on a rich record of accomplishment.

A man who was present at the committee's birth, served as its first chairman and helped guide it through technical infancy was Dr. Gerald M. Rassweiler, Technical Director of Basic and Applied Sciences for General Motors Research Laboratories. Directly and indirectly he shared some responsibility for a population explosion of spectrographic laboratories throughout the corporation – from a single lab in 1934 to 32 in 1952. This '52 total has doubled again in the past 11 years.

A native of Chicago, Dr. Rassweiler picked up his grade and high schooling in Colorado, Utah and New York. In 1920 he was graduated from Lewisburg (Pa.) High School. He entered Bucknell University and in 1924 received his B.A. with a physics major.

While attending graduate school at the University of Illinois, he became interested in spectroscopy, working first on the vacuum spark spectrum of aluminum and later on the absorption and emission spectra of beryllium. At that time beryllium metal was still quite rare and there was little indication that either beryllium or spectroscopy would have much industrial importance. Upon receiving his Ph.D. in physics in 1928, he joined GM Research Laboratories at Detroit, starting as a junior physicist in the physics department.

One of his interesting early projects was the investigation, in 1930, of Raman spectra of pure and mixed hydrocarbons. He also worked on X-ray and general instrumentation problems before moving temporarily to the Fuels and Lubricants Department where he teamed with Dr. Lloyd L. Withrow on special combustion studies. They applied spectroscopy and high speed photography to combustion research in an operating engine. Their paper, "Motion Pictures of Engine Flames Correlated with Pressure Cards," a study of the burning gasoline-air mixture in combustion chambers, won the Horning Memorial Award from the Society of Automotive Engineers in 1939.

This was pioneering research in engine-fuel relationships and contributed significantly to later developments in high compression engines and higher octane fuels.

During World War II, Dr. Rassweiler returned to the Physics Department and was named assistant to Dr. Edward J. Martin, first physicist hired by GM, and incidentally also a spectroscopist. In November 1957 Dr. Martin retired and Dr. Rassweiler was named department head.

Spectroscopy is only one of several of his interests. In 1929 he introduced X-ray radiography in GM and a year later he introduced X-ray diffraction. During World War II he organized and supervised an engineering group within the Physics Department to design and produce various types of special instrumentation, particularly the Sonigage which he co-invented.

This was one of the early applications of ultrasonics to nondestructive testing. Not only was it used during the war for quality control of critical components, such as aircraft propellers, but also it has gained widespread use in peacetime quality control applications.

This small production group also developed and manufactured a breaker-type DC amplifier which was effectively used in infrared spectrophotometers during and after the war to replace the double galvanometer systems employed in earlier infrared work.

Dr. Rassweiler was consultant to plant engineers in designing and equipping several GM Technical Center buildings. This included instrumentation of dynamometer test cells and planning his department's Isotope Laboratory.

The Isotope Laboratory has pioneered a number of research and plant applications of radioisotopes including low energy photon sources for industrial and medical radiography.

Meanwhile, the Spectrographic Committee Dr. Rassweiler helped organize continues as a vigorous and extremely useful group of physicists, analytical chemists, chemical engineers, metallurgists, electroplaters, inspectors, foremen, technicians and others whose full-time or subsidiary interests are spectrographic. Since 1960 the committee's activities have expanded to include fourteen infrared or absorption spectroscopy labs and seven X-ray fluorescence laboratories.

PUBLICATIONS OF DR. GERALD M. RASSWEILER

"Furnace Spectrum of Beryllium"
R. F. Paton and G. M. Rassweiler
Physical Review, p. 16, 33, January, 1929

"A Modified Plastometer for Industrial Use"
D. V. Gregory, G. M. Rassweiler and K. C. Lampert
J. of Rheology, 1, 30 (1929)

"Spectroscopic Studies of Engine Combustion"
Lloyd Withrow and Gerald M. Rassweiler
Industrial and Engineering Chemistry, p. 769, 23, July, 1931

"Emission Spectra of Engine Flames"
Gerald M. Rassweiler and Lloyd Withrow
Industrial and Engineering Chemistry, p. 528, 24, May, 1932

"Absorption Spectra of Gaseous Charges in a Gasoline Engine"
Lloyd Withrow and Gerald M. Rassweiler
Industrial and Engineering Chemistry, p. 923, 25, August, 1933

"Spectrographic Detection of Formaldehyde in an Engine Prior to Knock"
Gerald M. Rassweiler and Lloyd Withrow
Industrial and Engineering Chemistry, p. 1359, 25, December, 1933

"Engine Knock"
Lloyd Withrow and Gerald M. Rassweiler
The Automobile Engineer, August, 1934

"Two Knocks in a Single Explosion"
Gerald M. Rassweiler and Lloyd Withrow
The Automobile Engineer, October, 1934

"Formaldehyde Formation by Preflame Reactions in an Engine"
Lloyd Withrow and Gerald M. Rassweiler
Industrial and Engineering Chemistry, p. 1256, 26, December, 1934

"Flame Temperatures Vary with Knock and Combustion-Chamber Position"
Gerald M. Rassweiler and Lloyd Withrow
S.A.E. Journal, p. 125, 36, April, 1935

"Effect of Tetraethyl lead on Preflame Reactions in an Engine"
Lloyd Withrow and Gerald M. Rassweiler
Industrial and Engineering Chemistry, p. 872, 27, August, 1935

"High-Speed Motion Pictures of Engine Flames
Gerald M. Rassweiler and Lloyd Withrow
Industrial and Engineering Chemistry, p. 672, 28, June, 1936

"Slow Motion Shows Knocking and Non-Knocking Explosions"
Lloyd Withrow and Gerald M. Rassweiler
S.A.E. Journal, p. 297, 39, August, 1936

"Motion Pictures of Engine Flames Correlated with Pressure Cards"
Gerald M. Rassweiler and Lloyd Withrow
S.A.E. Journal, p. 185, May, 1938

"Studying Engine Combustion by Physical Methods"
Lloyd Withrow and Gerald M. Rassweiler
Journal of Applied Physics, p. 362, 9, June, 1938

"Engine Combustion and Pressure Development"
Gerald M. Rassweiler, Lloyd Withrow, and Walter Cornelius
S.A.E. Journal, p. 25, 46, January, 1940

"The Automatic Sonigage"
Wesley S. Erwin and Gerald M. Rassweiler
The Iron Age, July 24, 1947

"Ultrasonic Resonance Applied to Non-Destructive Testing"
Wesley S. Erwin and Gerald M. Rassweiler
The Review of Scientific Instruments, p. 750, 18, October, 1947

"Recording and Control System for Infra-Red Spectrophotometer"
Gerald M. Rassweiler, Max D. Liston, J. F. Lash, and D. L. Fry
Opt. Soc. Am. J. 37, 963 (Dec. 1947).

"Engine Testing Facilities at the GM Technical Center"
Gerald M. Rassweiler
Chapter 3, General Motors Research Engine Test Facilities,
Presented July 31, 1952

"Meeting Instrumentation Needs of the Industrial Research Laboratory"
Gerald M. Rassweiler
National Instrument Conference, Mich. State (March 1953)

"Training the Technical Graduate for Research"
Gerald M. Rassweiler
International Instrument Congress (Sept. 1954)
Preprinted

"Cooperative Road Tests of Night Visibility Through Heat-Absorbing Glass"
Harry C. Doane and Gerald M. Rassweiler
Highway Research Board - Bulletin 127, p 23 (1955)

"Engine Pressure Indicators. Applications of the Balanced Diaphragm Type"
Gerald M. Rassweiler, John W. Leggat, Warren H. Smith and John D. Caplan
I.S.A. Journal, 2, 247 (July 1955)

"Engine Pressure Indicators. Applications of a Capacitor-Type"
John W. Leggat, Gerald M. Rassweiler and Yro T. Sihvonen
I.S.A. Journal, 2, 291, (Aug. 1955)

"Engine Pressure Indicators. Recent Developments in Balanced-Diaphragm Pressure Transducers"
LaVerne R. Voss, Lathan E. Baker, Edward F. Weller and Gerald M. Rassweiler
I.S.A. Journal, 2, 348 (Sept. 1955)

"Engine Pressure Indicators. Recent Improvements in a Capacitor Type Pressure Transducer"
Yro T. Sihvonen, Gerald M. Rassweiler, Albert F. Welch and J. W. Bergstrom
I.S.A. Journal, 2, 497 (Nov. 1955)

"Engine Test Instrumentation"
Albert F. Welch and Gerald M. Rassweiler
Instruments and Automation, 28, 1924 (Nov. 1955)

"The Life History of an Equation"
Gerald M. Rassweiler and Carl E. Bleil
Industrial Mathematics, 6, 57 (1955)

"Draftsmanship and Creativity"
Gerald M. Rassweiler
The American Society of Body Engineers
Tenth Annual Technical Convention (Oct. 1955)

"The Role of the Physicist in the Automotive Industry"
Gerald M. Rassweiler
Physics Today, Vol. 13, No. 1, January, 1960

"Internal Stresses and Fatigue in Metals"
D. Van Nostrand Co., 1959 - Co-editor.

The committee has subcommittees specializing in program planning, methods and equipment, and standards. Research Laboratories sponsors the overall organization and supplies the secretary and meeting place. In the past 20 years it distributed hundreds of abstracts and has kept its membership updated with the latest bibliographies and spectrographic information.

Most recently, Dr. Rassweiler was appointed Technical Director of Basic and Applied Sciences for General Motors Research Laboratories. Under his capable direction are the Chemistry, Electrochemistry, Electronics and Instrumentation, Fuels and Lubricants, Physics, and Polymers departments.

Dr. Rassweiler is a Fellow of the American Physical Society, a long time member of the Optical Society of America, a past Chairman of the Detroit Section, O.S.A., and a member of the Society for Applied Spectroscopy.

But more than anything else, he likes to talk about his four grandchildren.

Arcs & Sparks is most happy to salute Dr. Gerald M. Rassweiler as Spectroscopist-of-the-Month and wish him even greater achievements in the years ahead.

the grapevine

MORE HONORS FOR DR. SAWYER whom we had the pleasure of featuring as Spectroscopist-of-the-Month in the previous issue of Arcs & Sparks. On October 24, 1963, at the 1963 Annual Meeting of the Optical Society of America, Dr. Ralph A. Sawyer, Vice President for Research and Dean of the Horace H. Rackham School of Graduate Studies, University of Michigan, was presented the Frederic Ives Medal for 1963. Our congratulations to Dr. Sawyer on receipt of this honor and our thanks for his past courtesies and good wishes for Arcs & Sparks.

SEVENTH CONFERENCE on Analytical Chemistry in Nuclear Technology was held at the Riverside Motor Lodge, Gatlinburg, Tennessee, on October 8 - 10, 1963 to a fine attendance. This conference was sponsored by the Analytical Chemistry Division of the Oak Ridge National Laboratory, Oak Ridge, Tennessee. The overall program was broken into specialized segments: (1) Instrumental Methods for the Analysis of Molten Salt Systems; (2) Instrumentation and Techniques for Nuclear Analysis; (3) Instrumentation for the Remotely Controlled Analysis of Radioactive Materials; (4) Electroanalytical Instrumentation; (5) Instrumentation and Techniques for Nuclear Analysis; (6) Analytical Spectroscopy; and (7) Analytical Spectroscopy and Gas Chromatography. The scope of the Availability and Use of Radioactive Standards", and, "Recent Developments in Analytical Instrumentation." The conference committee is to be congratulated, indeed, on a fine organizational job, with a salute to: M. T. Kelley; C. D. Susano; J. S. Eldridge; Cyrus Feldman; D. J. Fisher; D. L. Manning; R. W. Stelzner and P. F. Thomason. An even better conference next year, fellows!

SECOND NATIONAL MEETING of the SAS was in progress as this issue of Arcs & Sparks went to press. We look for a spectacular show in San Diego and promise to report it fully in the next issue of Arcs & Sparks. If you didn't have the opportunity to attend, we hope to be able to give you a good "printed picture" of the big Second National.

SPECIAL — FOR CANADIANS ONLY! In this, our Canadian and Continental Issue of Arcs & Sparks, we would like to urge all Canadian readers to immediately become associated with the Canadian Association for Applied Spectroscopy. As in the United States, membership to the SAS should be practically universal among spectroscopists who are seriously interested in the advancement of the profession. It has, indeed, become a mark of distinction to indicate your membership to the SAS on any personal history. The aims, objectives and goals of both the SAS and CAAS are well known. In Canada, particularly at this time, there exists a need to strengthen the organization in view of the proposed International Symposium to be staged in Canada's Centennial Year — 1967.

The fees are most nominal . . . only $3.50 annually for members of a local section . . . and for those not located close enough to a local section, a "member-at-large" affiliation costs but $1.00. We know these fees are much too low, for as one wit put it, "a smart member can get his fees back in free refreshments if he attends all his section meetings." The purpose, of course, is not to make money — but simply and effectively to advance the profession of spectroscopy for our common good.

Our goal is 500 CAAS members by the end of the year . . . and without your membership, we can't do it. Right now, fill out and mail the application blank below. You'll be helping Canadian Spectroscopy and, most of all, you'll be helping yourself. Do it right now!

Canadian Association For Applied Spectroscopy

MEMBERSHIP APPLICATION FORM

Please complete and return to the National Treasurer, with the appropriate membership fee, at :—

The object of the Society is the promotion of fellowship among those having an interest in, or using, spectroscopy in any form for the advancement of science and industry.

Mr. P. A. SERIN
c/o ELDORADO MINING AND REFINING LTD.
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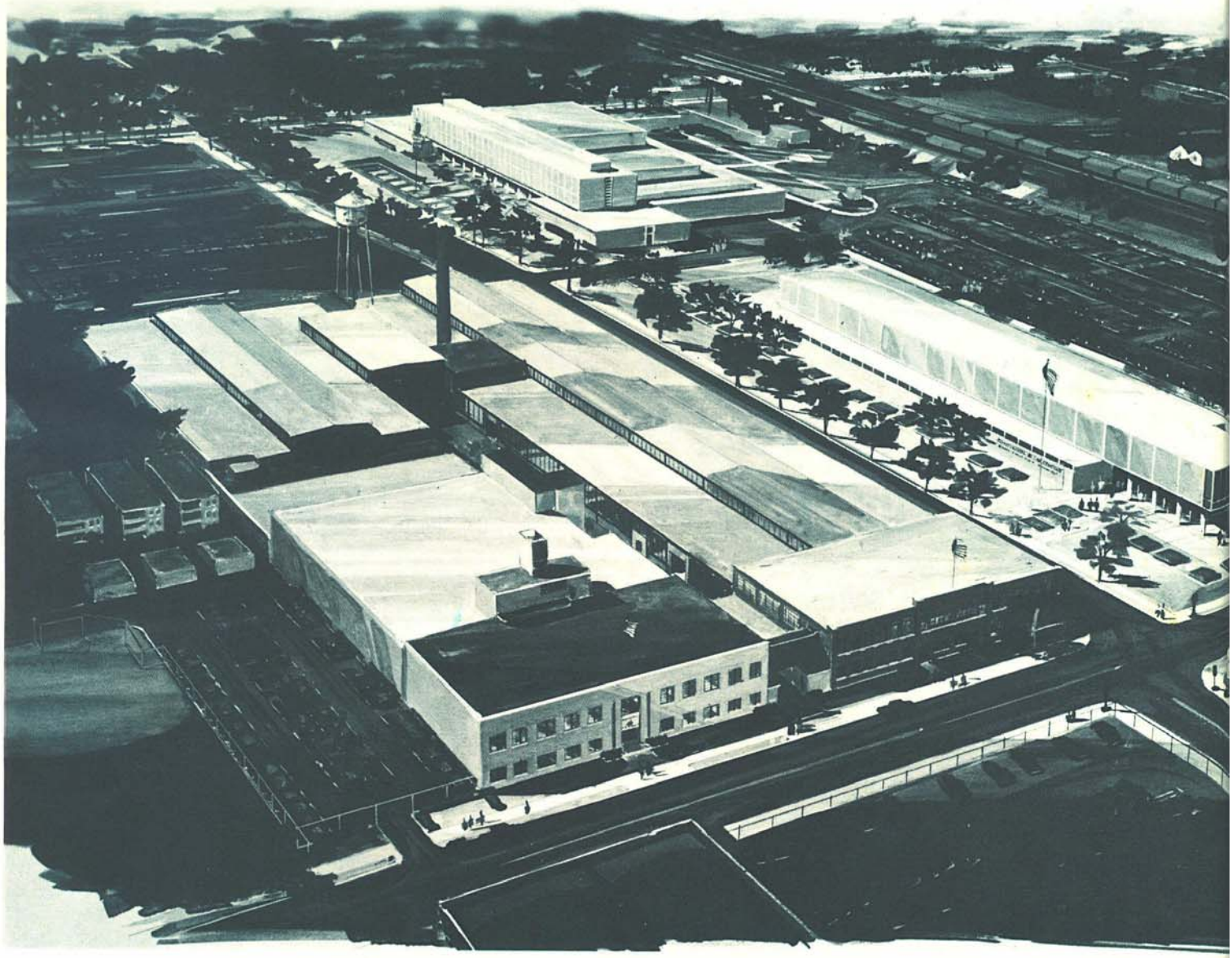
National Membership $..... plus membership in the .....local section $....., total $..... If your employer pays your membership and you need a bill, enclose no money and tick here.

Signed ..... Date .....



**THE FOUR BUILDINGS MAKING UP THE CONTINENTAL CAN COMPANY'S TECHNICAL C
SCIENTISTS AND TECHNICIANS IN AN AREA COVERING 553,000 SQUARE FEET, OR NE**

The Technical Center, Continental Can's $20 million research complex, was officially opened in Chicago and Plainfield, Illinois, in September, 1961. The facilities comprise the largest and most comprehensive packaging research center in the United States . . . and the science of spectroscopy plays an important role in the progress of this huge research complex.

The Center consolidates research activities for all but one of the Company's product divisions - Paperboard and Kraft Paper - in close proximity to each other and to the long-range research operation at Central Research and Engineering. The Paperboard Div. has recently completed construction of a laboratory adjoining the Augusta, Georgia paper mill. Operating within the Technical Center in Chicago are the General Packaging Research and Development, Metal Research and Development, and Central Research and Engineering laboratories. Glass R/D is an hour's distance away in Plainfield, across the road from the Company's newest glass container manufacturing plant.

The General Packaging Research and Development Division is devoted to research on paper and plastics for packaging, and on metal closures, with complete facilities for such experimentation. The laboratory brings together the research groups for six product divisions: Bondward (paper containers), Corrugated Container, Flexible Packaging, Folding Carton and

CONTINENTAL CAN COMPANY TECHNICAL CENTER

CHICAGO, ILL.

ENTER HOUSE A TOTAL OF SOME 800
RLY 13 ACRES OF RESEARCH FACILITIES.

Drum, Plastic Container, and White Cap and Bond Crown (closures).

The research group investigates and evaluates raw materials, including plastics, metal foils, papers, adhesives, lacquers, sealants, inks, solvents, and pigments. It develops new processes and methods for closure manufacture, and for printing, laminating, extruding, heat sealing, vacuum metallizing, coating and drying paper, plastics, and foil, and converting these into roll stock, bags, bottles, boxes, and related products.

The Glass Research and Development laboratory has as its primary goal the attaining of process control in the plant from the moment the raw material arrives until the finished glass container is cartoned. The glass research group performs rapid, accurate chemical analyses and makes measurements of physical properties of glass and raw material compositions. The group formulates new glasses with improved properties - faster melting glasses . . . glasses that are more chemically resistant . . . and glasses that are easier to form.

The Metal Research and Development facility concentrates upon new and improved metal containers and fabricating equipment designed to lower cost, increase speeds, and improve quality. Metal R/D's facilities include completely equipped chemical, physical, bacteriological, and packaging laboratories. Laboratories for container design, evaluation and specifications, plate and protective coatings, can forming and sealing are also part of the giant research center.

Quantitative analysis of a can making alloy is conducted by H. M. Wilson on the Baird Atomic 3-Meter Research Direct Reading Spectrograph.

J. A. Sheinkop uses the GE X RD-5 X-Ray Spectrograph for elemental analysis of a glass.

The infrared spectrum of a polymeric coating is obtained by R. J. Hansen using the Perkin-Elmer Model 421 Dual Grating Spectrophotometer.

Other facilities include an ultra-modern test kitchen and a taste testing laboratory.

All of Continental's Research and Development Groups operate independently and simultaneously to develop new containers and improve old ones. They design new container-making, container-closing, and auxiliary machinery. They test the chemical and physical properties of containers, solve customer's packaging problems, and create new markets for packaged products. Basic research to insure Continental Can Company's leadership in packaging five to ten years and more in the future is the responsibility of the Chicago facility known as Central Research and Engineering.

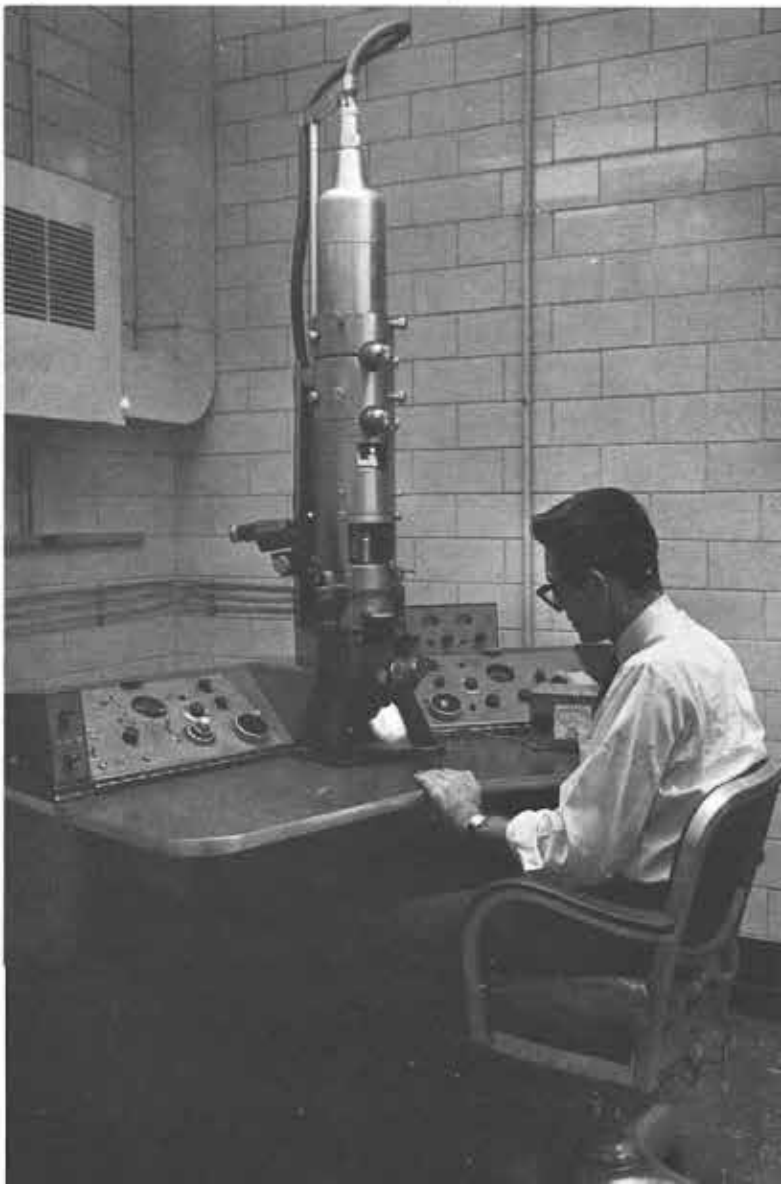
There are five departments in Central R/E: Chemistry, Polymer Chemistry, Metallurgy, Physics, and Engineering. The Chemistry Department is concerned with determining the basic chemical nature of present and new materials and processes utilized in operations of the Company and helps to interpret their significance. The primary responsibility of the Polymer Chemistry and Metallurgy Departments is for new developments in the field of materials and their applied use to provide lower costs and improved performance for packaging. The Physics Department is charged with the imaginative development of high-speed methods for automatically measuring and controlling the quality of our many packaging products and of the processes and high-speed equipment for their manufacture and use. Engineering provides the equipment and skill to test the commercial feasibility of new ideas that originate in Central R/E. In addition, this department is concerned with developing new engineering approaches, such as system analyses to existing problems.

Central R/E is equipped with over $2 million in the latest available scientific instruments and equipment. As can be seen in the accompanying photographs, the scope and character of spectroscopic instrumentation and related equipment is superb. Wherever possible, recording devices have been purchased to use with these technical instruments to save valuable man hours by eliminating the need for watching each unit in operation. The Central R/E Division also coordinates all divisions' investigations of the toxicological safety of packaging materials, preparing the data for the Food and Drug Administration and for other federal agencies. The Division's staff are members of many important scientific committees concerned with the safety of packaging and foods.

The Technical Center is the cornerstone of the program to keep Continental Can Company on the technological frontiers of packaging through solving the current practical problems and investigating the really new concepts in packaging equipment, production processes, and materials. Ultra Carbon Corporation salutes the Continental Can Company Technical Center at Chicago and is proud to relate the extent and sophistication of this environment in which spectroscopy plays its exacting role.

C. J. Spiegl prepares packaging materials for extractability studies while A. M. Palmer adjusts the steam autoclave used for experiments at sterilization temperatures.

J. J. Brynes examines a vacuum metallized surface using the RCA EMU-3 Electron Microscope.



YOU CAN BUY hundreds of post cards showing the view from the top of the Eiffel Tower, but when it's your own, it's special. Arcs & Sparks thinks this is a mighty fine shot overlooking the Seine and the beautiful city of Paris . . . we hope that you have, or will have in the future, your own snapshot of this very same scene.

GAMS GOING GREAT!

ARCS & SPARKS

PROUDLY PRESENTS PHOTOGRAPHIC

COVERAGE OF THE SILVER ANNIVERSARY

GAMS CONFERENCE

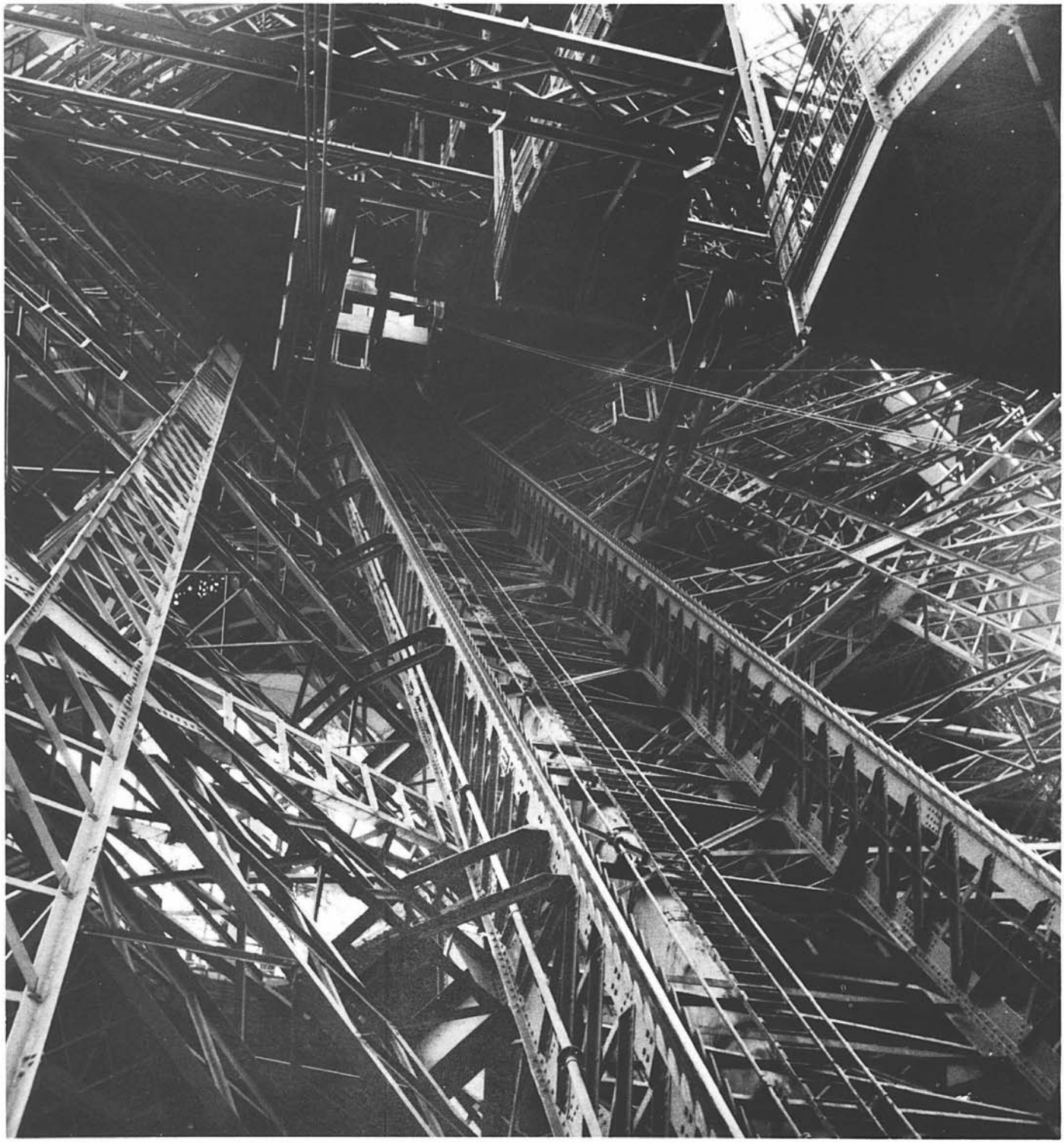
YOU CAN'T BUY another view like this anywhere but Paris. This clear photo affords a view all the way over to the church of the Sacre Coeur on top of the hill of Montmartre. The Seine winds through this picture like a watery highway to the beauty that is Paris.

The celebration of the 25th annual GAMS Congress, June 25 through 28, 1963 in Paris France, was an affair to be remembered. Certainly, the silver anniversary of the world famed congress was attended by the very cream of the spectroscopic profession from some ten countries.

Gathered in the Musee Guimet, described as the "perfect place for the important 25th Congress of the GAMS", were some 320 of the world's most renowned spectroscopists. This record attendance must be measured not simply in terms of numbers, but in full cognizance of the character of this august registration. Leaders in the many various branches and areas of spectroscopy, these 320 scientists came from America, Germany, England, Belgium, the Netherlands, Hungary, Czechoslovakia, Italy, Switzerland, and France. Truly, this was a cosmopolitan group in the finest sense of the word.

As would be expected, the quality of the papers given over the five days of the congress was both ingenious and exciting. There were some thirty-seven papers given by spectrographers from nine different countries, representing the latest developments from laboratories working under different and varying demands. The variety of subjects and the uniqueness of approaches stimulated the congress as never before. And, one of the most rewarding features of any GAMS conference, the freedom of scientific exchange, provided many an intellectual thrill to this twenty-fifth anniversary conference.

The year of planning for this 25th anniversary of the GAMS congress was most evident in the precise character of the program. The first session was devoted to infrared spectroscopy and atomic absorption spectroscopy. The second session concentrated upon mass spectroscopy. Raman, gamma, and emission spectroscopy held the floor during the third session. Both fourth and fifth sessions were on x-ray spectroscopy. As is most apparent, there was something for every registrant and the concensus was unanimous that the planning was superb.



SELDOM PICTURED is this maze of steel girders inside the Eiffel Tower. We salute our photographer for such discrimination. One gets this view waiting for the elevator to come and take us up — the stairs are only for the real enthusiasts.

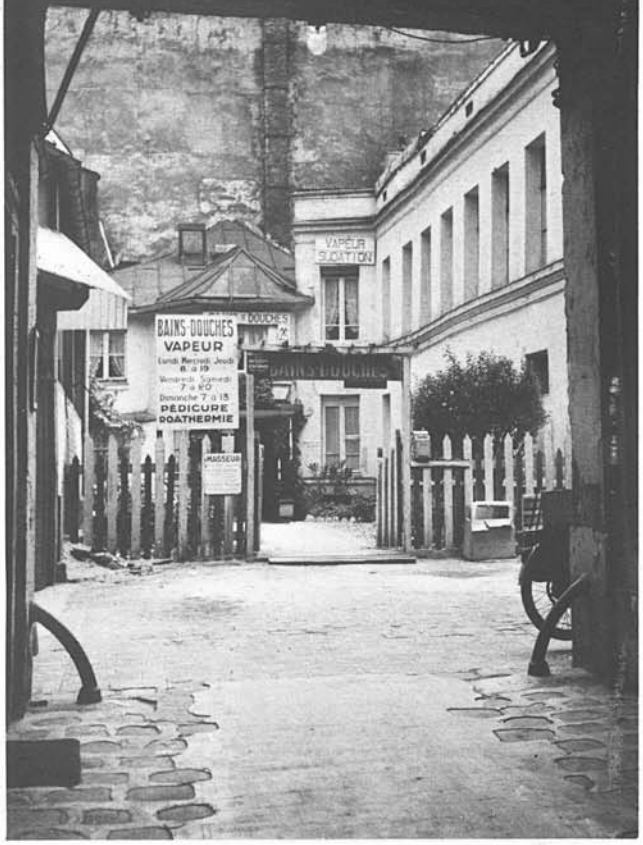
While the record-breaking registration and the completeness of the program set new standards, the innovation of the very first exhibition of scientific instrumentation and material was most spectacular. Some 33 leading manufacturers displayed a tempting array of up-to-the-minute equipment that captivated the registrants. Exhibits, to a man, indicated their satisfaction at not only the amount of traffic in their exhibits, but the fact that these registrants represented a large share of the buying potential from the labs of their respective countries. It seems assured that all future GAMS congresses will feature an instrument and supplies exhibit. ●

GAMS GOING GREAT!

FIRST EXHIBITION ever to be held at a GAMS congress was located next door to the conference hall at the Hotel des Ingenieurs des Arts et Metiers. There was an unexpectedly large exhibit of scientific apparatus . . . so large, in fact, that the power supply was insufficient. The electric company rectified the situation with a large auxilliary supply unit which, by the way, was made in America.

PERFECT PLACE for the 25th GAMS Congress was the Musee Guimet with its fine conference hall, heavily upholstered seats, and large stage. Specializing in Asian Art, the Musee Guimet was a real attraction to all the registrants . . . no finer location could possibly have been selected.

Ultra Carbon Corporation was most happy to be represented at this extraordinary congress by Heyden & Son, Ltd. In fact, our good friend Gunter Heyden was responsible for the magnificent photographic coverage of this event. We sincerely hope all Arcs & Sparks readers enjoy the photographs and story about this 25th GAMS congress and, to be sure, plan to attend the 26th.

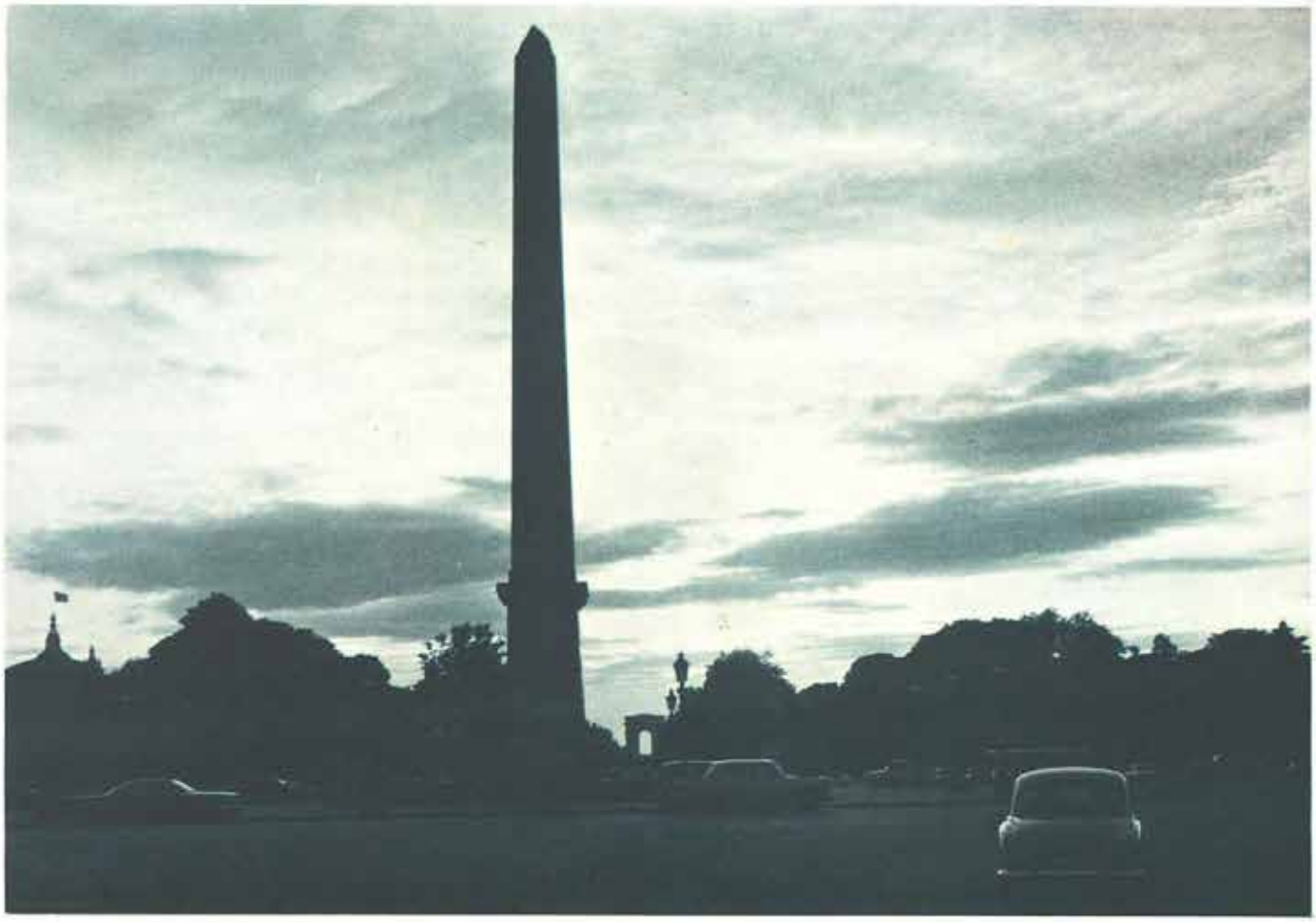


MUCH ADMIRED LITTLE SCENE was glimpsed through a doorway in one of the little streets in the Marais. Here, people can still go to that old fashioned bath house or steam bath three days a week from 8 - 7, and two days a week from 7 - 8. And guess what . . . you can even have a bath on Sundays, that is if you can get there between 7 - 1.

NO WONDER this exhibit aroused considerable interest at the Musee Guimet . . . with these two attractive persons in attendance. Miss Lynda Morris, Ultra Carbon Corporation office, London, England is shown with Mr. R. Rossi of Documentec, who lent a willing and appreciative hand. Ultra is indeed proud to be a part of the first GAMS products exhibition.

PHOTOGRAPHIC "SCOOP" of the year is this picture, taken, by Gunter Heyden from the steps of the Musee Guimet, showing the President of France, General de Gaulle, driving past with the King of Morocco on the way to Versailles. The streets look empty because wherever the General goes, the police come through in the morning and clear the length of the way and no parking is allowed. Five minutes after he passed the scene was one of the usual mad Paris traffic jam.

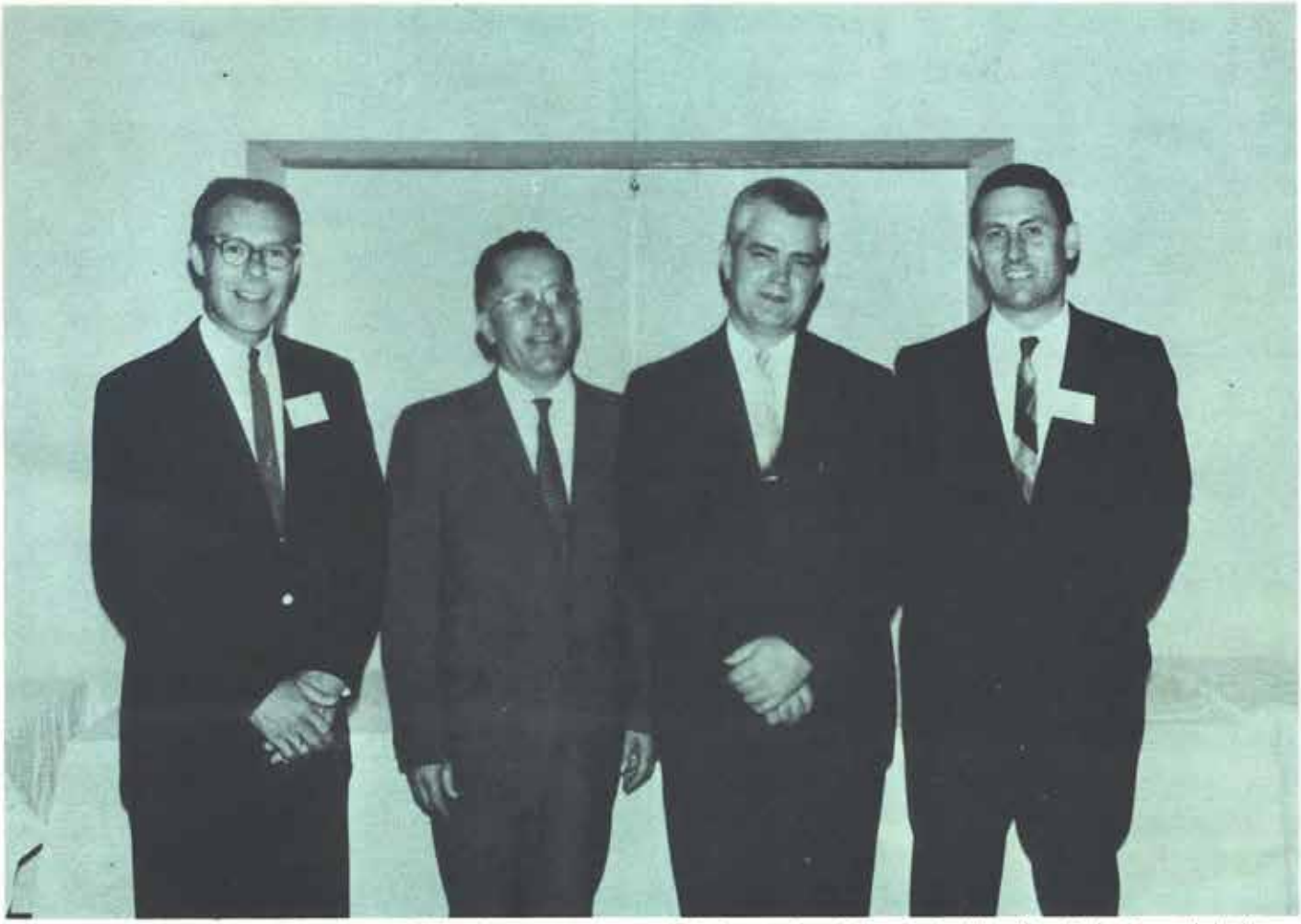
IT'S NOT OFTEN that spectroscopists are "all wet" . . . but here's proof positive. It was a rainy day when this GAMS group toured the Marais quarter and everybody went for their raincoats. Wouldn't that man standing to the right be Bourdon F. Scribner . . . in his ever so French coat?



INSPIRING OBELISK, world-famed landmark of Paris, symbolizes this beautiful city, setting for the 25th Congress of the Groupement pour l' Avancement des Methodes Spectrographiques. It is a happy marriage between a beautiful city and a wonderful conference.

IMAGINE MEETING YOU HERE! Seems two groups of GAMS tourists took off in opposite directions only to accidentally meet some time later on the Place des Vosges. Right smack in the center — the man with the cap — is M. Loeuille, to whom most of the credit must go for organizing this outstanding conference.

ART-CONSCIOUS SPECTROSCOPISTS, in attendance at the GAMS, are shown here studying some magnificent, old oils on exhibit at the Musee de Carnavalet. The musee is located in the Marais quarter, one of the oldest and most picturesque sections of Paris.



HERE THEY ARE, the smiling 1963 Officers of the Rocky Mountain Section, SAS, (l. to r.): Francis Bonomo, President Elect, Denber Research Institute; Francis S. DeRose, Secretary, Coors Porcelain Company; Merlyn L. Salmon, President, Fluo-X-Spec Analytical Laboratories; and Blair Roberts, Treasurer, Bear Creek Mining Company. Yes sir . . . you're a "g-g-good g-g-group."

Successful Sixth Annual For 'Mile-Highers'

A lucky group of some 125 registrants met at the Albany Hotel, Denver, Colorado, on August 12 and 13 to attend a truly outstanding Sixth Annual Rocky Mountain Spectroscopy Conference.

Here, in the soothing shadows of majestic mountains, the Rocky Mountain Section, SAS, conducted a symposium that won unanimous praise. Certainly, the 1963 Conference Committee of Fred Ward, U.S. Geological Survey, Denver, Colorado; and Blair Roberts, Bear Creek Mining Company, Denver, Colorado, deserve sincere congratulations for their fine efforts. Their work with the Denver Convention Visitors Bureau and the Albany Hotel brought real results in the form of a smooth-running conference.

The program was varied and of good quality, including papers in the field of Analytical Atomic Absorption Spectroscopy, Optical Emission Spectroscopy, Infrared Absorption and X-Ray Spectroscopy, Flame Photometry, and Fluorescence Spectroscopy. Highlighting the program was the August 12, 6:00 p.m. Social Hour preceding the Banquet. In fact, the one outstanding and distinctive difference about the Rocky Mountain Conference is the air of informality that prevails. While the serious matters are given their full attention, there exists innumerable opportunities for

WE SALUTE two of the hardest working gents in the Rocky Mountain S.A.S . . . the 1963 Conference Committee, composed of (l. to r.): Fred Ward, U.S. Geological Survey; and Blair Roberts, Bear Creek Mining Company. Fellows, you helped make the show a "smasher."

MOST GRACIOUS GUEST at the conference was the mother of Mr. Robert E. Michaelis, Banquet Speaker. The delightful trio pictured right (l. to r.:) Mr. Michaelis, National Bureau of Standards; his Mother; and Dr. William Harblit, Denver, a friend of the family. Mr. Michaelis' address, "The New NBS Research Facility" was a true feature of the conference.

SOCIALIZERS ALL, pictured at the Social Hour, is this handsome couple; Mr. Marvin Skougstad, U.S. Geological Survey, and his wife. The Social Hour, just preceding the Banquet, is an eagerly anticipated event and well attended by registrants, wives, and guests.

mixing with one another to discuss mutual problems and solutions. Another noteworthy feature this year was an instrument exhibit in which a number of progressive companies displayed their latest and finest.

Unusually interesting was the Banquet Speaker, Mr. Robert E. Michaelis, National Bureau of Standards, Washington, D.C. who revealed some exciting information in his address, "The New NBS Research Facility." Mr. Michaelis traced the sixty year history of the NBS and some of the critical periods and problems in its growth. At present, its physical setup in Washington has become inadequate and Congress has appropriated money to enlarge and relocate this vital bureau. On a beautiful 500 acre site, the new NBS is scheduled to be completed in early 1965 in the environs of the National Institute of Health and Johns Hopkins.

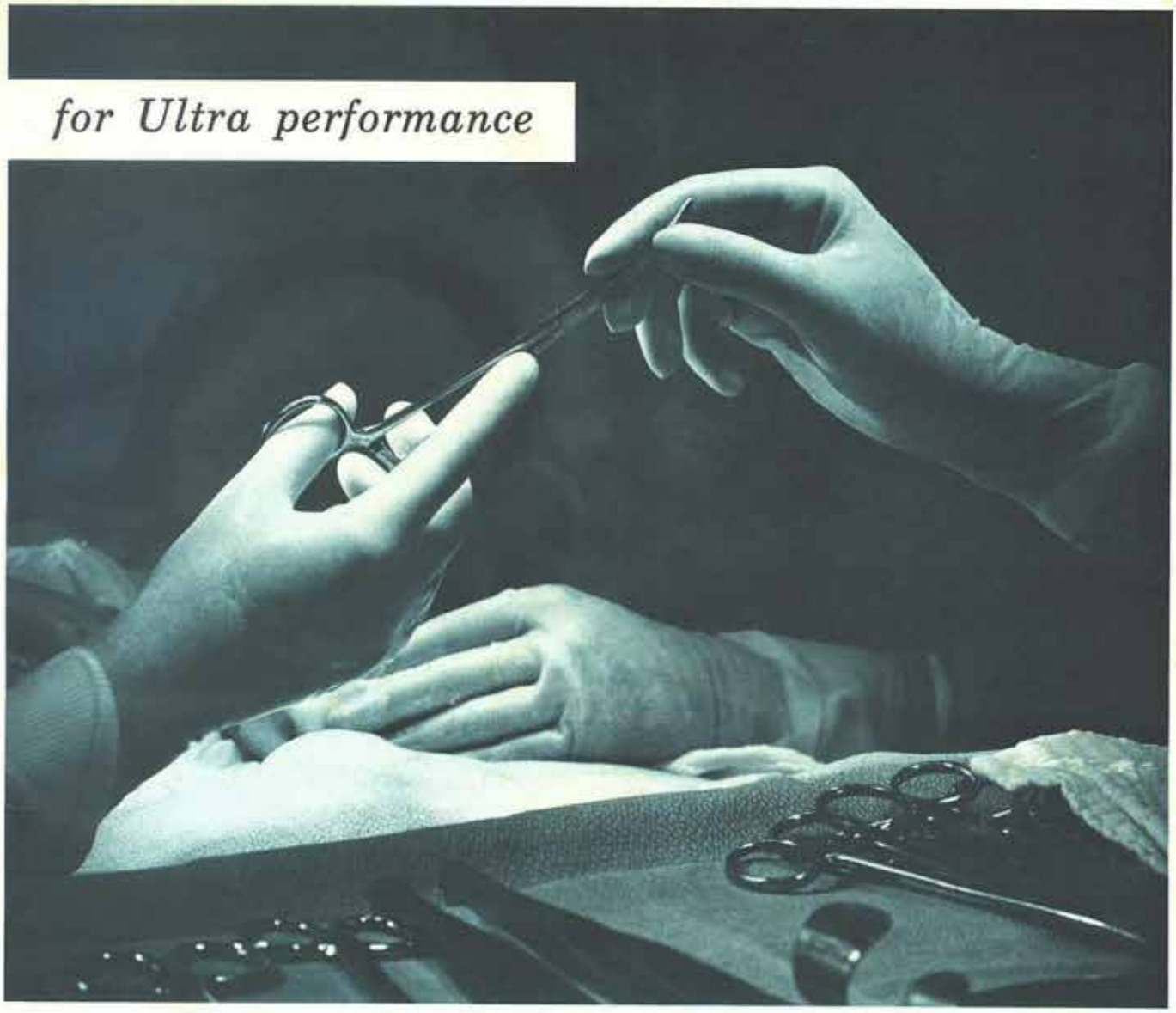
Of decided additional interest to the registrants were the several panel discussions. Monday, August 12, featured a panel on "Techniques of Geological and Mineralogical Analysis." Tuesday, August 13, the morning session enjoyed a panel, "Applications of Gas Chromatography" and the two-day program was concluded with a stimulating panel discussion, "Where Next? Spectroscopy 1964-1975." Trends in increasing sophistication of both instrumentation and materials were discussed at length, with the help from the audience, and the future, it was agreed, looks bright.

No small measure of the success of this, the Sixth Annual Rocky Mountain Conference, goes directly to the 1963 Officers:

President:	Merlyn L. Salmon Fluo-X-Spec Analytical Laboratories Denver, Colorado
President-Elect:	Francis S. Bonomo Denver Research Institute — University of Denver Denver, Colorado
Secretary:	Francis S. DeRose Coors Porcelain Company Golden, Colorado
Treasurer:	Blair Roberts Bear Creek Mining Company Denver, Colorado

Congratulations to all — as Ed Sullivan would say, "It was a g-g-g-great shew!" We'll be looking forward to the lucky seventh next year. ●

for Ultra performance



The surgeon uses many instruments

Each of these instruments is a precise extension of the creative surgeon's hands . . . all are essential to his proficiency.

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