VOL.8, No.1

APRIL, 1962

ARCS and SPARKS

NEIL E. GORDON, Jr.

ARCS & SPARKS - Published For The Advancement Of Spectroscopy

THE PRESIDENT'S CORNER

The 1962 Pittsburgh Conference is now history. But, it will not soon be forgotten. The explosive forward surge in space, registrations and general interest, in this year of 1962, is a forecast of future progress in our chosen profession. The fine type of organization . . . the months and months of hard work . . . and the integrating cooperation of committees . . . all these factors contribute to the achievement of a success the magnitude of which we have witnessed this year. Even beyond these broad aspects, the abilities and dedication of the individuals who accept key jobs must surely be recognized and applauded resoundingly. Out of this outstandingly successful conference emerges a vision of our future hopes and ambitions. Certainly with the caliber of men it has, and the dynamic drive of which it has proved itself capable . . . the future of the profession of Spectroscopy becomes clearer . . . and the years ahead lie rich with the promise of progress undreamed of but a few years ago.

GEORGE T. SERMON, *Pres.*
United Carbon Products Co.

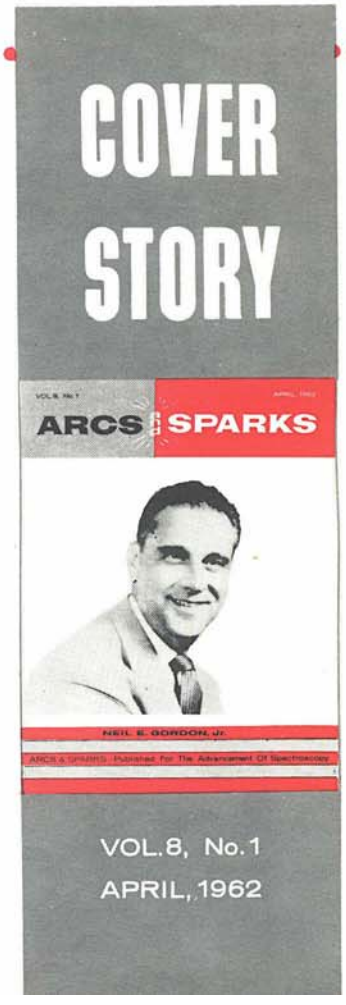
COVER STORY

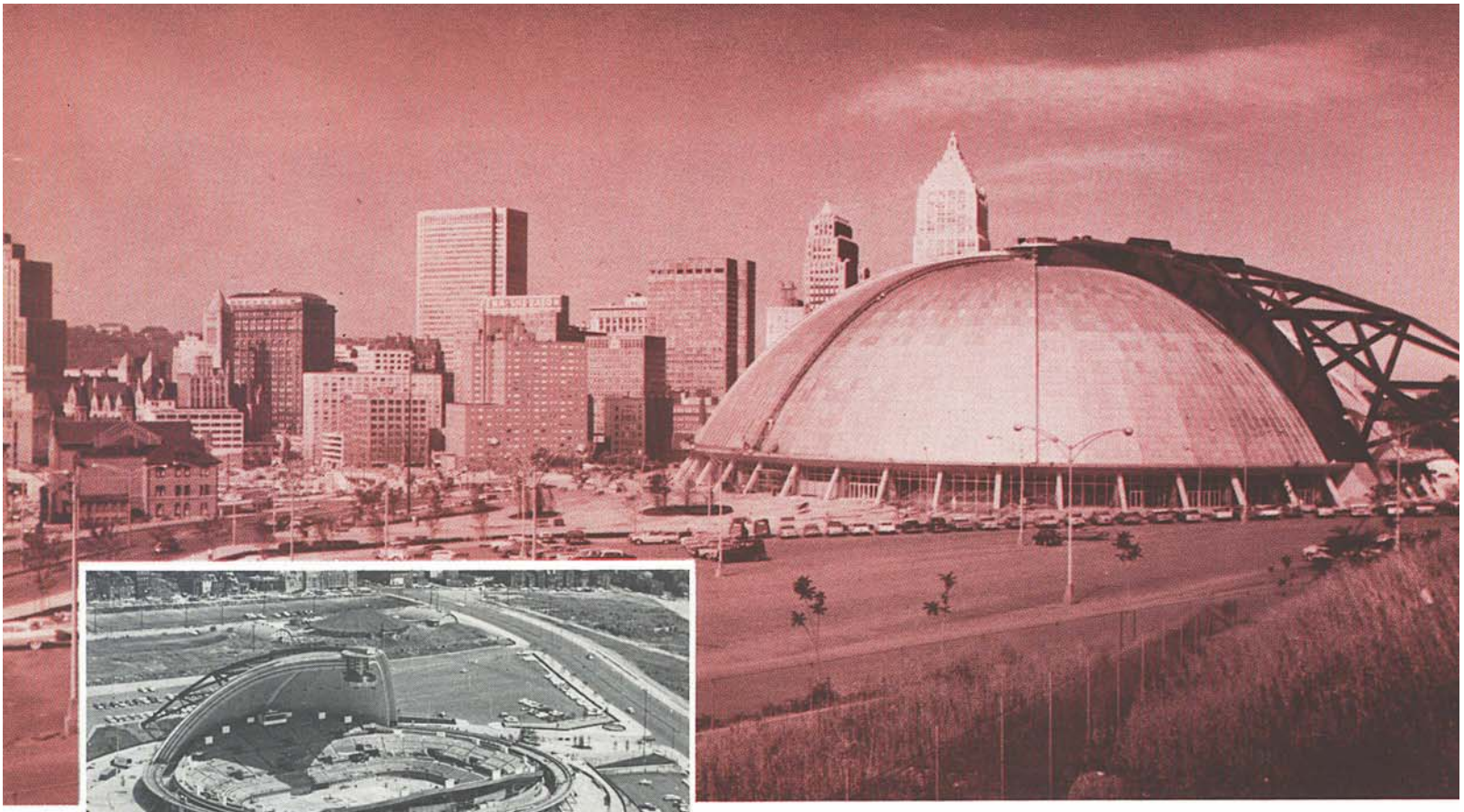
This issue of Arcs & Sparks is proudly dedicated to Neil E. Gordon, Jr., who, as President of the National S.A.S. during 1961, led the society and the profession to new heights of achievement.

One of the most widely known and respected officers of the SAS, Neil has a long list of society accomplishments to his credit. His activity in the society has been constant. He was a member of the Constitution Committee for the formation of the national SAS. Previously, he was the Pittsburgh delegate to the Federation of Spectroscopic Societies. It was natural that he was elected a member of the Governing Board of the SAS. In 1956, Neil did a magnificent job as Chairman of the Pittsburgh Conference. During 1957-1958 he was the President of the Spectroscopy Society of Pittsburgh. In 1960 he accepted the President-Elect of the national SAS and has just brought to a dynamically successful conclusion the 1961 term of office as President of the SAS.

Graduating from Central College, Missouri, with a B.A. in Chemistry, Neil went East to earn his M.S. at Brooklyn Polytechnic in 1945. From 1940-1950 he served as corrosion chemist, analytical chemist, and chief spectrographer with the research labs of International Nickel Company, Ltd. He joined Westinghouse in 1950 and served as Supervisor of the Instrumental Laboratories of the Analytical Chemistry Section at the Bettis Field Plant. In 1955, he was appointed to his present position as Supervisor of the Technical Service Laboratories at the Westinghouse Atomic Power Department. During these productive years, Neil has found time and energy to publish some fifteen papers dealing with corrosion chemistry, analytical chemistry, spectrography, and industrial hygiene controls for nuclear reactors.

We join the nation's spectrographers in a salute, and a warm word of thanks to NEIL E. GORDON, JR.





UNBELIEVABLE UMBRELLA magnificently reposes in Pittsburgh's front yard to add interest for 1962 conferees. This $22 million, giant steel umbrella covers the new Public Auditorium -- destined to become one of the great meeting places of the world. At the touch of a button, the steel "umbrella" which forms the roof will "fold up" to provide a huge outdoor arena accommodating up to 13,000 persons.

PITTSBURGH EXPANDS

We thought it couldn't be done . . . but the 1962 Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, held March 5-9, 1962 at the Penn-Sheraton Hotel, Pittsburgh, continued to expand. It might be hard to believe, but this year's giant conference:

1—Expanded to another floor — the Club Floor at the Penn-Sheraton — in addition to the regular 17th and 4th floor locations!

2—Expanded in registered visitors to just over 3,800 . . . with a total attendance of hundreds more!

3—Expanded the list of leading Exhibitors to 135 displays located on the three floors!

4—Expanded its influence to such a degree that registrants came not only from all over the United States, but also from 13 foreign nations!

In the words of one widely published newspaper report, the Pittsburgh Conference "grew into the largest of its kind in the world". Certainly, the successful conclusion of this 1962 Conference is an appropriate point at which to salute committee workers through the years. The entire profession is indebted to those hundreds of workers . . . from the 1st Joint Conference in 1950 through this 13th Joint Conference in 1962 . . . who gave their service to this cause. Not only were they responsible for making their own particular conference a success, but contributed the basic drive and solid accomplishments that have made the Pittsburgh Conference dominant in its field. And, we have been assured, new ideas, developments, and expansions lie in the years just ahead.

A special listing of the members of the Conference Committees and Sub-committees is shown in this report. Proof of a job done "par excellent" is found not only in the increased attendance, increased exhibitors list, but particularly in the unofficial comment and discussion by many prominent registrants vouching for the quality of the papers submitted. Especially appreciated were the several notable highlights of the Conference. In fact, one of the 'niceties' took place before the official opening . . . the Sunday, March 4th Social Hour at 7:00 P.M. in the main floor Terrace Room . . . where the socialization before

(Continued Page 4)

SAS NATIONAL OFFICERS pose for a formal, but pleasant, group portrait. We're proud to present (l. to r.): Rev. James J. Devlin, S.J., Secretary; Dr. Edwin Hodge, Past Treasurer; Neil Gordon, Immediate Past President; Dr. Isabel H. Tipton, Treasurer; Dr. Donald R. Johnson, President-Elect; and John Hansen, President SAS 1962.

VIP's -- FOR SURE when titles indicate "President". Here, Neil E. Gordon, Jr., Westinghouse Atomic Power Department, Pittsburgh, Pennsylvania, immediate Past President SAS receives a handsome inscribed pen in commendation from John Hansen, Esso Research Division, Linden, New Jersey, President SAS for 1962. Our congratulations, too, Neil!

PITTSBURGH EXPANDS *(Continued from Page 3)*

the opening was most appreciated. This was followed by the Tuesday, March 6th, 8:00 P.M. Social Hour, in the Ball Room on the 17th floor at which time a huge turnout of members from both the Spectroscopy Society and A.C.S. in Pittsburgh thoroughly enjoyed themselves along with invited guests.

Unusual this year was a Symposium commemorating the fifteenth anniversary of the Fisher Award in Analytical Chemistry. Wednesday, March 7th, the Conference hit its peak stride. At 2:00 P.M., the Pittsburgh Room was jammed to attend the Spectroscopy Society of Pittsburgh's 1962 Award Address . . . an event always anticipated. The presentation of the award was made by D. L. Petitjean, Chairman, SSP to Dr. G. Herzberg, National Research Council, Ottawa, Canada. Dr. Herzberg's address was entitled, "Molecular Spectra in the Vacuum Ultraviolet." A scientist of international repute, Dr. Herzberg points up the remarkable talents of our good scientific neighbor, Canada. In the evening was a long-looked-forward-to event, the annual Conference Dinner. Not only were the sirloin steaks and African lobster tail delicious, but the entire event was handled in the finest of taste by Toastmaster Bruce M. LaRue, Weirton Steel Company. What a day — and what an evening!

Particularly of interest to many of our readers were the Wednesday-Thursday-Friday spectroscopy meetings. Heightened interest was evident in new techniques and developments in Emission work. Adding to this interest were sessions in Molecu-

BACK AT OUR BOOTH we find a terrific trio, including Carl J. Leistner, Asst. to the President, United Carbon Products; Uteana Oda, U.S. Geological Survey, Denver, Colorado, and William A. McLaren, Pemco Corp., Baltimore, Maryland . . . discussing graphite -- we hope.

GENTLEMEN PREFER LADIES and United's lucky "Nick" Grondin beams at (l. to r.) Mrs. R. A. Rouen, Crime Detection Lab, Royal Canadian Mounted Police, Sackville, N.B., Canada; Dr. Isabel H. Tipton, Associate Professor of Physics, University of Tennessee, Knoxville, Tennessee; and Mary Mayes, Sandia Corporation, Albuquerque, New Mexico.

lar and Infrared areas. A word of praise must be directed to all those responsible for not only the program itself, but the exposition. It seemed that at no other conference had so much new development in instrumentation been apparent. Three floors of exhibitors kept the registrants on their toes in becoming acquainted with the very latest. New companies, new equipment, new materials and a host of new ideas were available for the asking. The exhibitors reported intense interest — particularly in anything new — by large crowds of registrants from United States and foreign areas. Preliminary analysis indicates many qualified inquiries were obtained which, we are sure, will be competently followed up by the technical service staffs of the exhibitors.

Of the many unusual — and most constructive — differences between the 1962 Conference and the preceding ones was the distinct "international" flair so evident. Indeed, it was more than a happy coincidence that, at the 13th Conference, some thirteen foreign nations should be represented. It comes as a matter of enlarging horizons to be informed of the advancing sophistication of spectroscopy in other nations and the ingenuity of foreign creative analytical techniques. Matching this "difference" in this 13th Conference was the seemingly large increase in the number of women registrants. Our exhibit and hospitality suite played host to a delightful number of delightfully feminine scientists. While we like to think of our team as being "somewhat attractive" to the opposite sex, we feel that the feminine interest and participation in our profession is undoubtedly on the ascendency . . . and more power to the trend.

As we were packing up our display, preparatory to returning to our headquarters, we mused on this, the largest, finest Pittsburgh Conference, yet. Not only from our own viewpoint, nor from our societies' viewpoints, but from the noble ends to which the proceeds go: scholarships, technical film library, technical journal supply, aid to colleges needing scientific equipment, support of science fairs, and other good works. We felt repaid intellectually . . . we felt pleased emotionally . . . and we felt proud — professionally.

CANADIAN CORNER at the conference seems happily occupied by three of our fine friends (l. to r.): Ed Warren, Technical Service Labs, Toronto, Canada; Mrs. R. A. Rouen, Royal Canadian Mounted Police, Sackville, N.B., Canada; and John Burgener, President, Technical Service Labs, Toronto, Canada.

ROLLICKING REGISTRATION is part of the fun in getting the conference "under way". Certainly pleased are (l. to r.): Dr. Isadore Adler, U.S. Geological Survey, Washington, D.C.; Bonnie B. Brandenburg, Secretary, SAS Library, Ellicott City, Md.; and Harry J. Rose, U.S. Geological Survey, Washington, D.C.

HANDSOME HOOSIERS giving the United display a real "lift" are (l. to r.): Dr. J. H. Young, Anaconda Wire and Cable Co., Marion, Indiana; E. L. Tungate, Bridgeport Brass Co., Indianapolis, Indiana; T. E. Green, P. R. Mallory Co., Indianapolis, Indiana; and Chet Hastings, Bridgeport Brass Co., Indianapolis, Indiana.

PITTSBURGH PEEPHOLE

Whether it was the increased registration, the quickening pace of the 1962 Conference, or the fact that spectroscopists are getting "younger" every year — we do not know — but, the after-hours activity was quite, quite active. Just witness:

FRED ASTAIRE would have yelled "uncle" if he could have seen good-sized Ted Zink executing the fine points of the twist . . . the cha-cha . . . and other dances on stage during the annual banquet. Man, it was a "gasser". Don't fret, Ted, we're just plain jealous of your terpsichorean titulations!

BOY, WERE WE PLEASED to have the United hospitality suite bulging at the seams practically all the time. We saw so many of our fine friends. Only one trouble — we did have a little difficulty with a number of our favorite people who kept insisting on talking business. Of all things!

MAJOR "BREAKTHROUGH" WAS REPORTED by a small group of dedicated spectroscopists. A brand new "element" was discovered, named El Mona. Characteristics: close-by, popular, plush, and most important . . . hours to accommodate even the most tardy parched throat. Congratulations men — well done!

DEAR PITTSBURGH WEATHERMAN . . . we know you don't like to be too different from the rest of your group — but shades of the North Pole! Some highways snowed under, planes down, even the trains and buses late. Thank goodness the eighteen inches of snow did not deter us from keeping our appointed rounds — after hours, that is.

THE GIANT STEEL "UMBRELLA" of the brand new Pittsburgh auditorium could be magnificently viewed from many of our hotel's windows. During our stay a local TV station televised the opening and closing of the dome-like roof. That's Pittsburgh for you . . . they'll beat their weather, one way or another.

COMING ATTRACTION, which will be of interest to many of her admirers . . . Sally Mount, who added so much beauty to the cocktail hour, even though jealously guarded by those Baltimore-Washington boys, will be at the registration desk of the International Conference. Yes sir, the International will be "tops".

MEDICAL REPORT from local MD's during the conference indicated an alarming increase in stiff knees, broken cartilage, malfunctions in the area of the lumbar region . . . let's all hope and pray that by the time of the 1963 Conference the Twist will be passe.

THEN THERE'S THE STORY about a certain member of the United team who, so desperate in his search of refreshment on Sunday Nite, went through the complete ritual and became a fully paid-up Member No. 495 of the National Slovak Society District 5 Club. Thank you NSS for saving a life.

WE'LL CLOSE THE "PEEPHOLE" with the appropriate story about a wonderful friend of ours from the West Coast who lost one of his contact lenses during the Conference. We didn't know anything was wrong until he came to our booth and complained about us making half-size electrodes. We breathed a sigh of relief when he found the missing lens. There's a lot of truth in the old saying, "It's all in the way you look at it."

1962 Pittsburgh Conference Official Committee Membership

CONFERENCE COMMITTEES

General Chairman ..... FRITZ WILL, III ..... Alcoa Research Labs.
General Chairman-Elect .... JAMES E. PATERSON ..... Westinghouse Research Labs.
Secretary ..... JOHN J. McINTOSH ... Alcoa Research Labs.
Hotel Liaison Officer ..... JOHN J. McGOVERN ..... Mellon Institute
Housing Coordinator ..... WILLIAM F. HARRIS ..... Westinghouse Research Labs.

SUBCOMMITTEES

Program:
Chairman ..... CHARLES F. GLICK, U.S. Steel Research Labs.
Chairman-Elect ..... WILLIAM A. STRAUB, U.S. Steel Research Labs.
Chemical Analysis ..... JAMES P. McKAVENEY, Crucible Steel Research Labs.
REA P. L. HARTLEY, U.S. Steel Research Labs.
Emission Spectroscopy ..... JOHN D. JOHNSON, Westinghouse A.P.D.
Gas Chromatography ..... BERNARD D. BLAUSTEIN, U.S. Bureau of Mines
Molecular Spectroscopy ..... WILLIAM G. FATELY, Mellon Institute
HERALD A. BARNETT, U.S. Steel Research Labs.
X-Ray Spectroscopy ..... JAMES E. SCOTT, Nuclear Materials & Equipment Co.
Electron Paramagnetic and Nuclear Magnetic Resonance ... BARRY SHAPIRO, Mellon Institute
Printing ..... NORMAN WALKER, Fisher Scientific Company

Exposition:
Chairman ..... RUDOLPH B. FRICIONI, Allegheny-Ludlum Steel Corp.
Chairman-Elect ..... J. K. HURWITZ, U.S. Steel Research Labs.

Finance:
Chairman ..... JOSEPH S. RUDOLPH, Westinghouse Material Engineering
Chairman-Elect ..... R. K. SCOTT, Harbison-Walker Research Labs.

Activities
Chairman ..... MRS. MARY H. LOEFFLER, Westinghouse Research Labs.
Chairman-Elect ..... ELEANOR L. SAIER, Gulf Research & Development Co.

Arrangements:
Chairman ..... LYNN L. LEWIS, U.S. Steel Research Labs.
Chairman-Elect ..... W. J. CRAWFORD, Jr., Jones & Laughlin Research Labs.

Dinner:
Chairman ..... ROBERT J. NADALIN, Westinghouse Research Labs.
Chairman-Elect ..... EDWARD R. SHUSTER, Nuclear Materials & Equip. Co.

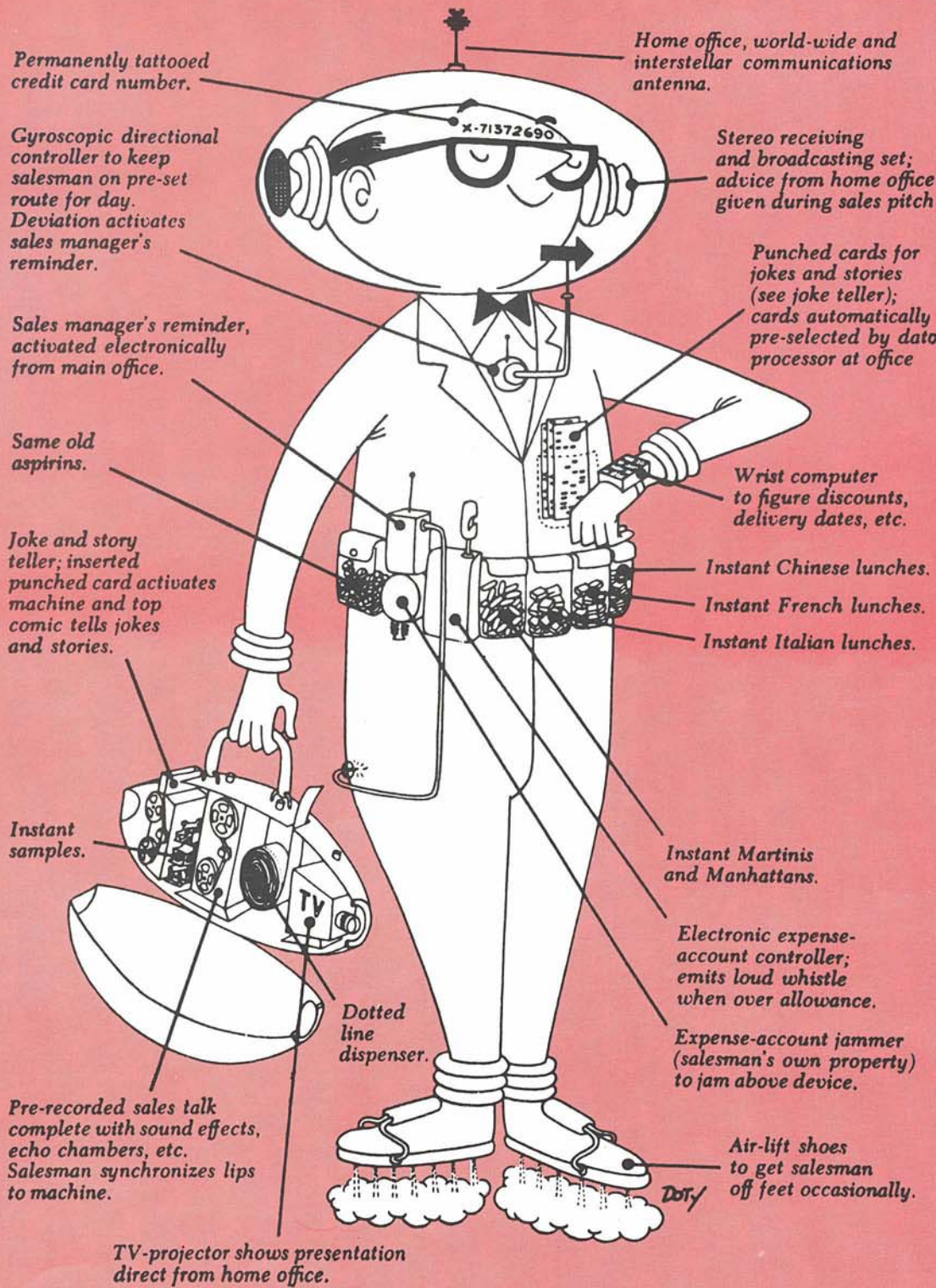
Employment:
Chairman ..... RICHADE E. HEIN, Mellon Institute
Chairman-Elect ..... CHARLES J. McCAFFERTY, Pittsburgh Plate Glass Research

Publicity:
Chairman ..... ROBERT FRANKENTHAL, U.S. Steel Research Labs.
Chairman-Elect ..... BRUCE M. LaRUE, Weirton Steel Co.

Registration:
Chairman ..... RICHARD T. OLIVER, Alcoa Research Labs.
Chairman-Elect ..... FRANK E. DICKSON, Mellon Institute

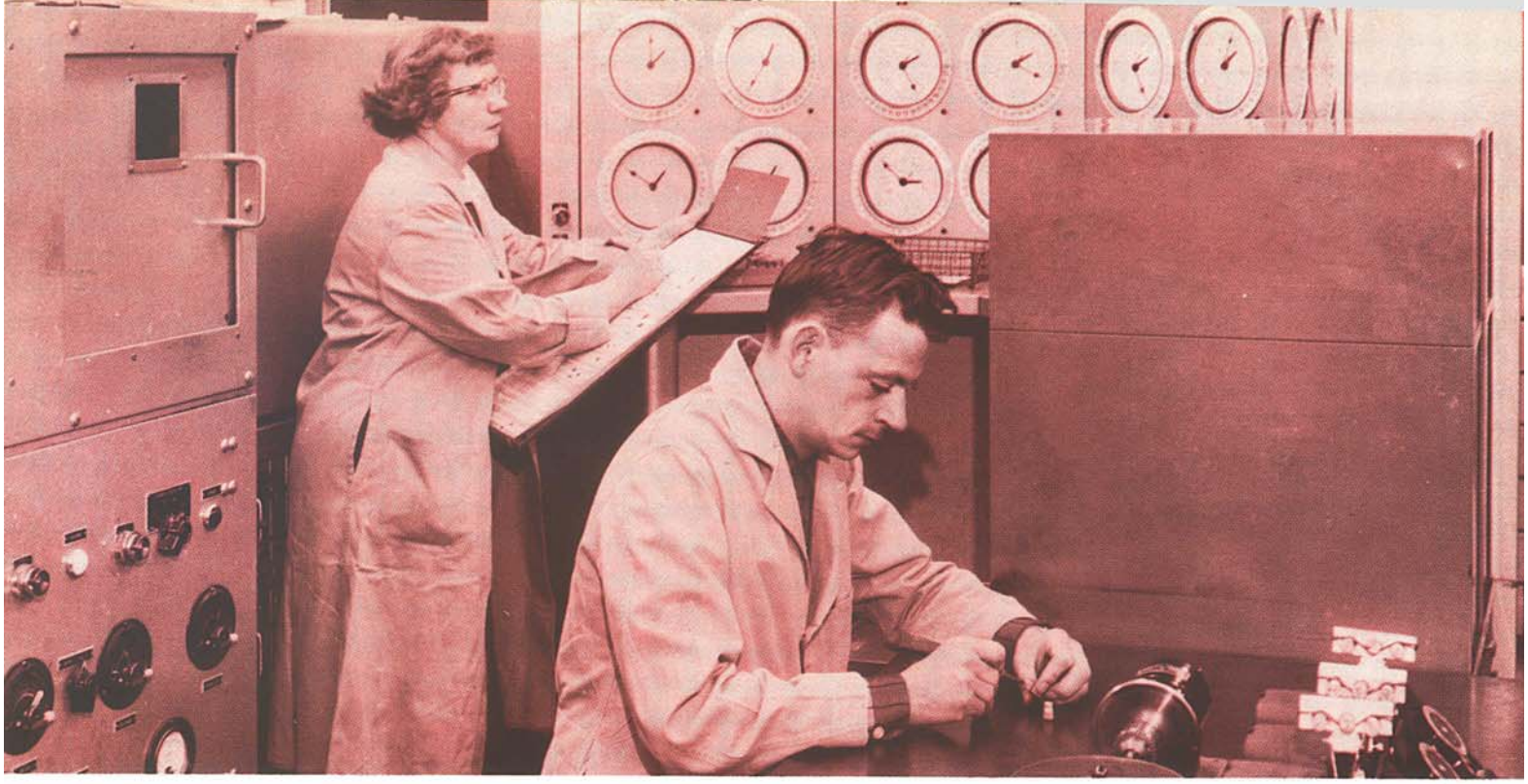
Foreign Liaison:
Chairman ..... HUGH F. BEEGHLY, Jones & Laughlin Steel Research Labs.

Advisory:
1961 Chairman ..... A. G. SHARKEY, U.S. Bureau of Mines
1960 Chairman ..... LABEN M. MELNICK, U.S. Steel Research Labs.



The Compleat Salesman—1985

Reprinted by Arcs and Sparks with permission from The American Salesman, 355 Lexington Avenue, New York 17, New York. Original cartoon by Roy Doty.



4,000 to 4,500 samples of lubricating oil ash are analyzed monthly on this Direct Reader Spectrometer. Led by John Reiger, Spectrometric Analyst, this lab is one of the busiest in the organization. Above photo shows Marie Pulaski, Spectrometric Technician, carefully recording readings while William Troth, Spectrometric Analyst, loads an electrode with a sample of lubricating oil.

LABORA-STORY OF THE MONTH

NEW YORK CENTRAL RAILROAD TECHNICAL RESEARCH DEPARTMENT

"Hello, is this Power Control? This is the Direct Reader lab in Collinwood . . . have a red flag on locomotive No. 3343. Our Spectrometric analysis of the lubricating oil on No. 3343 shows high amounts of lead, tin, and copper. We're issuing a M.P. 325 for an immediate bearing inspection." This phone conversation which prevented a crankshaft failure is a typical one from the Technical Research Department of the New York Central Railroad located in Cleveland, Ohio. Similar calls advising that certain locomotives should be taken out of service immediately have prevented crankshaft failures, bearing breakdowns, accelerated cylinder wear and other malfunctions. The savings have run into millions of dollars, countless hours of down-time, and improved the standards of the NYC railroad service.

Back of the many exciting stories that could be told about this progressive operation is a management dedicated to improving the technical R & D of their railroad. Representing an initial investment of well over $1,000,000, the physical plant of this laboratory adjoins the Collinwood Diesel Shops in Cleveland, Ohio. The Technical Research Department, housed in this facility, was officially dedicated in May, 1957. Established as an applied research laboratory, its goal is to utilize the latest technological discoveries in the modernization of the New York Central Railroad . . . with the express purpose of enabling its trains to move faster, safer, and more economically. Their success toward the continual achievement of this goal is a proud matter of record . . . and a tribute to the foresight and decision-making that made the laboratory a reality.

The staff of the laboratory comprises some 55 physicists, chemists, engineers, and technicians. Heading the operation is JAMES J. WRIGHT, Director of the Technical Research Department, whose many-faceted technical experience embraces an intimate knowledge of railroad operations. In the overall basic structure of the department, there are two main organizations:

The Research Laboratory — managed by ROBERT H. WRIGHT with GARY W. DAVIS, assistant manager.

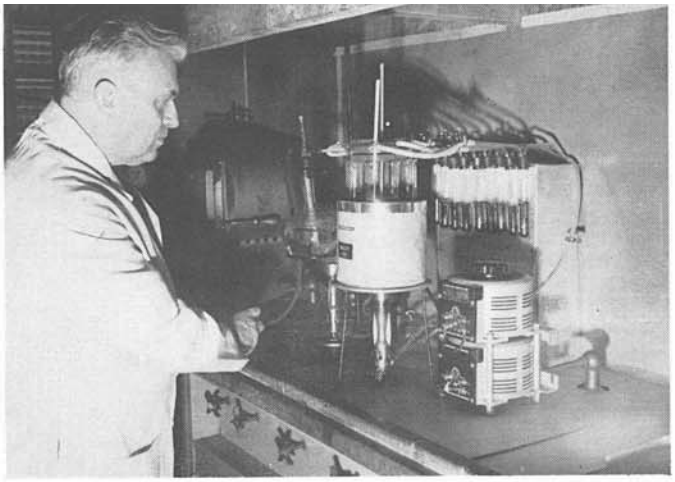
The Applied Research Section — managed by R. H. SHACKSON with JOHN R. REEHLING, assistant manager.

(Continued Page 10)

CAREFULLY INTEGRATED into their renown Collinwood Diesel Shops is the multi-purpose Technical Research Department of the New York Central Railroad, located in Cleveland, Ohio.

NON-ROUTINE SAMPLES of bearings, paint pigments, lubricants, light sources, and jet engine components are studied on this Baird 3 Meter Spectrograph . . . shown above being operated by William Harsh.

REMOVING A SAMPLE of lubricating oil ash from a muffle furnace after ignition to remove all carbonaceous material is ALBERT WILLIAMS, Lubricating Oil Tester.



OPERATING the Wocot Lubricating Oil Oxidation test apparatus is Chief Chemist Herb Wochele. Mr. Wochele assisted in originally developing the test.

FIRING the Trion Optical Maser is M. (Mike) DeCaprio, Project Engineer, Electrical.

NEW YORK CENTRAL *(Continued from Page 8)*

A major responsibility of the Research Laboratory is the lubricating oil control program which has become so vital in the successful operation of the New York Central's fleet of almost 2300 diesel locomotives. Located at various strategic points in the New York Central's 10,000 mile system are seven Oil Test Stations. At regular intervals, the lubricating oil in the crankcase of every locomotive is sampled and certain physical tests are made by the Oil Test Stations. A sample of the ash is prepared from the oil and sent to the spectrometer laboratory. At the spectrometer laboratory, it is analyzed for some sixteen metals. Interpretation of results correlate test results with engine condition. For instance, dilution of the oil may indicate malfunction in the fuel system. Sources of metal in the oil may be: the metallo-organic additives in the lubricant; engine wear metals; cooling water treatment; or road dust. Savings in maintenance costs, utilizing this program, have totalled millions of dollars. In its entirety, the Research Laboratory includes not only the aforementioned Spectrometer Lab, but a complete chemical and petroleum laboratory for classical analyses; a Material Inspection group; and a Mechanical Lab which includes numerous specialized testing machines along with a large machine shop.

The Applied Research Section includes the Radioisotope lab; the Electronics lab; the Metallurgical lab; and a Mechanical Engineering group. The important work of both the Applied Research Lab and the Research Lab does not lack instrumentation. Probably, the largest instrument is the Baird Direct Reading Spectrometer which finds intensive usage. A Baird 3-Meter Spectrograph and Densitometer are used in the analysis of non-routine samples. For the analysis and identification of organic samples a Perkin-Elmer Model 21 Infrared Spectrophotometer provides excellent performance. An RCA Electron Microscope has been used in studies to up-grade fuel oil for satisfactory diesel operation. A Kamen Neutron Generator supplements the scalers and detectors used in radioisotope studies in the areas of non-destructive testing, cancer research, and engine wear work. Some of the instrumentation installed in a railroad car for over-the-road tests is a seven-channel Ampex Data Recorder, various accelerometers and amplifiers which are used to make dynamic measurements.

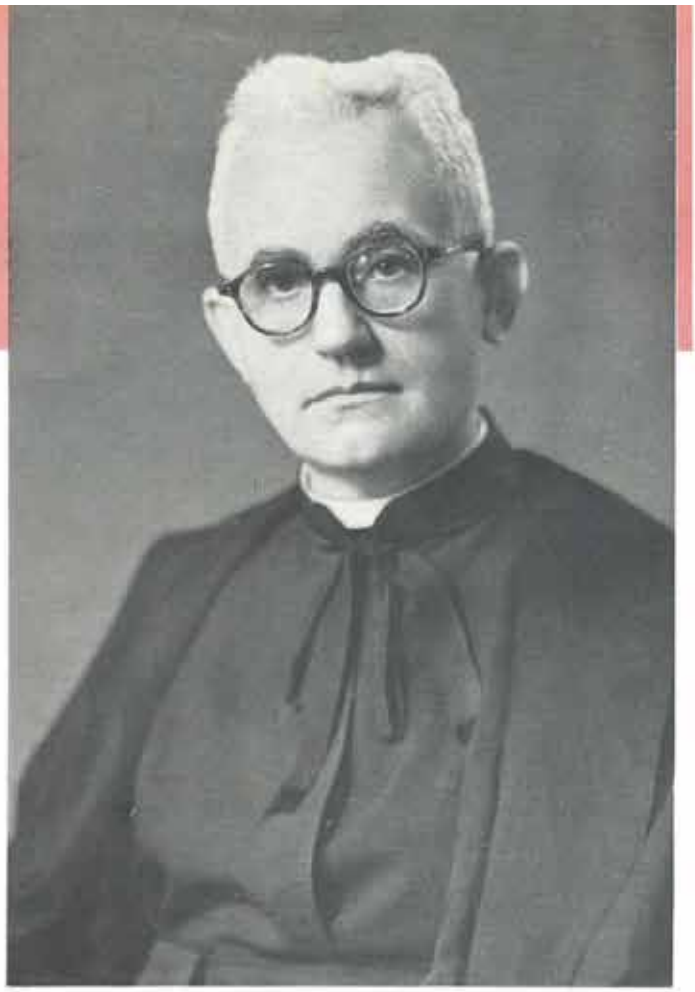
Many and varied are the projects and programs underway in the Technical Research Department. One interesting current project is the evaluation of locomotives supplied by two different manufacturers using the technique of radioactivating the piston rings for study. During these wear studies, the locomotives are confined to freight service. One of the most fascinating, and potentially significant studies concerns the effects of micro-organisms in petroleum products — particularly diesel fuels. Another phase of these investigations is the utilization of energies released during microbial attack as a power source. Another development, previously considered a scientific curiosity, the Hilsch-Ranque Vortex tube is now being put to practical use in locomotive water coolers . . . whereby the cold end of the tube is the water cooling coil. Many other studies have lowered the costs, while increasing the effectiveness of fuels, cleaners, and paints. There is no lack of challenges that fit into the schedule of these laboratories.

As an indication of the fundamental progressive spirit of the New York Central thinking, last year marked the incorporation of the Technical Research Department as the Cleveland Technical Center . . . making its testing and consulting facilities commercially available to anyone. It is a wholly owned subsidiary of the New York Central Railroad. This progressive departure from the usual industrial laboratory concept has generated much favorable comment in many segments of industrial research. Certainly, this concept of setting up a research subsidiary used by the parent company, and plowing back all profits made by outside contracts into the laboratory facilities, holds promise of solving the needs of the growing research function in many industries.

In adapting to its "public" role, the new Cleveland Technical Center has modified its lubricating oil test program, as applied to railroad service, and offers it by the name "Spectra Check" to all power plant operators — whether locomotive, highway trucks, stationary power plants, marine engines, reciprocating and jet aircraft engines. Some recent achievements are: a new technique utilizing exhaust deposits from jet engines to determine the "hot section" condition of the turbine . . . an "Ice Jet" which harnesses a jet engine for use as a snow-blower on tracks, airports, or highways . . . and a "Tie-Densometer" which, by using back-scatter from material subjected to gamma radiation, is able to determine if railroad ties are decayed or suitable for re-use. In its dual role of lab to the railroad, and lab to industry, the New York Central Technical Research Department and Cleveland Technical Center is an outstanding refinement in current American research development.

EDITOR'S NOTE: We are indebted to Miss Martha Zietlow for the preparation and gathering of the information and photographs for this labora-story of the month.

SPECTROSCOPIST of-the-month



FATHER JOSEPH JUNKES, S.J.

It is with singular pride and pleasure that Arcs & Sparks presents as Spectroscopist-of-the-Month, one of our profession's most outstanding figures, Father Joseph Junkes, S.J., Director, Astro-physical Laboratory Vatican Observatory, Castel Gandolfo, Italy. Truly a man of great accomplishment . . . and a man with true humility.

Joseph Junkes' early years reflected the turbulent conditions upsetting Europe during World War I. Born in Goch, Rheinland, Germany, in 1900, the first of nine children, the family shortly was moved to Alsace-Lorraine where Father Junkes' original schooling occurred. In 1919 the whole family was expelled from Alsace and settled in the small village of Kirrberg in the vicinity of Pfalz. Here Joseph Junkes finished his studies at the Lehrerbildungsanstalt (Teacher's College) in Speyer (Rheinfalz) in 1921. However, in 1922 he joined the Society of Jesus and, after the normal studies of Philosophy and Theology, studied Astronomy and Physics at the University of Innesbruck, Austria. It was here that Father Junkes received his Ph.D. in Astronomy, in 1937, with a thesis on the Eberhard Effect.

During these years of schooling, from 1934 on, Father Junkes joined Father Alois Gatterer who had organized the new Astrophysical Laboratory of the Vatican Observatory at Castel Gandolfo in Italy . . . so theory and practice went hand-in-hand. It was three years after he received his Ph.D. that Father Junkes was made Assistant Director of the Observatory, with major activity in the astronomy area, in 1940. During this time there existed a high degree of liaison with the Laboratory — and the work of Father Gatterer who died in 1953. Father Junkes was appointed to his present position of Director of the Laboratory at this time and has since worked closely with Father Salpeter who has contributed much to the work since 1946.

From its very beginning, under Father Gatterer, the Astrophysical Laboratory concentrated its energies on spectrochemical studies of Meteorites. The work was spurred by the large Meteorite collection of the Vatican Observatory due to the generous donation of the late Marquis Charles de Mauroy and his wife. The area of study was unfamiliar and none of the researchers had special training in that particular sphere. It was difficult to become familiar with the Spectra, especially with the iron spectrum which had to serve for reference. The atlases available at that time had marked only the strongest lines and for the weak ones a reference had to be made to the tables. Consequently, at the beginning, an enlargement of the iron spectrum was made and every line that could be seen was marked, interpolating those values which were not found in the wavelength tables. This marked the beginning of the Spark and Arc Spectrum of Iron, published in 1935, and which became very much in demand by spectroscopists everywhere. Even today this demand exists though the old wavelengths for the iron lines from Kayser's Handbook are still given.

From this beginning, the compilation of three volumes of the Atlas der Restlinien was completed . . . the first appearing in 1937, the last in 1949. But, after completing so useful a tool, work began on an Atlas of Molecular Spectra of particular Astrophysical interest. Thus, Father Gatterer with the help of Father Salpeter started once again. However, it was not until 1957, some four years after Father Gatterer's death that with the invaluable help of Dr. Rosen, Astrophysical Institute, University of Liege, the first volume containing the Band Spectra of Metallic Oxides could be published.

Father Junkes, at this point, was eager to do some original research work especially on band spectra on which they had developed a familiarity during the work on the metallic oxides. But, this was not to be. Recognizing, after Stanley and Meggers published their new measurements of Thorium Lines, a strong need for an Atlas of the Thorium Lines . . . the Laboratory immersed themselves in this project. Yet, hardly had work begun on this when it was proposed by Professor Milazzo of the Instituto Superiore di Sanita of Rome that the compilation of a spectral atlas in the Schumann Region was desperately needed. So, today Father Junkes and his laboratory are striving to publish their Schumann Atlas by the end of 1962 . . . and then, as soon as possible, complete their Thorium Atlas.

It is this devotion to these tasks, so greatly needed and desired by our profession, that makes us proud and humble to feature FATHER JOSEPH JUNKES, S.J. as Spectroscopist-of-the-Month.

THE BIG EVENT OF

Here Is Complete Information On The Conference No Spectroscopist Wants To Miss–The International Conference On Spectroscopy, 1962

Arcs & Sparks counts it a privilege to bring you this official, pre-conference information on the International Conference on Spectroscopy, 1962 — the Xth Colloquium Spectroscopicum Internationale — and the First National Meeting, SAS. It is to be held June 18 to 22, 1962 at the University of Maryland at College Park, Maryland, U.S.A.

Sponsors of the Conference are: Society For Applied Spectroscopy; University of Maryland; and the International Union For Pure and Applied Chemistry. It is the privilege of the Baltimore-Washington Section of the Society to act as host for the Conference. The primary purpose of the International Conference is to promote the exchange of knowledge among the different disciplines of spectroscopy and among spectroscopists of different countries. It is felt that the following information will be of help to all those planning to attend:

LOCATION: The Conference will be held on the campus of the University of Maryland, College Park, Md., 8 miles from downtown Washington, D.C. College Park may be reached from downtown Washington by Greyhound and D.C. Transit System bus lines, as well as by taxi and private car. Ample parking space is available on the campus. The technical sessions will be held in the adjoining Chemistry, Chemical Engineering, and Physics Buildings. The Equipment Exhibit will be located in the Ritchie Coliseum on the campus. Housing and meals are available on the campus as well as in other close-by locations.

REGISTRATION: The fee is $15 for registrations sent in before May 31, 1962; the late registration fee is $20. The registration fee for the Ladies' Program is $7.50, or $10 if sent in after May 31. These registration fees include tickets to the General Reception and the Barbecue (see Social Events). The registration area in the Chemistry Building will be open on Sunday, June 17, from 1:00 to 9:00 P.M., and on Monday through Friday, June 18 to 22, from 8:00 A.M. to 5:00 P.M. Advance registration forms are being sent to all subscribers to Applied Spectroscopy and to those who have returned the information forms from the second circular or who have otherwise requested information. Other persons may obtain the registration forms by writing to Mr. Bourdon F. Scribner, General Chairman, International Conference on Spectroscopy, National Bureau of Standards, Washington 25, D.C. Registration by overseas visitors may be made through any office of Wagon-Lits/Cook or Thos. Cook & Son, official travel agents for the Conference, before May 15, 1962.

HOUSING and MEALS: Housing is available in the residence halls of the University of Maryland, in motels adjacent to the campus, and in hotels in downtown Washington. More detailed information on housing is given on the advance registration forms. Meals are available in the University dining hall and at nearby restaurants.

EQUIPMENT EXHIBIT: The latest spectrographic and laboratory equipment will be shown at an international exhibit in Ritchie Coliseum, on the campus of the University of Maryland. Persons not registered at the Conference may register for the exhibit at the Coliseum without charge. The exhibit hours are: Monday, June 18 — 11:00 A.M. to 5:00 P.M.; Tuesday, June 19 — 9:00 A.M. to 9:00 P.M.; Wednesday and Thursday, June 20 and 21 — 9:00 A.M. to 5:00 P.M.; Friday, June 22 — 9:00 A.M. to 12:00 noon.

COMMITTEE MEETINGS: The following committee meetings will be held in conjunction with the Conference:

Society for Applied Spectroscopy, Governing Board, Friday afternoon, June 22.

American Society for Testing and Materials, Committee E-2 on Emission Spectroscopy: Sub-committee meetings, Tuesday and Wednesday afternoons, June 19 and 20; General Meeting, Thursday afternoon, June 21.

Times and places of these meetings will be posted in the registration area.

TECHNICAL TOURS: Visits have been arranged to a number of points of scientific interest in the Washington area. Schedules and tickets for these tours will be available in the registration area.

PUBLICATION: Plans are being made to publish the invited papers and a few other papers in the Proceedings of the Conference. The size of the program precludes publication of all papers. Authors of papers not included in the Proceedings are encouraged to submit them for publication in Applied Spectroscopy; however, presentation of a paper at this Conference does not obligate the author to submit it to the Society's journal.

LADIES' PROGRAM: The registration fee for the Ladies' program includes tickets to the General Reception and the Barbecue (see Social Events). The following events have also been arranged: Monday, June 18 — Tour of Mt. Vernon; Tuesday, June 19 — Tour of Washington, including Lincoln and Jefferson Memorials, the Washington Monument, Shrine of the Immaculate Conception and the Monastery; Wednesday, June 20 — Visit to the Gem Room of the Smithsonian, National Art Gallery, Embassies; Thursday, June 21 — Morning: Special tour of the White House, Capitol Building, Supreme Court; Afternoon: Luncheon. A tea has been arranged for Tuesday afternoon, June 19, and a coffee hour for Friday morning, June 22. Tickets for all events may be obtained at the Conference. Information will be available in the Ladies' registration area on other sightseeing tours, shopping, etc.

SOCIAL EVENTS: A General Reception will be held Monday evening, June 18, and an old-fashioned Maryland chicken Barbecue on Wednesday evening, June 20. Tickets for these events are included in the registration fee.

THE YEAR

A cruise on the Potomac River to Mount Vernon has been arranged for Thursday evening, June 21. The tickets are priced at $4.00, including bus transportation between the campus and the pier.

The United States Marine Band will present a concert on Tuesday evening, June 19. Tickets will be available without charge at the Conference.

RECREATION: University of Maryland recreation facilities will be available to the registrants, including a swimming pool, tennis courts, and an 18-hole golf course. A few sets of golf clubs will be available for rent. A golf tournament is being planned for Sunday, June 17; persons interested in taking part in this tournament should contact Mr. Robert E. Michaelis, Spectrochemistry Section, National Bureau of Standards, Washington 25, D.C. before the Conference.

CLIMATE and DRESS: Dress will be informal for all events. Gentlemen are requested to wear jackets and ties at the General Reception. The average daytime high temperature in Washington at this season is 82°F (28°C), while nighttime low temperatures average 64°F (18°C). Summer clothing is recommended.

Conference Officers and Committee Chairmen

GENERAL CHAIRMAN
Mr. Bourdon F. Scribner

PROGRAM COMMITTEE
Prof. E. R. Lippincott, Chairman; Dr. V. H. Dibeler, Prof. V. A. Fassel, Dr. R. A. Friedel, Dr. H. A. Liebhafsky, Prof. R. C. Lord, Dr. H. G. Pfeiffer, Prof. E. J. Rosenbaum, Dr. Richard Tousey. Local Program Advisors: Dr. Isidore Adler, Dr. H. C. Allen, Dr. K. G. Kessler, Dr. Charlotte E. Moore, Dr. E. K. Plyler, Dr. Mary E. Warga.

INTERNATIONAL ADVISORY BOARD
Dr. N. W. H. Addink, Dr. W. R. Brode, Prof. G. Duyckaerts, Prof. R. Grinfeld, Prof. H. H. Gunthard, Dr. R. N. Jones, Prof. H. Kaiser, Mr. E. Loeuille, Prof. A. Mangani, Prof. R. Mecke, Dr. W. F. Meggers, Dr. A. C. Menzies, Prof. S. Mizushima, Prof. T. Somiya, Prof. H. Stammreich, Prof. H. Svejda, Prof. H. W. Thompson, Dr. B. Vodar, Dr. A. Walsh.

SECRETARY
Dr. Marvin Margoshes

TREASURER
Mr. Alvin Bober

UNIVERSITY OF MARYLAND REPRESENTATIVE
Mr. Richard H. Stottler

COMMITTEE CHAIRMEN
Grants-in-Aid ..... Prof. Leopold May
Finance ..... Mr. A. F. Rekus
Social Events ..... Mr. E. A. Garlock
Exhibits ..... Mr. C. W. Hench
Housing ..... Dr. H. M. Fales
Registration ..... Dr. W. H. Stahl
Publicity ..... Mr. G. E. Ashby
Tours and Transportation ..... Mr. G. A. Wheeler
Recreation ..... Mr. R. E. Michaelis
Ladies' Program ..... Mrs. E. R. Lippincott
Arrangements ..... Mr. H. J. Rose

GENERAL CHAIRMAN of the International Conference, 1962, Bourdon F. Scribner, is pictured as he addresses registrants at the recent Pittsburgh Conference concerning the International event. This is a picture of a busy -- busy man!

OUTLINE OF THE TECHNICAL PROGRAM

Morning	Afternoon
MONDAY, JUNE 18	
Opening Ceremonies	Session 2. Astrophysical and Related Topics
Session 1. Invited Paper	Session 3. Atomic Absorption
	Session 4. Mass Spectroscopy-Structure
	Session 5. Molecular Spectra-Structure
TUESDAY, JUNE 19	
Session 6. Invited Papers	Session 7. Ultraviolet
	Session 8. Spectra of Gases
	Session 9. Infrared — Environmental Effects
	Session 10. Mass Spectroscopy—Solids
	Session 11. Excitation Techniques
WEDNESDAY, JUNE 20	
Session 12. Invited Papers	Session 13. Infrared and Raman
	Session 14. Optical Masers
	Session 15. Intensities and Transition Probabilities
	Session 16. Electron Paramagnetic Resonance — Radicals
	Session 17. History and Education
THURSDAY, JUNE 21	
Session 18. Invited Papers	Session 19. Flames
	Session 20. Electron Paramagnetic Resonance — General
	Session 21. Infrared — General
	Session 22. Optical Molecular Spectra
	Session 23. X-ray — Microprobe and General
FRIDAY, JUNE 22	
Session 24. Invited Papers	Session 25. X-ray — Light Elements and General
	Session 26. Nuclear Magnetic Resonance
	Session 27. Atomic Emission

So thorough and brilliant an array of technical programming . . . social scheduling . . . and international impact as this Conference has should make it a "must" on the agenda of every serious spectroscopist — wherever located. While time and expense are factors, it is felt that every registrant at the 1962 International Conference will return to his work infinitely richer for the experience. It will be the privilege of the United Spectroscopic team to be present and we are looking forward eagerly to meeting all our friends in the scientific inauguration of the Big Event — the International Conference for 1962.

the grapevine

WE SURE MISSED two of our favorite gals at Pittsburgh this year . . . none other than past president Sarah Degenkolb who had a real "knock down-dragged out" bout with a severe sinus infection and Mabel Wilson who was unable to attend due to scheduling pressures with her new employer Allied Chemical, Plastics Division, Morristown, New Jersey. Want you ladies to know it wasn't quite the same without you.

ON THE WIRE FROM CHICAGO comes the latest about the SAS Mid-America Symposium to be held April 30 - May 3, 1962 at the huge Conrad Hilton Hotel in Chicago. After its spectacular success last year, it will again be sponsored by not only the Chicago Section but the Cleveland, Detroit, Indianapolis and St. Louis Sections.

For the first time, according to Drs. John R. Ferraro and Joseph Ziomek, Symposium Coordinators, new sessions on Vacuum Ultraviolet, Gas Chromatographic preparation of samples for Spectroscopic Analysis, and an NMR Workshop — all of special appeal — will be introduced at this meeting. Also, the popular Introductory Clinic in Infrared Spectroscopy will be continued. Other highlights include problem clinics, seminars, and an exhibit featuring the very latest instruments and equipment.

Original papers on the most recent advances in Infrared, Raman, Optical Emission, X-Ray, General Absorption, NMR, EPR, and Atomic Absorption will be presented. Further information may be obtained from Dr. John R. Ferraro, Argonne National Laboratory, 9700 South Cass Ave., Argonne, Illinois. We'll be seeing you in that wonderful, windy city.

100% ENDORSEMENT applies to the annual course in Modern Industrial Spectrography, conducted at Boston College under the knowing eye of Rev. James J. Devlin, S.J. This year, it will be held during the two weeks from July 16 through July 27. As in past years, this intensive instruction is designed particularly for chemists and physicists from industry desirous of learning the techniques of emission spectroscopy for use in analytical work. We've known a good many students of the Boston College course and firmly endorse it to all interested parties. We urge you to write for more details to: Rev. James J. Devlin, S.J., Department of Physics, Boston College, Chestnut Hill 67, Massachusetts.

SAMPLES AVAILABLE FROM CANADA . . . just before press time, we received a special communique from G. R. Webber, Secretary, Non-metallic Standards Committee, Canadian Association for Applied Spectroscopy, concerning the availability of two samples: a sulphide ore and a syenite rock. An account of the standardization program has been published in Applied Spectroscopy, Vol. 15, No. 6, 1961, pps 159-161. Quarter-pound lots of each standard, together with a list of these analyses, may be ordered at $5.00 per bottle from G. R. Webber, Department of Geological Sciences, McGill University, Montreal, Quebec, Canada. Remittances should be made payable to the "Canadian Association for Applied Spectroscopy — Non-metallic Standards Committee". All funds received from the sale of these samples will be used to reimburse the CAAS for its support of this analytical program and to foster further work of this nature.

NEWS FROM THE "MILE-HIGHERS" is of interest to a great number of Arcs & Sparks readers who, we feel, would give their right arms to attend the Fifth Annual Rocky Mountain Spectroscopy Conference in Denver, Colorado, on August 6-7, 1962 at the Olin Hotel. This meeting immediately precedes the 11th Annual Denver Research Institute X-Ray Conference held August 8-10.

In the crystal clear air of the beautiful city of Denver, the Conference will feature four individual symposia: trace analysis; analysis of medical and biochemical materials; uses for the vacuum ultraviolet region of the spectrum; and analysis of mineralogical materials. Once again there will be a delightful (and, we hope, "pool-side") social hour preceding the Banquet, Monday, August 6, which will feature Dr. Wallace R. Brode. Submission of titles and abstracts of technical papers in all fields of spectroscopy may be submitted to Mr. Francis S. Bonomo, Denver Research Institute, University of Denver, Denver 10, Colorado. Hope to see you there!

TO PARIS WITH THE OSA? Just because it will be held in one of the most beautiful areas in the world is no reason not to entertain the thought of attending the Munich ICO Meeting, August 20-25. The Optical Society of America hopes to arrange a charter flight for the month of August, contemplating leaving Idlewild Airport, New York, on Monday, July 30th for a flight to Paris. Then, returning on Monday, August 27th, from the airport at Munich, Germany. The OSA needs an expression of interest (without committment, of course) to determine whether enough members wish this type of arrangement. Round trip flight fare would be approximately $275. The dates indicated are tentative. If you are interested, simply write Assistant Secretary, Optical Society of America, 1155 Sixteenth Street, N.W., Washington 6, D.C.

INTERESTED IN INFRARED INSTITUTE? if so, you'll appreciate the following facts from the thirteenth Annual Fisk University Infrared Spectroscopy Institute, to be held at Fisk University, Nashville, Tennessee, August 14-24, 1962. As planned by its directors, Nelson Fuson, Ernest A. Jones, James R. Lawson, the institute will be divided into three sections: two on infrared and one on gas chromatography. The most recent instrumentation will be available for use by the participants in the afternoon laboratory programs. Programs of study, the caliber of the instructors, and the opportunity for actual application of theory seem unsurpassed. We invite you to get full details by writing: Director, Fisk Infrared Institute, Fisk University, Nashville 8, Tennessee.

ANACHEM CHOOSES DR. WINTER to receive the 1962 Anachem Award. The presentation will be made at the 10th Detroit Anachem Conference, October 22-24, 1962 at the McGregor Memorial Conference Center, Wayne State University, Detroit, Michigan. Dr. Paul K. Winter is Research Associate with General Motors Corporation Research Laboratories, Warren, Michigan. Dr. Winter is best known for his work in polarography and spectrophotometry and the development of analytical methods for metals and alloys, gases, halogens and phosphorus. He is co-author of the chapter on manganese in a recently published "Treatise On Analytical Chemistry" by Kolthoff and Elving. The programs at Anachem Conferences have always elicited most favorable reaction, and this 10th Conference promises even greater attractions. Complete information is available from Professor D. F. Boltz, Department of Chemistry, Wayne State University, Detroit 2, Michigan.

SPECTRAL-LINE INTENSITY TABLES have recently been completed by W. F. Meggers, C. H. Corliss, and B. F. Scribner of the National Bureau of Standards. The first extensive tables of relative spectral-line intensities on a uniform energy scale have been prepared with data presented over the wavelength range from 2000 to 9000A for the 70 chemical elements most commonly encountered by spectroscopists. Although less extensive than the well-known M.I.T. Wavelength Tables, the new tables will supply spectroscopists with much-needed quantitative intensity values for many elements commonly encountered. For further information, it is suggested you contact the NBS Office of Technical Information, National Bureau of Standards, Washington 25, D.C.

ARIZONA OFFERS TWO SHORT COURSES in spectroscopy during the summer of 1962. These are the Second Annual Program in Infrared and Ultraviolet Absorption Spectroscopy, August 6-10, and the Seventh Annual Program in Modern Industrial Spectroscopy, August 20-31st. These are courses particularly designed for chemists and others from industrial laboratories which make use of spectrophotometric and spectrographic equipment respectively. The purpose of both courses is to more expertly train personnel to staff their laboratories.

Each program includes basic theoretical considerations and practical instrumentation training. Four hours of lecture each morning will serve to present the theory, instrumentation, and applications of the various spectroscopic methods. Each student will then spend every afternoon working in the laboratory under the direct guidance of supervision of experienced technical personnel. The fine instructional staff includes members of the Departments of Chemistry and Physics at Arizona State University augmented by guest lecturers from industrial laboratories. Because enrollment is so popular, it must be limited, so if you are interested it is suggested you write Dr. Jacob Fuchs, Director, Modern Industrial Spectroscopy, Arizona State University, Tempe, Arizona.

PLANNING FOR OTTAWA this year like we always do? One of the most looked-forward-to symposiums on our agenda occurs during September in Canada. This year, the Canadian Association for Applied Spectroscopy will hold the Ninth Annual Ottawa Symposium on September 17-19, 1962 in Ottawa, Ontario, Canada. Further details on the program will be featured in the next issue of Arcs & Sparks. At this time, papers are invited for presentation in all fields of instrumental analysis by means of spectroscopy. This embraces emission, x-ray fluorescence and diffraction, flame emission and absorption, ultraviolet, visible and infrared absorption, nuclear magnetic resonance and mass spectroscopy. If you are interested, there is still time before the deadline of June 5, 1962, to get titles and brief abstracts to Mr. Ben Farrar, Program Chairman, Ninth Ottawa Symposium on Applied Spectroscopy, J. T. Donald & Company, Ltd., 1181 Guy Street, Montreal 25, Quebec, Canada.

CANADIAN SPECTROSCOPIC NEWS is a fine, newsletter type publication being distributed by the Canadian Association for Applied Spectroscopy. Items of interest on the Canadian Spectroscopy Scene jam every issue which is a tribute to Editor R. V. Baker, Aluminum Company of Canada, Arvida, Quebec, and those loyal reporters from the various CAAS Sections. If you are interested in either the CAAS or its official publication, I'm sure a note to Mr. R. V. Baker will bring an interesting reply. Our congratulations for a fine newsletter, Mr. Baker.

MEANWHILE...back at the office

Quite a number of our good friends, by letter and during personal conversation, evince a great interest in the happenings of the United team up in Bay City. Never let it be said that we ever, ever ignored a request from our wonderful "public". To inaugurate this new column, we offer news about two of United's finest:

WINS NATIONAL PURCHASING AWARD

It is a source of pride to have United's competent Purchasing Agent, Mr. Michael D. Sordyl, win Purchasing Week's recent Professional Development Competition in a nationwide contest. "Mike" Sordyl's victory was formalized by the presentation of an impressive, framed certificate and a front page story in Purchasing Week. Photo, to the right, shows Mr. Del R. Hughes, United's Director of Administration, happily presenting the award to Mr. Sordyl. We like to feel we have people who are "tops" in their fields . . . and it's extra nice to have outside proof, too. We feel you will join us in a sincere "Well done — Mike!"

UNMASKING THE MELLIFLUOUS VOICE

Many are the appreciated inquiries that ask: "Who is the girl who so pleasantly greets us over the phone?" So, to all who have ever wondered, it is with pleasure we present, in the photo to the right, our Receptionist, Nancy Lou Sampson. Her ready smile which carries over into her every greeting is a proud hallmark of our headquarters. Nancy who, wonder of wonders, handles a half-dozen calls seemingly at the same time . . . is a rabid baseball fan (and, she insists we name her team — the Detroit Tigers) — a skilled bowler with an average of 159 to prove it — and, as the picture proves, a thoroughly charming young lady. Yep, we're lucky allright!

Proof of our established policy . . .

George T. Sermon, Pres.

To give you ULTRA – service by providing the widest variety of graphite grades

. . . to help you solve the increasing number of sophisticated spectrographic analyses

Just as a variety of specialized drugs is a boon to modern medicine, so, today, a selection of different graphite grades is vital for your creative analytical techniques. For this reason, United has led the industry for years in offering the widest variety of spectroscopic graphites:

U-1 — An excellent grade featuring above average density and normal electrical resistivity.

U-2 — Universally accepted spectrographic material due to its average density and superior electrical resistivity.

UF4S — Used when it is desirable to have electrodes of above average density and high electrical resistivity.

U-7 — For those desiring the densest grade of spectroscopic graphite commercially obtainable combined with outstanding electrical resistivity, United recommends U-7.

Carbon Grade — provides the ultimate in high electrical resistivity plus low thermal conductivity for spectrographic electrodes.

The above grades of spectroscopic graphite are all of the highest ultra-pure quality. The knowing spectroscopist never confuses quality with grade. From United, you have an unequalled selection of physical properties to help you achieve the finest results for your particular work. Technical service, data sheets and samples are readily available to you . . . we'll welcome your inquiry.

UNITED carbon products co.

P.O. BOX 747 BAY CITY, MICHIGAN

Litho in U.S.A.