Vol. 8, No. 3

October, 1962

ARCS and SPARKS

United States Capitol

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

President's Corner

Undoubtedly, you now have received our special name change announcement indicating that United Carbon Products Company is now Ultra Carbon Corporation.

I sincerely hope that you like our new corporate designation. Many of our friends have indicated they are real pleased that our new name more accurately reflects the emphasis of our organization. I, too, feel this is quite true . . . particularly in regard to our advanced purification methods and sophisticated machining techniques.

May I personnally assure you that the name change is the only change that has occured. Our entire team of specialists, as always, is at your immediate service with the same broad variety of preforms, rods, and powders . . . plus an unmatched creative service for producing sophisticated custom electrodes to your most exacting specifications.

We will do the utmost to live up to our new name . . . to bring you "ultra satisfaction" in your every dealing with us . . . and to always look upon you as our "ULTRA CUSTOMER".

George T. Sermon, President
ULTRA CARBON CORPORATION

LOCALE OF CONFERENCE was in the beautiful north campus area of the College Park campus of the University of Maryland. Buildings in the foreground, (l. to r.) Physics Building; Glenn L. Martin Institute of Technology; Chemistry Building where the conference was headquartered; and the Engineering Building.

INTERNATIONAL CONFERENCE

A SPECTACULAR SUCCESS

ATTENDANCE IN EXCESS OF 1000 FROM 28 COUNTRIES

Even the most optimistic optimist would never have accurately predicted the overwhelming degree of success recorded by the International Conference on Spectroscopy, 1962; Xth Colloquium Spectroscopicum Internationale and Instrument Exhibit held June 18-22, 1962 at the University of Maryland, College Park, Maryland.

From raw registration figures of 926 registrants (plus many interested visitors) and a total of 34 absorbing instrument exhibits . . . to the quality-depth of 160 papers . . . plus the truly magnificient social planning — the 1962 International Conference established an all-time record for a world-wide spectroscopic conference. Truly, it will be difficult to surpass.

(continued on page 4)

(continued from page 3)

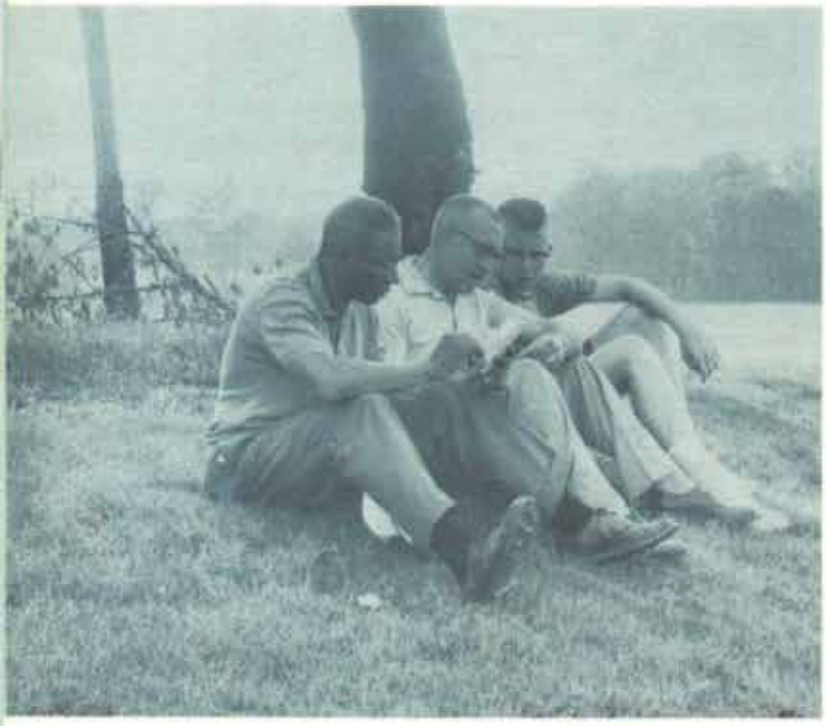
The record of the 1962 International Conference will stand as a mighty tribute to the sponsoring organizations: the Baltimore-Washington, Host Section of the SAS; the Department of Chemistry, University of Maryland; and the Commission on Spectrochemical and Other Optical Methods of Analysis, International Union of Pure and Applied Chemistry. International Spectroscopy owes these groups a world-wide "Thank You."

On the other pages in this "International Issue" of Arcs & Sparks will be found complete listings of the International Advisory Board; Organizing Committee; and Ladies Program members. The contributions of all these capable people and organizations were responsible for the complete success achieved. Without detracting one iota from the tremendous jobs done by all, special note must be made of Bourdon F. Scribner, National Bureau of Standards, for his visionary abilities, organizing techniques, administrative acumen . . . plus his month-after-month stint of plain shirt-sleeve hard work.

Location Is Truly A-Okay!

It is doubtful whether any finer location in all the United States could have been found for this International Conference. The magnificently wooded campus of the renowned University of Maryland was appreciated by all in attendance. The very atmosphere was conducive to progress. The University of Maryland, itself, is most noteworthy . . . on its campus are eight undergraduate colleges, the graduate school, and various institutes and bureaus. In addition, the University of Maryland Baltimore campus houses six professional schools and the University Hospital. With 18,500 students and 3,300 instructors it ranks 13th in size in the United States . . . and 5th in the rate of doctoral production. Its library contains some 450,000 volumes and 125,000 documents. Additionally, the school operates an overseas educational program for personnel of the United States Armed Forces with a total enrollment of nearly 29,000. It was not unusual to see, between conference sessions, groups of spectroscopists thoroughly enjoying a leisurely stroll among these inspiring surroundings.

CRUSH AT INFORMATION DESK by some eager registrants at the beginning of the Conference in an effort to find out who — what — where — and when. Our hats are off to this committee, they answered every question with a smile, and the correct information!



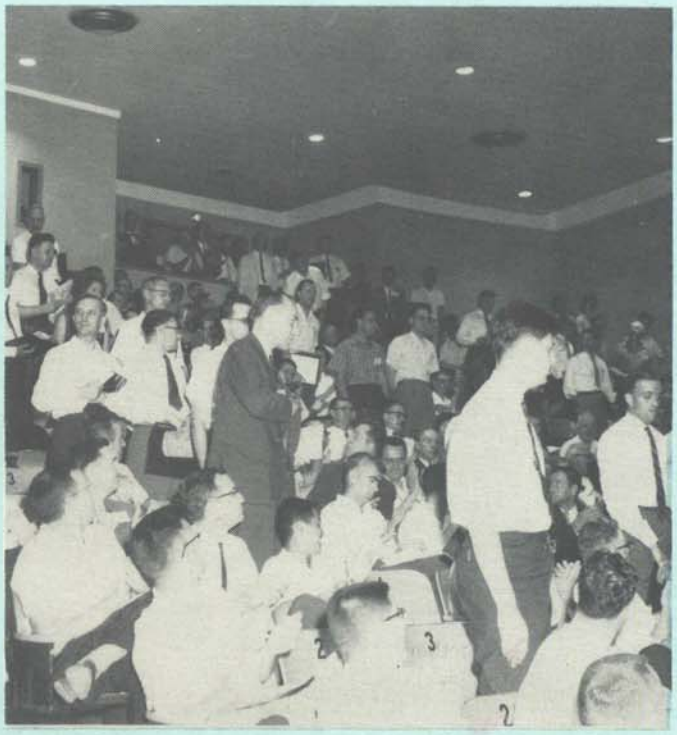
"ANYONE HAVE A SLIDE RULE?" . . . seems like these boys are having a difficult time figuring out their scores after the Golf Tournament held on Sunday, June 17. They are (l. to r.): C. R. Dillard, Brooklyn College, Brooklyn, N. Y.; H. J. Wiley, Goodyear Aircraft Corp., Cuyahoga Falls, Ohio; and his son Ronald Wiley. From what we hear, these fellows made out — real well!

Enjoyed almost as much as the location of the conference was the proximity to the United States Capital, Washington, D.C. In a matter of minutes, one could be admiring the White House, Congress, Lincoln's Memorial or any of hundreds of vitally interesting spots. While most of the U. S. registrants had undoubtedly been in the Capitol before, it became a real adventure for many of the wives and the foreign registrants. Conversation among foreign participants seemingly always included reference to the many historic points in the vicinity. And, as far as the ladies (bless them) were concerned . . . the adjacency to Washington, D.C. was a master stroke. Whether their Washington reconnaissance was organized or purely personal . . . the gals were simply spellbound. So much to see — and do — for everybody contributed to making this one of the best balanced programs we have ever had the pleasure of encountering . . . and this calls for special kudos for all those committees and persons involved.

Sponsoring Organizations Delighted

If conservatism is a hallmark of the sponsoring organizations, it was not apparent in their enthusiastic comments concerning the outcome of the International Conference, 1962. The concensus was one of complete satisfaction and a re-iterating

WARM WELCOMING ADDRESS in behalf of the University of Maryland was made by C. E. White, Head, Department of Chemistry at the Opening Ceremonies, Monday morning, June 18th. The spirit of hospitality from the University was apparent to all . . . and particularly appreciated by the scores of foreign visitors.



DRAMATIC MOMENT during the Opening Ceremonies which took place in the Chemistry Building's Auditorium. All foreign visitors were asked to stand and then, as this photo documents, they were given a round of applause as a gesture of warm welcome. Foreign visitors came from some 28 countries to enrich the Conference immeasurably.

hope that a return engagement may not be too far in the future. This is a high tribute in itself and one that should add to the pride of anyone connected with this effort.

Favorable comment came from all the sponsoring organizations. Of these sponsors, the University of Maryland has already been briefly described. The Society for Applied Spectroscopy (SAS) now consists of 21 local sections with a total membership of approximately 3,000. The SAS started the organization of the International Conference on Spectroscopy, 1962, as its first national meeting . . . later being joined in this effort by the University of Maryland, and the International Union of Pure and Applied Chemistry. The Baltimore-Washington section of the SAS acted as host for the conference and it is difficult to heap too much praise on the manner in which they hosted this historic meeting. Of all sponsoring organizations, the SAS would tend to be most critical, yet it was difficult to find any member not solidly satisfied with this first national meeting.

The conference was fortunate, indeed, to count the International Union of Pure and Applied Chemistry as a happy sponsor. At present there are some 36 countries represented in this International Union. Through its Council, the Union concerns itself with fundamental and applied chemistry in the participating countries. Of essential concern are those aspects of chemistry, both academic and industrial, about which international agreement or uniform practice is desirable, such as nomenclature, atomic weights, symbols and terminology, physiochemical constants, and certain methods of analysis and assay. Two commissions, of the several major sections of the Union, are of particular interest to spectroscopy: the Commission on Spectrochemical and Other Optical Methods of Analysis (of the section on Analytical Chemistry); and the Commission on Molecular Structure and Spectroscopy (of the section on Physical Chemistry). The first named Commission is one of the sponsors of the Xth Colloquim, and the second named Commission sponsored the Symposium on Molecular Structure and Spectroscopy in Tokyo, September, 1962. To have this Union so well-pleased was certainly a feather in the cap of all who worked so long and hard on its preparation.

A Real "First" For the U.S.

This conference marked the first time the Colloquium Spectroscopicum Internationale was held outside England or Continental Europe . . . and we certainly hope not the last. Our pleasure in having them in the United States was most obvious and our further hope is that they will return sometime to fondly look back on this, their Xth. The purpose of the Colloquium is to provide communication between spectroscopists of various countries throughout the world in order to make known the most recent advances in research in both fundamental and applied spectroscopy. It is certain that scores of U. S. Spectroscopists will never forget the IX Colloquium held in Lyon, France . . . and our earnest wish is that similar memories will be generated in the minds of all our foreign friends concerning the conference in Maryland. As spectroscopists in all countries around the globe forge stronger ties, it is with great interest that we look forward to the XI Colloquium which is to be held in Belgrade, Yugoslavia, Sept. 30th to Oct. 4, 1963. The enthusiastic remarks of this membership about the International Conference, 1962, evinces a growing empathy among professional spectrographers world-wide.

(continued on page 7)

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Mr. Donald Deppe.....*University of Maryland*
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Mr. Maurice J. Peterson.....*U. S. Bureau of Mines*
Dr. William J. Campbell.....*U. S. Bureau of Mines*
Mr. Charles L. Chaney.....*U. S. Bureau of Mines*

THE REAL "WHEELS" of the International Conference, 1962, the Chairmen of the various committees: W. H. Stahl; G. E. Ashby; H. J. Rose; H. M. Fales; E. R. Lippincott; C. W. Hench; Mrs. Lippincott; R. E. Michaelis; B. F. Scribner; T. H. Zink; A. F. Rekus; M. Margoshes; Mrs. Margoshes; and L. May. Evidently afraid of breaking the camera lens were the other committee chairmen: A. Bober; E. A. Garlock; R. H. Stottler; and G. A. Wheeler. Man, what a job you folks had — and did!

(continued from page 5)

Programmed To Perfection

Never in the history of a spectroscopic conference, according to most reliable reports, has there ever been so many compliments concerning the magnitude and detailing of a program. The technical program . . . social program . . . and ladies program . . . all were standards to be copied. From the initial registration beginning at 1:00 P.M. on Sunday, June 17 until checkout at 6:00 P.M. Friday, June 22 . . . all programs deadlined-out without a hint of hurry.

The wide range and depth of the technical programming produced sessions of interest for everyone — everyday. An indication of the thought given the program can be surmised from this Short Table of Sessions:

Monday, June 18:

Morning — (1) Spectroscopy in Astrophysics
Afternoon — (2) Astrophysical and Related Topics
(3) Atomic Absorption
(4) Mass Spectrometry — Structure
(5) Molecular Spectra — Structure

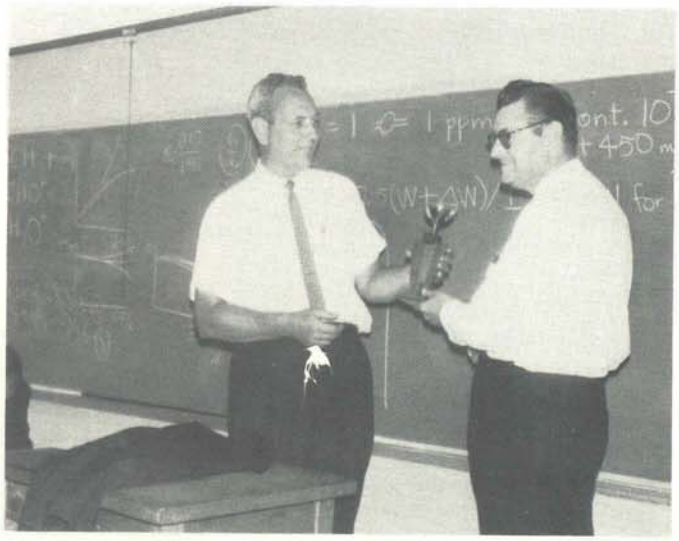
Tuesday, June 19:

Morning — (6) Free Radicals; Ultraviolet; Time-Resolved Spectroscopy
Afternoon — (7) Ultraviolet Spectroscopy
(8) Spectra of Gases
(9) Infrared — Environmental Effects
(10) Mass Spectrometry — Solids
(11) Excitation Techniques

Wednesday, June 20:

Morning — (12) Infrared Reflection; Optical Masers; High Resolution Infrared
Afternoon — (13) Infrared and Raman
(14) Optical Masers
(15) Intensities and Transition Probabilities

"HOW WAS THE TRIP COMING OVER" might well be the major topic of conversation as this foreign foursome gathered near the registration desk. The broad smiles belong to (l. to r.): R. L. Mormont, Ste Solvay et Cie-Laboratorie Central, Belgium; G. Rossi, Euratom C.C.R., Italy; Miss Michele Neuilly, CEA-Centre d' Etudes Nucleaires de Grenoble, France; and J. G. Artaud, also of the CEA-Centre, France. The conference was proud to have five registrants from Italy and thirteen from France.



WHO WOULDN'T BE PLEASED to receive the Steel Ingot Award? Smiling Robert E. Michaelis, National Bureau of Standards, receives the coveted trophy from Joseph F. Woodruff, Armco Research Center, Middletown, Ohio, at desk. This award is given annually by Subcommittee IX of ASTM Committee E-2 in recognition of outstanding contributions to the analysis of ferrous metals. Looks like you have to take your coat off and really go to work to win this one.

WHO COULD RESIST purchasing social events tickets from so pretty a chairman as Mrs. Ellis R. Lippincott. Obviously pleased Don C. Spindler, Ferro Corporation, Cleveland, Ohio, looks like he just picked up some "front row center" ducats. We don't know whether it was the charm of the vendors, the lack of resistance of the buyers, but the social events program was a smashing success in the columns of all the "critics".

(16) Electron Paramagnetic Resonance — Radicals
(17) History and Education

Thursday, June 21:

Morning — (18) Electron Magnetic Resonance; Infrared Group Frequencies; Electron Probe
Afternoon — (19) Flames
(20) Electron Paramagnetic Resonance — General
(21) Infrared — General
(22) Optical Molecular Spectra
(23) X-Ray-Microprobe and General

(continued on page 8)

IT'S NOT THE "RAIN IN SPAIN that stays mainly in the plain" that these two Spanish-speaking gentlemen are discussing, but whatever it is, it's enjoyable! On the left is Prof. Dr. Juan Ramirez-Munoz, University of Santander, Bucaramanga, Colombia; and on the right, Dr. J. M. Lopez de Azcona, Institute of Geology and Minerology, Madrid, Spain. Gentlemen, it was our pleasure to have you in attendance.

THESE HAPPY "HUDDLERS", in the registration area, are purportedly giving serious consideration to programs and speakers . . . . whatever it is, they don't seem to be missing out on the fun! On the left is E. R. Lippincott, University of Maryland, and Program Committee Chairman, inquiring concerning speakers from I. Adler, U. S. Geological Survey, facing him. Amusedly looking on are Mrs. and Mr. A. Bober, U. S. Customs Laboratory and Conference Treasurer.

(continued from page 7)

Friday, June 22:

Morning — (24) Nuclear Magnetic Resonance; X-Ray Analysis; X-Ray Emission and Chemical Bonds

Afternoon — (25) X-Ray — Light Elements and General
(26) Nuclear Magnetic Resonance
(27) Atomic Emission — Analysis

At the Opening Ceremonies, Monday morning, B. F. Scribner, General Chairman of the Conference presided and contributed the opening remarks. Greetings were extended by the sponsors through: John Hansen, President, SAS; C. E. White, Head, Department of Chemistry, University of Maryland; and A. C. Menzies, Chairman, Commission on Spectrochemical and Other Optical Methods, International Union of Pure and Applied Chemistry. A welcome to the university was then extended by W. H. Elkins, President, University of Maryland. So began the International Conference, 1962.

While pages could be spent extolling the technical program, this brief story would be woefully incomplete if the social and ladies programs were not covered. The number of ladies present were a joy to Mrs. Ellis R. Lippincott, Chairman of the Ladies Program; Mrs. Marvin Margoshes, Co-Chairman; and that beautiful corps of Hostesses. At this outstanding conference, you could always depend on 'mother' having a wonderful time while 'father' was slaving away in a technical huddle. First of all, the recreational facilities of the University of Maryland were open to all registrants . . . . including swimming, tennis, and an 18-hole golf course. Then, the Ladies Program included many, many wonderful activities, among which were: a five-hour trip to Mount Vernon, restored home of George Washington; complete sightseeing Tour of Washington, D. C.; tour of the gem room of the Smithsonian to view the Hope Diamond and thence to the National Art Gallery; a special tour of the White House, the U. S. Capitol and the Supreme Court. This plus teas, coffee

(continued on page 9)

(continued from page 8)

hours, a fashion show and, equally enjoyable we men hope, participation with the "stronger sex" at all other social events. It was a long-to-be-remembered meeting for many a long-suffering spectroscopist's wife!

It seemed like the general Social Program, starting out with a Golf Tournament at 12:00 Noon, Sunday, June 17, the day of arrival, kept gaining speed and participants every day of the Conference. Top-notch among the attractions were highly appreciated Laboratory Tours which included the National Institutes of Health; David Taylor Model Basin; National Bureau of Standards; Naval Research Laboratory; and, the Federal Bureau of Investigation. On Monday night, June 18, a General Reception and Buffet was held on the spacious grounds of the Holiday Inn, just north of the university campus . . . . and was attended fabulously by a milling, happy crowd of sociable spectroscopists from all the corners of the earth. Tuesday night, June 19, found many registrants thrilling to a special concert conducted by the U. S. Marine Band — a genuine treat. On Wednesday night a real family night — hundreds attended the old-fashioned Maryland chicken barbecue at Student Union, the University of Maryland. Then came the social high point of the week on Thursday night,

(continued on page 10)

LIVING IT UP at the general reception and buffet held Monday evening, June 18th, on the spacious grounds of the Holiday Inn. Located just north of the University of Maryland campus, the Holiday Inn housed many of the registrants. Wonderful company, relaxing refreshments and a delightful Smorgasbord, compliments of the Conference. What a way to set the social pace . . . . strictly A-Okay.

A REAL "SCOOP" . . . . one of the original workers in the field of spectroscopy — and one of the least photographed — Carl C. Nitchie, formerly spectroscopist with Bausch & Lomb. Now living in Baltimore, Md., Mr. Nitchie's smile is proof positive of his enjoyment of the general reception and buffet at the Conference. He had scores of warm-hearted chats with many valued friends.

LADIES' PROGRAM

Mrs. Ellis R. Lippincott, *Chairman*

Mrs. Marvin Margoshes, *Co-Chairman*

HOSTESSES

Mrs. I. Adler
Mrs. G. E. Ashby
Mrs. S. Berman
Mrs. R. L. Bowman
Mrs. R. A. Carrigan
Mrs. F. W. Drogula
Mrs. H. M. Fales
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Mrs. I. Stone
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Mrs. W. S. Treffner
Mrs. C. E. White
Mrs. F. R. Winter
Mrs. J. B. Zink
Mrs. T. H. Zink

THE CONFERENCE'S "GREATEST COUPLE", in our book, was Dr. and Mrs. W. F. Meggers. Dr. Meggers, a true pioneer and leader of American Spectroscopy, is now retired from Government but remains fully active in the classification of atomic spectra. He is, among his many activities, a member of the National Academy of Sciences and Arcs & Sparks considers it a singular honor to have been able to select Dr. Meggers as "Spectroscopist-of-the-Month" for this International Issue.

ADMIRING THE HORS D'OEUVRES amid a bustle of activity during the reception are (l. to r.): Dr. and Mrs. Meggers; L. S. Birks, Naval Research Laboratory, Washington, D. C.; W. H. Stahl, McCormick and Co., Inc., Baltimore, Md. — and George M. Wyman, U. S. Army Research office, Durham, North Carolina. Social activity at the Conference merited only the highest praise.

RECEPTION WAS GIVEN GLAMOUR by the presence of this overseas threesome: (l. to r.) A. Kvalheim, Director, Department of Chemistry, Geological Survey of Norway; Miss Mairi M. McRae, Aberdeen, Scotland; and R. L. Mitchell, Macauley Institute for Soil Research, Aberdeen, Scotland. While plenty of interpretation was at hand, there's absolutely no mistake in the smiles of satisfaction here . . . . indeed, it was the pleasure of the Conference to register these overseas dignitaries.

(continued from page 9)

June 21, when a handsome, international group of spectroscopists boarded the "Diplomat", a large excursion boat reserved exclusively for the registrants and friends. This delightful cruise down the Potomac at night thrilled many a guest and provided several hours of serene relaxation. Was there ever a program so complete . . . . technically or socially? It was a unanimous success spelled in capital letters.

The extent of the program, the eminence of the registrants, the suitability of the surroundings were a delight to the Exhibitors. Some forty-two fortunate exhibitors took all the available room in the Exhibit Area of Ritchie Coliseum and spread all that was new and interesting before the eyes and minds of this influential international audience. The Exhibitors List read like a "Who's Who" in the profession and a spot check of reaction was most satisfactory . . . . everyone convinced that the "important" people were in attendance. Certainly, our own exhibit was a focal point for scores of our domestic and, particularly, our wonderful foreign friends. We

"THANK YOU" — LADIES, and you really deserve a lot more than that for the marvelous work as Hostesses responsible for guiding the ladies present around Washington. Mrs. H. M. Fales, Mrs. E. K. Pyler, Mrs. E. R. Lippincott, Chairman; Mrs. T. H. Zink; Miss Sally F. Mount; Mrs. M. Margoshes, Vice-Chairman; Mrs. L. May; Mrs. R. E. Michaelis; Mrs. H. J. Rose; Mrs. Katherine S. Warren; Mrs. I. Adler; and Mrs. G. E. Ashby. For our money, this group looks as good as those Atlantic City beauties — yes sir!

TOWARD THE SERIOUS VEIN, PERHAPS, and looking a little like a Board of Directors, are the following who attended the University of Maryland President's reception; (l. to r.): E. A. Garlock, Hazelton Laboratories, Falls Church, Va., A. C. Menzies, Hilger & Watts, Inc., London, England; K. H. Hausser, Max Planck Institut, Heidelberg, Germany; and K. G. Kessler, National Bureau of Standards, Washington, D. C. No offense to you handsome men, but who is the mysterious lady? — hm-m!

were proud and happy to have been a part of this magnificent meeting.

Much more should be written, much more should be said before the complete story of the International Conference, 1962 comes to an end. For Arcs & Sparks, it has been a privilege to feature the International. To the hundreds of friends we saw, and all the others who were not fortunate enough to attend, we leave but one word of advice . . . . the next International should be right at the very top of your Priority List!

International Incidentals

BOB HOPE HAD BETTER LOOK TO HIS LAURELS according to an unidentified informer who reported the following: A group was on their way to the Chicken Barbecue and were looking for the Union Building when they passed a building housing a meeting of Dairy Scientists. One of the group inquired whether this particular building was the Union . . . . up piped our comedian-spectroscopist, "Nope, this is the udder place!" Ugh.

LOVE THOSE JETS . . . as is the usual practice when exchanging initial pleasantries, the inevitable, "How was your trip over?" popped up real often. One chap, so the story goes, noted for his proclivity to air sickness, claimed he didn't have a moment of uneasiness on the beautiful, big new jet he flew over. "They sure are producing better planes," remarked a friend. Final quip from our sensitive-stomached friend, "Nope, better tranquilizers!"

WE WERE GLAD TO SEE none other than our very wonderful friend Dr. Mary E. Warga, Executive Secretary, Optical Society of America. A busier woman we just don't know and taking time out for the International was no easy task. She was, indeed, showered with grateful attention by many of her former students and associates.

COZY CORNER AT PRESIDENT'S RECEPTION found this engaging foursome in splendid spirits. From (l. to r.): Mrs. and Prof. R. Grinfeld, Department de Fisica — University Nac. de La Plata, Republica Argentina; Mrs. and Dr. W. Brode, Washington, D. C. President Elkin's home provided the delightful location for this Tuesday night reception and was thoroughly enjoyed by all.

"BRING THE WHOLE FAMILY" was the slogan for the tantalizing Maryland-style Chicken Barbecue held at Student Union . . . . and this photo is proof of the pudding — or chicken! Happy gourmets are (l. to r.): C. Dillard, Brooklyn College, Brooklyn, N. Y.; Jerry (and Mrs.) Hopson, U. S. Customs; L. May, Catholic University of America; E. Rosenbaum, Drexel University of Technology; Mrs. A. Rekus; Mrs. L. May; and A. Rekus, Baltimore Gas & Electric.

(continued on page 12)

LOOKS LIKE BRIDGE ON THE "BRIDGE" for this perspicacious and nautical foursome. They are (l. to r.): Mrs. R. Michaelis; D. Spindler, Ferro Corporation, Cleveland; W. R. Kennedy, American Cast Iron Pipe Co., Birmingham; and our very own bridge fiend "Nick" Grondin. We have no idea who won this rubber but we were told (confidentially) it was not played according to Hoyle . . . . but Goren.

STRATEGY AT THE BARBECUE . . . . university liaison committee members evidently planning an "end run" to get a second helping of that tantalizing Maryland-style barbecued chicken. Threesome includes (l. to r.): Clive Veri and Richard H. Stottler, both of the University of Maryland; and the ubiquitous B. F. Scribner, National Bureau of Standards and General Chairman of the whole "shooting match".

"AFTER THE BALL WAS OVER" the Conference Officers relaxed, unwound and in general "let their hair down" at a little dinner. Feeling good — as they should — about the sensational success of the International Conference, 1962, are (l. to r.): Sally Mount, United States Customs Laboratory, Baltimore, Md.; B. F. Scribner, National Bureau of Standards, Washington, D. C.; W. A. McLeran, Glidden Co., Baltimore, Md.; M. E. McGoldrick, Armco Steel, Baltimore, Md.; and Ethel Gummer, Baltimore, Maryland.

(continued from page 11)

"WHAT'S THE RIGHT WAY TO EAT IT?" was the query from a rather fastidious foreign registrant at the Chicken Barbecue. Quipped a local savant, "Here in Maryland, the right way when you're out on a barbecue is simply the fastest way to your mouth!" Note: The above is the best barbecue procedure in all 50 states . . . . not just Maryland.

MAYBE THERE WAS NO CONTEST because everybody was pretty "stuffed" after the big barbecue, but a number of the more energetic registrants inclined to dance. Of all the

"twisters" on the floor our vote went to the charming daughters of Mr. & Mrs. J. K. Hurwitz, U. S. Steel Corporation, Monroeville, Pa. They are about six and eight years old.

LUCKY THERE WAS WATER IN THE POOL at the Holiday Inn where many of the registrants stayed . . . . or our good friend Ed Shuster, Nuclear Materials and Equipment Corporation, Appollo, Pa., would have been in real trouble. Seemingly, as he dove into the cool depths, the bottom of the pool was closer to the top than he expected . . . . and the irresistible force met the immovable object . . . . Ed came out of it with only a few slight battle scars on his handsome face, however. Next time Ed, go in feet first . . . . we like your looks.

THERE WAS A CERTAIN GROUP who saw to it that they came a trifle early — not wanting to miss the Golf Tournament on Sunday, June 17, at Noon. Seems they wanted to be in top physical shape for the Conference — at least that was their story. The resulting winners: Low Gross — Bob Michaelis, National Bureau of Standards; Low Net — Ron Wiley, son of H. Wiley, Goodyear Aircraft Company; Best in Hole-In-One contest — Harry Allen, National Bureau of Standards; and Longest Drive — C. R. "Dynamite" Dillard, Brooklyn College. However, our hats are off to the last two winners: Most Courageous Golfer — Nick Mirti, National Spectrographic Labs . . . . and golfer with the Best Body English, Joe Woodruff, Armco Steel Company. Next week — Arnie Palmer!

CLOSING "INTERNATIONAL INCIDENTAL" concerned the story about the conference spectroscopist who got lost on a tour of the Pentagon . . . . seemingly he was located just the other day on Floor 3, Corridor J, Room 316, Section B — with a wife, two children, and a new analytical technique! Some spectrographers are faster than others — let's face it!

Selling S

C. E. PEPPER

[EDITOR'S NOTE: *So outstanding, in our judgment, was the following paper that we sought and secured permission to share it with our readers world-wide. It is reproduced here in Arcs & Sparks verbatim, transcribed just as it was presented by C. E. PEPPER, as the keynote address at the Seventh Annual Cleveland Conference on Spectroscopy, Cleveland, Ohio, May 23, 1962. It should also be noted here that the National Lead Company of Ohio is a prime contractor with the Atomic Energy Commission under Contract No. AT (30-1)-1156.*]

Mr. Chairman — Ladies and Gentlemen:
Contrary to any rumor you may have heard, this talk is not a substitute for the fine exhibition of the National Spectrographic Laboratories!

I sincerely want to thank Don K. Lewis, program chairman, and the Cleveland Section of SAS for extending to me this opportunity. Don gave me just three instructions: Be here, on time, and wake everyone up for the Panel Discussion to follow!

Everyone working in the field of spectroscopy, or associated with it in any way, is interested in SELLING SPECTROSCOPY, whether he realizes it or not. Your presence here this morning confesses your interest in it. Your employer is interested in SELLING SPECTROSCOPY or he wouldn't have allowed you to attend. Most of us don't recognize, at least formally, how many different ways and how many different times each day that we actually do sell, or have opportunities to sell spectroscopy to someone else.

Oh, I admit that the degree of selling varies considerably in each individual. Some of us sell very little. I wouldn't be surprised if there were a few, and I hope it's just a few, who are here today only because this conference provides an opportunity to "get away from the lab for a while." However, to somewhat compensate for those few, we have among us such stalwart salesmen as Nick Grondin, Bill Martin, and Larry Zeeb, who will sell you all of the spectroscopy you can hold, plus some you probably can't afford.

By SELLING SPECTROSCOPY, I mean selling our interests in this scientific field by more thoroughly educating management and the non-spectroscopic world about the capabilities, the accomplishments and certainly the vast potential benefits awaiting development in this specialized field.

When you SELL SPECTROSCOPY you sell yourself.

And why sell yourself? Unless you are completely happy in every way with your type of work, financially, professionally, instrumentally, etc., unless you are completely happy with your status quo, your quickest and simplest way to progress is to SELL SPECTROSCOPY. Naturally, ladies and gentlemen, I have taken the liberty to assume that all of us, in one way or another, still have a desire to progress.

Now don't let the word SELLING scare you. I am not suggesting that we all have to become formalized super salesmen. Now Super Salesmen are a special breed of humanity. They are the type who can sell two milking machines to a farmer with only one cow — and then take the cow as down payment!

What I am going to do is remind you, just remind you, of some of the many small, medium, and large incidents in your daily spectroscopic life that provide golden, natural opportunities to SELL SPECTROSCOPY and yourself.

Many years ago in a metal refining plant I heard a story which really started me thinking about the need for SELLING SPECTROSCOPY. This particular refinery dissolved huge amounts of metal ore in nitric acid, extracted the metal in a purified state with an organic solvent, stripped the metal from the solvent with water, evaporated the water and calcined the powder to a metal oxide form.

Now this plant had a Spectrochemical Lab which provided analytical service for determining impurities in the refined metal oxide only! However, this service wasn't always the type one brags about. It was occasionally late and not always the most, shall we say, analytically correct. Naturally this didn't make the refinery superintendent the happiest one in the world.

One day an apprentice operator in the refinery allowed too much nitric acid to flow too fast into a digesting tank, thereby initiating a rather violent reaction which burst the tank. The apprentice dashed into the office and wildly described the event to Joe, the refinery superintendent, whose immediate and only comment was, "Damn Spectrochemical!"

Now, even though Joe had a concrete type mind — thoroughly mixed up and permanently set — his humorous comment pointed out to me that we had a big job of SELLING SPECTROSCOPY to him. I am happy to say that after exercising considerable patience and analytical effort for a number of years, Joe was thoroughly sold on the merits and the benefits

pectroscopy

National Lead Company of Ohio

of spectroscopy, which soon gave him, I might add, a much improved and dependable analytical service.

Here are some ways you can SELL SPECTROSCOPY internally — in and around your laboratory.

The sample is a good place to start. Churchill and others have said, "Anything less the whole sample is a compromise." How true. Very few of the samples we receive ever represent the whole. However, too often the attitude of the spectroscopist has been, "I'm only interested in the sample when it comes in the door and in the result until it goes out!" Since the sample represents a compromise or a potential variable to begin with, how then can we *best* analyze it without some knowledge of its history?

If necessary take the initiative, use the telephone (personal visits are acceptable too), but get enough sample information which will allow you to give your customer your best analytical service. Educate your customers on the very small sub-sample sizes used in spectroscopy. Anything you can do to improve the sample's character, sampling techniques or a more adequate understanding of the importance of these items to the people who submit samples is SELLING SPECTROSCOPY. An old Chinese proverb sums it up this way: "If you take an interest in what interests the other fellow, he will take an interest in you!"

Do you try to determine the customers' needs, or help him determine what he needs? Is he most interested in analytical speed, maximum precision and accuracy, sensitivity or what? Does he understand that sensitivities vary for different elements and for different matrices? Quite often a few minutes spent with your customer discussing his wants will save you considerable analytical time, and yet give him more satisfaction and information.

Are we honest with the customer about informing him that another analytical method might fill his needs better? Of course, this means that you have to stay current on what the other analytical facilities are doing or can do. However, this tends to broaden your own interests and knowledge, in addition to building respect and trust in the mind of your customers.

There will always be competition between Wet-Chemical and Spectrochemical personnel. Friendly competition is good; it stimulates initiative resulting in improved procedures and results. However, bickering and useless arguments between labs should not be tolerated. Remember that you can win friends or arguments, but seldom both!

Spectroscopic methods should be sold on their merit and contributions to the entire analytical organization, not as separate entities. Cooperative efforts benefit all concerned, and who can forget that more often than not, spectroscopic standards are based on chemical results.

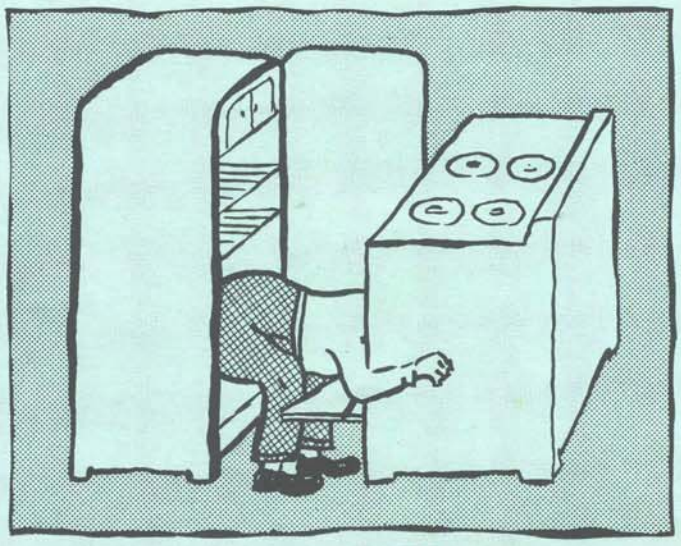
You are still SELLING SPECTROSCOPY!

The reporting of analytical results is a topic which provides many opportunities for good salesmanship. Are we always careful to define clearly the units associated with our results?

Is it per cent on a weight basis, ppm, or mg/ml? If the original sample had to be converted to a more convenient form for spectroscopic analysis, do we clearly identify that the results are reported on a compound basis, original solution basis or on the basis of the residue remaining after sample treatment? Do your customers always understand your reported results?

I remember flying over the Rocky Mountains once, and as the stewardess passed out chewing gum to all of the passengers, she said, "It's to keep your ears from popping in this

FIGURE 1



"ON THE AVERAGE, HE FEELS FINE!"

Selling Spectroscopy

high altitude." When the plane landed, a nervous little old lady came up to the stewardess and said, "And now, Dearie, will you please tell me how to get the gum out of my ears?" Yes, it is important to be fully understood!

Well qualified people could spend all morning discussing Precision, Accuracy and Statistical Methods. A good spectroscopist cannot ignore their use. Define the qualifications on your results. Is ± 10% a limit of error for an individual analysis, is it a deviation from an average, is it a single standard deviation (sigma), 2 sigma or on a 95% confidence level? — and 2 sigma is not necessarily a 95% confidence level.

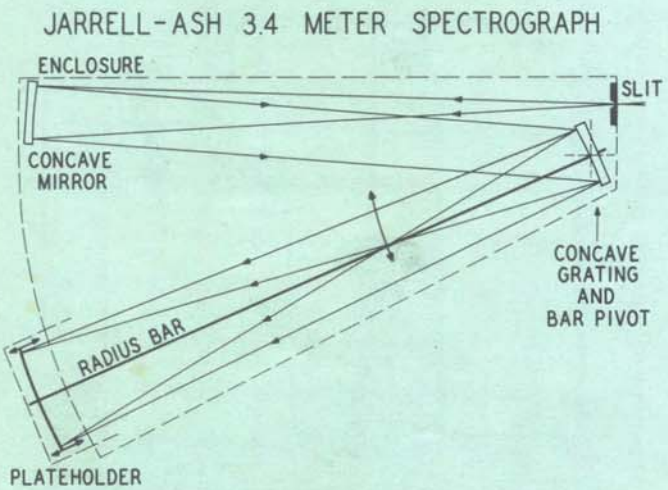
Statistical methods must be used to determine your analytical error. Now I know some will say, "Statistics can be used to support anything." I agree and might add "especially statisticians!" However, if properly understood and used, statistical methods are invaluable, useful and necessary analytical tools.

Two cautions are worth emphasizing, I think.

1. Don't mistake and report instrumental error as analytical error or total error.
2. Don't build up a false sense of security with averages. You've probably heard of the statistician who drowned while crossing a creek with an *average depth* of 3 feet!

The first slide (Figure 1) clearly illustrates why averages should be used with care.

FIGURE 2



JARRELL-ASH 3.4 METER SPECTROGRAPH

Well designed analytical quality control programs are excellent aids to help you evaluate your procedures and results. Good precision and accuracy, honestly and clearly expressed, are fine ways of SELLING SPECTROSCOPY.

Before leaving the laboratory environs, I'd like to say a few words about SELLING SPECTROSCOPY with visual aids. Keep your labs as clean, neat and attractive looking as possible at all times. If you analyze many different types of samples, how about using a display case visually illustrating this fact to your management, your visitors and your customers? A neat but simple diagram mounted on the wall illustrating the optical arrangement of an instrument makes a good impression. It also greatly facilitates explaining the instrument and the understanding of it by the visitor.

The next three slides (Figures 2, 3, 4) illustrate the type of displays I've just mentioned. We have large black and white drawings, 2½ by 3 feet, of each of these slides mounted in the various laboratories. The first demonstrates the optical arrangement of our Jarrell-Ash Wadsworth Spectrograph. The second shows the X-ray path used in our Norelco 100 KV Spectrometer. The third shows a simplified drawing of one of our Mass Spectrometer Analyzer Systems. These displays and others are extremely helpful and impressive demonstration aids.

So much for selling internally. Now let's look at a few ways in which we all can SELL SPECTROSCOPY externally.

Everyone has to prepare some reports. They may be weekly, monthly, progress, project, completion reports or technical papers. The point is that these reports represent you to the reader! What better place can there be to SELL SPECTROSCOPY!

There are dozens of books and profuse quantities of literature telling you how to write. I'll say only this — write exactly what you mean, briefly and accurately. Qualify any conditions and results with facts. Write so that the intended reader (your boss, the plant manager or the readers of *Applied Spectroscopy*) can fully understand it, remembering that they won't know all those small but important facts which you take for granted in your daily work. The reader must understand before he can be honestly sold.

After preparing a report, it's always wise to ask yourself, "Does it reflect credit on the author, on the company, on the field of spectroscopy?"

Verbal presentations of technical information make the quickest impressions on other people. While we all can't be honor graduates of Dale Carnegie, we can still try our best and follow a few common sense rules.

PREPARE AND PRACTICE — WITH ENTHUSIASM

Don't underestimate the value of each, and don't underestimate the value of all three together! Verbal communications provide you with the greatest opportunities of all to SELL SPECTROSCOPY.

Take great care in preparing your slides. If as Confucious said, "One picture is worth a thousand words", wouldn't it seem profitable to spend adequate time preparing each slide to obtain the greatest benefit? There certainly are no rules which prohibit making slides worth 2,000 or more words either.

I would like to recommend a short but effective paper recently published by Lou Owens at the Goodyear Atomic Corporation in Portsmouth, Ohio. It's entitled "The Illustration of Technical Talks". I'm sure Lou would be happy to send you a copy, and I'm sure you will benefit from his elucidating discussion of slide preparation.

There is one area I can not, I must not, forget to mention as a fertile field for wide salesmanship — TECHNICAL SOCIETIES. Have you ever thought how dull and more difficult the field of spectroscopy would be without the technical societies, their publications and their symposia? There would be no *Analytical Chemistry*, no *Applied Spectroscopy*, no meetings such as Pittsburgh, Eastern Analytical, Chicago, Anachem, Coblentz, Ottawa, Southeastern, the International, and West Coast to mention only a few. And, of course, no annual Cleveland Conference! All of these exist to promote and sell the best interests of spectroscopy, which again means yours and mine.

We need strong technical societies; they need strong supporters. Don't hesitate to volunteer, serve, and sell. ASTM, Coblentz, and SAS, both national and local, are always looking for good salesmen.

Even though this is my first visit to Cleveland, I feel well acquainted with at least three of your prominent spectroscopists: Sarah Degenkolb, Jeanette Grasselli and John Wyman. We have all worked and sold together on one committee or another for the national SAS.

So you see, SELLING SPECTROSCOPY is many things done in many ways. It has been done, it is being done and it will continue to be done by all of us. However, we can all become better salesmen.

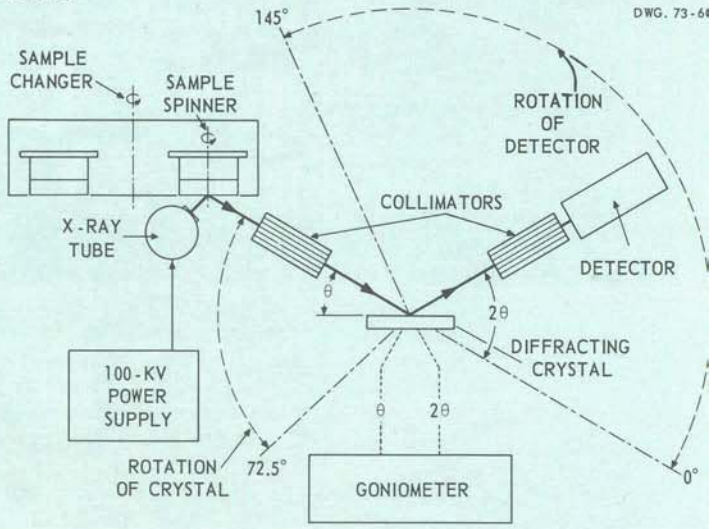
The real reward for a thing well done, is to have done it. Most spectroscopists look up, seek higher goals. The fellow who does nothing more than the average, helps keep the average down. He's the kind who tries to hold his job by sitting on it — with a motto "Conform and be dull". The smallest package in the analytical world today is the spectroscopist wholly wrapped up in himself.

Selling opportunities often come disguised as hard work. Be thankful for your spectroscopic problems; if they were easier, some one with less ability would have your job! Don't be a carbon copy of everyone else — make your own impressions — use your own ingenuity!

The best story of ingenuity I've heard, happened down in the hill country of Kentucky. A fellow was driving along a narrow winding road when he came upon this truck moving slowly along. The road was just too narrow and full of curves for him to pass, so he resigned himself to waiting for the first good passing opportunity. After a few minutes the truck stopped, the driver got out, beat the dickens out of his truck with a 2 x 4, got back in and drove on. About 5 miles further down the road the same thing happened — the driver beat up his truck again. Now when the truck driver stopped the third time and proceeded to beat his truck, the fellow behind just couldn't hold his curiosity any longer. He dashed up to the trucker and said, "Now look, I've seen you beat your truck three times in the last 15 miles — what gives"?

"Well you see, it's this way", said the truck driver, "That's a 2 ton truck, and it's got a 4 ton load of canaries on it. If I don't keep half of them flying, I'm overloaded"! — That's ingenuity!

FIGURE 3



GEOMETRY OF 100 KV X-RAY SPECTROMETER

Use the positive approach. Do something to make your technical associates happy, even if it's only leaving them alone! The happy spectroscopists are those who are producing and selling something; the bored ones are those who consume much and produce nothing.

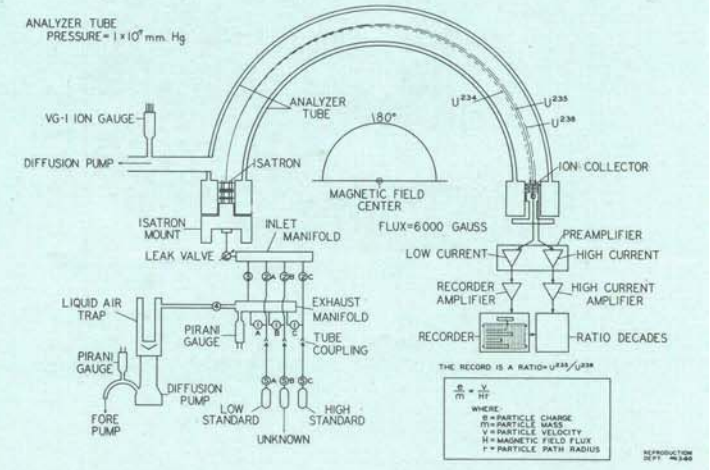
This little poem sums it up quite well:

> The tree that never had to fight
> For sun and sky and air and light,
> That stood out in the open plain
> And always got it's share of rain,
> Never became a forest King,
> But lived and died, a scrubby thing.

The future begins in the next minute, the next hour, this afternoon, tomorrow! And why should we be concerned with the future? Because that's where you and I will be spending the rest of our lives.

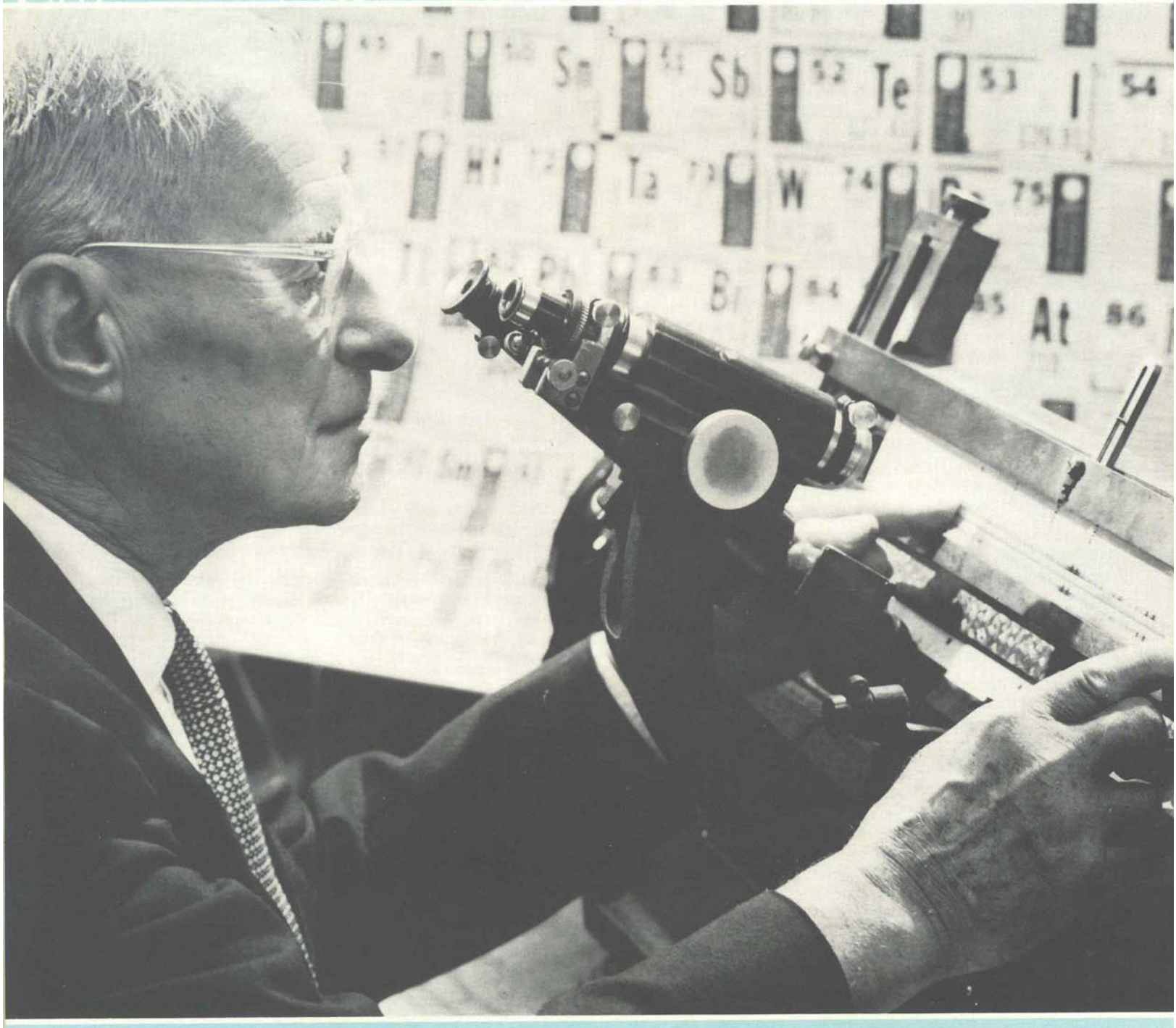
I'll be there SELLING SPECTROSCOPY. How about you?

FIGURE 4



MASS SPECTROMETER ANALYZER SYSTEM

SPECTROSCOPIST of-the-month



WILLIAM F. MEGGERS

Arcs & Sparks proudly presents the story of "Bill" Meggers . . . who is thought of, by many, as the "dean" of American Spectroscopists!

Perhaps one of our greatest living demonstrations that Friday the 13th is not unlucky is William F. F. Meggers — one of the true pioneers of Spectroscopy. Flaunting superstition with utter disdain, William Frederick Ferdinand Meggers made his grand entrance on the stage of life Friday, July 13, 1888 . . . . and it has been one of the luckiest events in the history of our profession.

This man, one of the most appreciated for his extensive contribution to the science, was born to descendants of feudal German peasants who earlier emigrated to Wisconsin and became free farmers. At the age of six, William Meggers was sent to a Lutheran parochial school, but in an action foretelling his independence of thought, rebelled after two weeks of strict religious education and was transferred to the Public School system. All during his early schooling, there was no "easy life" for Bill Meggers . . . . all his spare time was taken up with the chores and other essential farming duties. However, he has never regretted this basic education about foods and animals for it has been most helpful. Claiming that it was not the result of his innate brilliance, but simply by dint of study, he graduated as valedictorian of his high school class in 1906 . . . . and received a tuition scholarship to Ripon College.

His college days became the greatest challenge in his unfolding life, for Bill Meggers was long on ability and ambition but mighty short on money. He tucked the scholarship under his arm, picked up any odd jobs he could manage, organized a dance orchestra in which he was a triple-threat man (violin, trumpet and slide trombone), and earned the necessary money to get through school. In fact, William F. F. Meggers was the first of numerous kinsfolk to acquire a college diploma. While like many mothers, William's had hoped that he would study medicine or law and end up with what, at the time, was considered a position enjoying the greatest prestige on the American scene . . . . but her son had developed other ideas, a practice, incidentally, he was to continue throughout his entire life.

At Ripon College, Professor William H. Barber, who taught Physics there from 1906 to 1946, had a profound effect on our young student. Through his inspiring teaching, Bill Meggers majored in Physics, received a Bachelor's degree in 1910, and spent the following year as Professor Barber's first graduate assistant. The following year was a real rough one as he slaved as a graduate student and laboratory assistant at the renown University of Wisconsin . . . . but he earned much needed credits toward a Master's degree. About this time, his money problems again weighed heavily upon him so he became an instructor in Physics at the then recently founded Carnegie Institute of Technology at Pittsburgh.

During his second year at Carnegie Institute he happened to read a paper which changed the whole course of his professional life. Authored by Niels Bohr, it was titled "On The Constitution of Atoms and Molecules", and proposed some novel postulates to explain spectra. It was only a short time after this that Bill Meggers hied himself down to the Pittsburgh Post Office and spent two days writing a Civil Service examination. As the pattern of his life began to unfold in distinct form, he received an appointment as Laboratory Assistant to the late Keivin Burns, who was at the time the sole spectroscopist at the National Bureau of Standards, Washington, D. C. At the NBS, from 1914 to the present time, Bill Meggers has persistently followed a plan of long-range systematic research in optical spectroscopy, including improvements in standard wavelengths, accurate descriptions of atomic spectra, their application to identification and determination of chemical elements, measurement of spectral line intensities, and other interrelated studies.

During World War I, Meggers continued both his professional and educational progress at accelerated rates. Some of his important projects covered the measuring of standard wavelengths with interferometers, photographing spectra beyond visible red, demonstration of the use of red-sensitized emulsions for photography from airplanes, other pioneer spectrochemical analyses, measuring many indexes of refraction of the atmosphere . . . . all of this while earning a Ph.D. from the Johns Hopkins University.

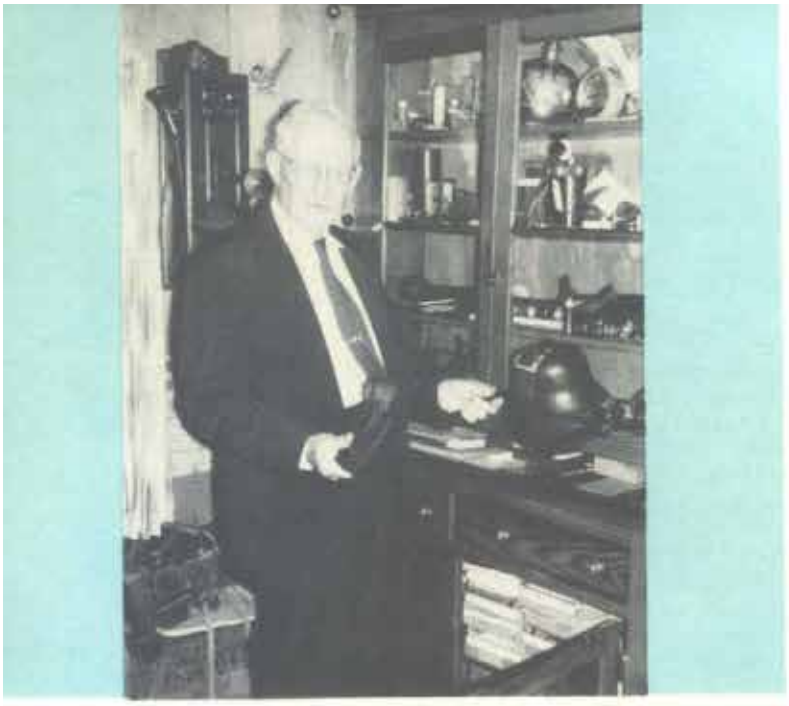
As an active member of the International Astronomical Union's Commission on Standard wavelengths during the past 40 years, he was the main contributor to secondary standards of wavelength from an iron arc measured relative to the primary standard (red radiation from cadmium). Since 1947, he provided an improved primary standard (Meggers Mercury 198 Lamp) and superior secondary standards emitted by an electrodeless lamp containing thorium iodide (with R. W. Stanley).

Meggers' early efforts to extend spectrographic records toward infrared finally led to a new octave in photographic observations that all enjoy today. His experimental results on refractive indexes of air (published with C. G. Peters in 1918) served a third of a century for the derivation of vacuum wave numbers from wavelengths measured in standard air; they were replaced in 1960 by a "Table of Wave Numbers" (with C. D. Coleman and W. R. Boxman) which is expected to last another generation — if not longer.

Additionally, he was a pioneer in spectrochemistry in the new world, demonstrating its usefulness in the Department of Commerce for the analysis of metals and alloys . . . . to the Treasury Department for testing proof gold . . . . and to the Department of Justice for detecting crime. A paper on "Practical Spectrographic Analysis" published in 1922 (with C. C. Kiess and F. J. Stimson) is generally credited with reviving interest in chemical spectroscopy in which some 3,000 United States Laboratories are presently engaged. Also, many years of service to Chemical Abstracts led to publication of "An Index To The Literature On Spectrochemical Analysis" (with Bourdon F. Scribner).

But, Meggers was constantly concerned about the poor quality of spectroscopic data (wavelengths, intensities, atomic energy origin) and the empiricism in suggested methods of spectrochemical analysis. Thus, simultaneously with the improvement in standard wavelengths, he tried to provide better descriptions of atomic and ionic spectra, especially of newly discovered concentrated, or artificial elements such as hafnium, rhenium, technetium, promethium, thulium, ytterbium, lutetium, actinium and the like. Since 1922, great effort

(continued on page 20)



(Above) "MUSEUM DIRECTOR" MEGGERS is shown here in a corner of his private museum inspecting some milestones in civilization's progress. The hundreds of collected items are neatly arranged and displayed in most attractive fashion. If it keeps growing they probably will have to build an addition to the house!

(Below) LOOKS LIKE AN ARSENAL but it's simply one corner of the museum where Bill Meggers enjoyably has displayed a magnificent gun collection. All indexed and described, this is one of the high spots in the Meggers museum — appreciated especially by men visitors.

(Below) MUSEUM'S "ASSISTANT DIRECTOR", Mrs. Meggers, takes great pains to keep everything shipshape. For our money, Bill has the easy job — collecting . . . . Mrs. Meggers has the tough task — making sure everything is always up to par. What's that about "woman's work is never done!"

(continued from page 19)

has been spent on deriving atomic energy levels from structural analyses of optical spectra, culminating in the publication of three volumes of "Atomic Energy Levels" critically compiled by Charlotte E. Moore.

Finally, it became imperative to this man to make a wholesale calibration of discrete radiant powers which nearly 30 years later led to the publication of "Tables of Spectral-Line Intensities" (with C. H. Corliss and B. F. Scribner) that, for the first time, presented measured intensities of 39,000 lines (2000 A° to 9000 A°) observed in direct-current arcs exciting each of 70 metals when diluted 1000 fold in copper. In addition to calibrated intensity and spectral number, the authors hoped to give the energy levels responsible for each spectral line so that these tables would be most useful for trace analysis and for greater accuracy in quantitative determinations by selecting homologous pairs of analysis — and internal-standard lines with similar excitation characteristics. Unfortunately, the energy levels for 14,000 strong lines (mostly from rare earth elements) are still unknown, so William Meggers has dedicated the rest of his life to seeking more of these.

This scientific-oriented life has not been without its awards — both numerous and of highest nature. Only in the past few years, for instance, the Optical Society made him an Honorary Member and in 1947 awarded him the Ives Medal . . . . the U. S. Department of Commerce bestowed upon him, in 1948, the Exceptional Service Gold Medal . . . . the Franklin Institute gave the Eliot Cresson Medal . . . . the New York Section of the SAS made the first award of its annual medal to him . . . . and, in 1954, the National Academy of Science elected him into membership. These are the marks of devotion to cause, meticulous and laborious work, brilliance of creative concept that have given William Meggers greater satisfaction than any amount of money could buy.

If you ask this great man what he enjoys most, he probably would say, "Why, that's easy — it's the fun of contributing to the advancement of spectroscopy". The "dean" of spectroscopists, together with his thoroughly charming wife and three children, has enjoyed many hobbies. One of the most prized, and enjoyed, is his participation in musical offerings on either the violin, trumpet, or slide trombone, which never cease to bring back fond memories of his frugal years at Ripon College. To diversify, he thoroughly enjoys collecting rocks, minerals, relics of the Stone Age, and has quite an imposing array. To witness the extent of Bill Meggers' avocations, in 1942 the Meggers family dedicated a private museum of Science and Civilization which he maintains in his comfortable home. A "seventh heaven" to the collector's heart, the museum is now filled with hundreds of historical pieces including lamps, cameras, stereoscopes, typewriters, telephones, patent models, music boxes, phonographs, records, radios, historical movie films, and scores of other items that bring joy to the hearts of all its visitors.

Of the many "greats" in spectroscopy, none has given Arcs & Sparks more of a privilege to feature. We feel that William F. F. Meggers is a truly successful man, a whole man, a man whose constructive approach to life is reflected in his own philosophical reply, "Whatever my achievements and accumulations, they are but symbols of the joy of living in this age of extraordinary progress in science, technology, and culture". We humbly, and proudly salute WILLIAM F. F. MEGGERS . . . . Spectroscopist Extraordinary!

75 YEARS OF EXPERIENCE AT BIRTH. . . . might be hard to believe but it's the truth — so help me — in the case of the newly formed spectroscopic consultant firm ANGSTROM, INC. This new company has been formed by a group of men well known in the profession . . . William E. Davis, Bernard R. Boyd, and Alan Goldblatt . . . and has more than 75 collective years of field experience in spectrochemistry. Offices of this independent organization are located at 2454 West 39th Street, Chicago 32, Illinois. They have specialists available to service Optical Emission and X-Ray Spectrochemical equipment; custom develop new methods; train and instruct personnel and consult on instrumentation requirements to solve specific control problems. Our heartiest congratulations and smooth sailing to the crew of ANGSTROM, INC.

"I LIKE NEW YORK IN NOVEMBER!" because on November 14, 15 and 16, 1962 the Eastern Analytical Symposium and Instrument Exhibit will be held at the Statler Hilton Hotel, New York City. Always an interesting symposium, the 1962 program is particularly attractive. The meeting will consist of a series of 3-hour symposia of invited papers of extended length by experts in a number of fields of interest to analysts. Additionally, some 85 manufacturers of scientific apparatus and supplies will show all that's newest and best.

Starting on Wednesday, November 14th, the program will cover: Thermal Analysis; Gas Chromotography in Medical Research; Preparative Gas Chromotography; Analytical Applications of NMR, Thermal Analysis of High Polymers—plus an "Advances In Instrumentation Clinic" featuring Analytical Instrumentation in the Medical Sciences. The Thursday, November 15th program will feature: New Developments in Excitation Sources; Quantitative Micro Analysis; X-Rays in Polymer Analysis; Recent Applications of Electron Probe Microanalysis; Chromotography; Molecular Weight Measurements; plus a clinic, "Gas Analysis." The Friday, November 16th schedule: Symposium on Evaluation of Spectrophotometric Performance; Trace Analysis; Chemical Microscopy; Afternoon Symposium on Evaluation of Spectrophotometric Performance; Qualitative Organic Microchemistry; and a final clinic covering Quality Control in Emission Spectroscopy — Automation, and Sample Preparation Techniques in X-Ray Spectroscopy.

We're looking forward to this New York Symposium and feel that it will be most worthwhile, particularly when we consider the following hard-workers: General Chairman, A. Mowitz, Interchemical Corp.; Program Chairman, A. R. Paterson, Allied Chemical & Dye Corp.; Exhibition Chairman, C. Jedlicka, Lucius Pitkin Co.; Arrangements Chairman, S. Kodama, American Cyanamid Co.; Employment Chairman, A. Rekus, Baltimore Gas & Electric Co.; Publicity Chairman, P. Lublin, General Telephone & Electronics Labs; and, Exhibit Manager, N. Gardner. Go east — young man — go east . . . and we'll be seeing you there . . . and how!

"FRIENDLY COMPLAINT" DEPARTMENT: it has been brought to the attention of the editor that a recent issue gave incorrect information relative to the "Saga of the Screwdriver." The invaluable report that Vodka and Milk of Magnesia is labeled a Phillips Screwdriver did not — we repeat, did not — originate with our own Nick Grondin to whom we gave the credit. Frankly, the editor did not know to whom the credit (?) belonged and simply picked out a likely prospect. So, with blushing countenance, we hereby name the real joker, Mr. Morton L. Levy, V. P., The Frank L. Crobaugh Company, Cleveland, Ohio. Thank you Mr. Levy, and for goodness' sake don't stop the flow of jokes . . . particularly the more recent and much better ones!

HANG ON TO YOUR HAT, that Windy City crowd from around Chicago is deep in their super-strategy meetings to make their 14th Annual Mid-America Spectroscopy Symposium, May 20-23, 1963, a real tornado of activity. Not satisfied with smashing practically every record in the book on registrations, exhibits, interest at their last gathering, these fellows are really cookin' up some surprises. Sponsored by the Chicago, Cleveland, Detroit, Indianapolis, Milwaukee, Niagara Frontier, and St. Louis Sections of the SAS, one begins to appreciate the new-found strength of this Mid-America Symposium to be held in Chicago at the Sheraton-Chicago Hotel.

Original papers are invited from the fields of emission, mass, x-ray, general absorption, infrared, NMR, EPR, Raman and flame spectroscopy, as well as gas chromotography. Absolute deadline for receipt of title and abstracts is January 15, 1963. The Mid-America will be patterned after its successful past format with seminars, problem clinics, and an instrument exhibit. For additional information contact: John E. Forrette, Roy C. Ingersoll Research Center, Borg-Warner Corporation, Wolf & Algonquin Roads, Des Plaines, Illinois.

FOR SHE'S A JOLLY GOOD FELLOW. . . . who else than our wonderful friend Sarah Degenkolb who has accepted the General Chairmanship of the National SAS Symposium to be held in Cleveland in 1964. When she gets through naming her committees, it will be a powerhouse . . . and that guarantees "something more in '64!"

FIRST LAW-MEDICINE-SCIENCE CONFERENCE ever held in the Americas will take place November 29 - December 1, 1962 at the School of Law, University of Puerto Rico, Rio Piedras, Puerto Rico . . . and the entire spectroscopic profession is cordially invited. In what promises to be the premiere of a long continuing and successful venture, the First Interamerican Conference on Legal Medicine and Forensic Science is being sponsored by the Department of Justice of Puerto Rico and the School of Law of the University of Puerto Rico. Emphasis will be on the overall im-

(continued on page 22)

(continued from page 21)

portance of interrelated Law-Medicine-Science efforts in the administration of civil and criminal justice.

It is the belief of the conference, and we certainly agree, that the main speakers who have been brought together for this conference constitute as extraordinary and highly qualified an assembly of legal, medical and scientific experts as have ever appeared on the same program of any meeting anywhere in the world. All interested readers are urged to get more complete information by writing to Mr. Larry Alan Bear, Conference Director, The First Interamerican Conference On Legal Medicine and Forensic Science, P.O. Box 12065 University Station, University of Puerto Rico, Rio Piedras, Puerto Rico.

A comprehensive list of the speakers, and their accomplishments is ample proof of the unusual breadth, scope and purpose of this conference. It is felt that audience attendance at this conference will include leading private and Government lawyers, doctors and scientists as well as law enforcement officials from South America, Central America, The Caribbean, Canada, England, and the United States. This truly represents a new concept in interprofessional relationships as they can be directed toward the goal of justice for all peoples of the Americas. Arcs & Sparks is particularly impressed by the following from their information, "We can assure you, too, of both warm hospitality and warm Caribbean sunshine, as well as the feeling of satisfaction that we are sure will come from having participated in an intercontinental, interprofessional contribution to justice under law in the vital areas of legal medicine and forensic science." Be sure to write for more information on this worthwhile "first".

IT'S FLORIDA JANUARY 21-24, 1963 for their 11th Annual Symposium on Spectroscopy, to be held at the University of Florida, Gainesville, Fla. Emphasis, this year, will be placed on the application of Masers to Optical Emission Spectroscopy. Lecturers will be: Dr. V. A. Fassel, Iowa State University; Dr. Marvin Margoshes, National Bureau of Standards; Dr. T. A. Welton, Oak Ridge National Laboratory; and Mr. Fred Brech, Jarrell-Aash Company. All that symposia — and Florida sunshine, too.

1963 OHIO VALLEY Instrument-Automation-Electronics Exhibit and Symposium is slated for April 16-17, 1963 in Cincinnati Gardens. The 1963 is being co-sponsored by the Cincinnati Section of the Instrument Society of America; the Cincinnati Section of the SAS; and the Society of Experimental Stress Analysis of the Southwestern Ohio area. The sponsoring groups have selected John R. Douglass, an ISA member, and head of an instrumentation equipment distributing firm bearing his name, as Executive Chairman for the managing committee. For additional information on this symposium, why not write Mr. Douglass, 8603 Zenith Court, Brentwood, Cincinnati.

MEANWHILE...back at the office

The whole team at Ultra has been waiting a long time to announce—with much pride—the appointment of ROBERT E. GALLION as the Western Regional Manager of Ultra Carbon Corporation.

"Bob" Gallion, as long as he can remember, had a deep interest in math, physics and chemistry. Born in Kokomo, Indiana, Bob attended both the University of Indiana and Purdue, majoring in Chemical Engineering. After the Marine Corps used his specialized talents from 1948-52, he went into industry as a chemist with American Standard & Sanitary Corporation at Kokomo, Indiana.

Progressing fast, Bob joined Haynes Stellite, Kokomo, as chemist and spectrographic expert in X-Ray Defraction and Fluorescence of high alloy steels. From there, he was employed by Chrysler Corporation, Kokomo, as Chief Chemist and Spectrographer. Ultra Carbon Corporation was fortunate to gain his services in the fall of 1961 and promoted him to Western Regional Manager in July of this year.

Bob and his charming wife Sue keep real busy with four wonderful youngsters (including a pair of twins) . . . which also gives Bob — who's a shutter-bug — plenty of opportunity for pics. Bob and family are now firmly rooted at 1463 East 13th Street, Upland, California . . . and they love it. We think the wonderful West is getting a wonderful guy!

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ARCS and SPARKS

United States Capitol

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

COVER STORY

Without a doubt, the most familiar landmark in the United States is the Capitol. Located in a beautiful 131-acre park known as Capitol Hill, it is the meeting point of the four sections of the city of Washington, District of Columbia. The dividing lines, radiating from the four sides of the Capitol, parcel the city into sections designated as Northwest, Northeast, Southwest, and Southeast. While many a spectroscopist, visiting Washington, D. C. for the first time during the International Conference, found it a bewildering maze of diagonal streets ending up in "circles", the natives will swear it is one of the easiest cities in the world to travel . . . once you become familiar with it.

Many a registrant of the conference would tell you that the Capitol based on Dr. William Thornton's design with Benjamin Latrobe's revisions, is 751 feet long, 350 feet wide and contains 540 rooms. The two wings, jutting out from the central Rotunda, contain the Senate and House Chambers. Extensive remodeling has been done through the years in a continuing effort to keep it fully preserved as a landmark that will live long as our nation exists. Just a short trip from the campus of the University of Maryland, where the International Conference was held, the Capitol truly symbolizes the inspiring surroundings of this epochal meeting.

Arcs & Sparks is published by Ultra Carbon Corporation, P.O. Box 747, Bay City, Michigan for the advancement of the profession of spectroscopy. News stories, changes of address, and other pertinent correspondence should be directed to the Editor, William G. Harkey.

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