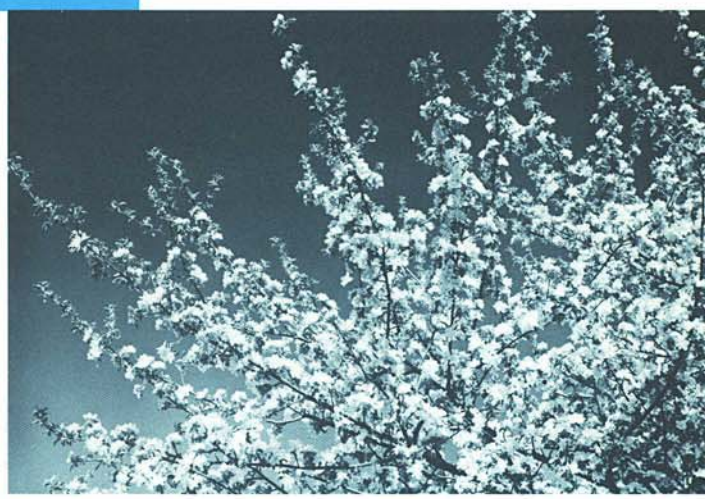
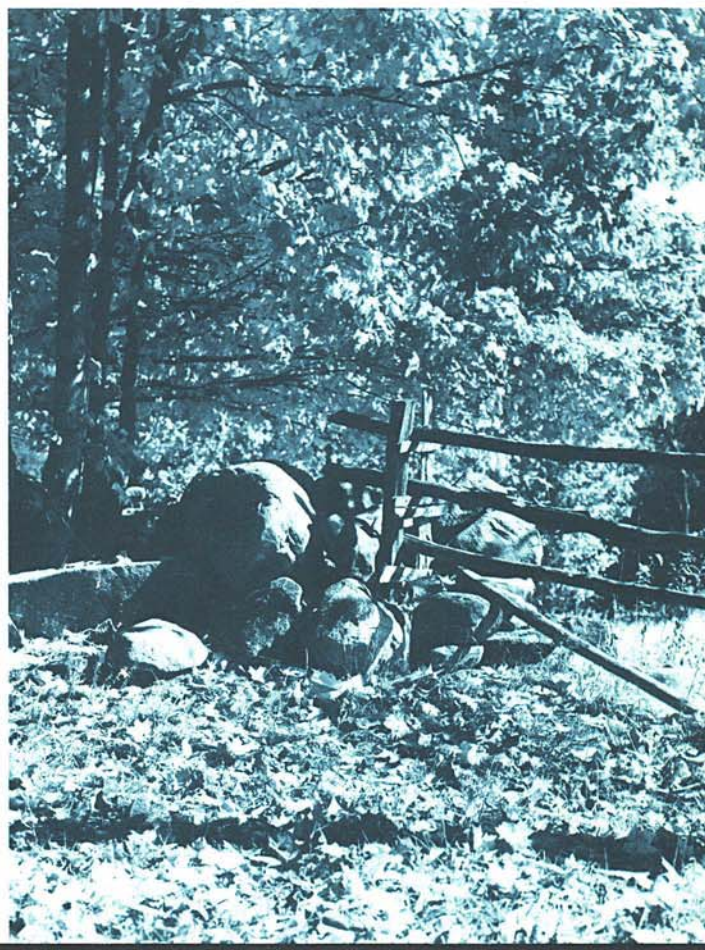
ARCS & SPARKS

1975 HIGHLIGHTS

VOLUME 20 — NO'S 1&2





published for our friends in Spectroscopy

and Analytical Chemistry

by ULTRA CARBON CORPORATION — the graphite specialists

Bay City, Michigan

ARCS & SPARKS

1975 HIGHLIGHTS

Volume 20 — No's. 1 & 2

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Arcs & Sparks is published by Ultra Carbon Corporation, P.O. Box 747, Bay City, Michigan 48706, for the advancement of the professions of spectroscopy and analytical chemistry. News stories, changes of address and other pertinent correspondence should be directed to the Editor.

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Ultra Carbon Corporation
P.O. Box 747
Bay City, Michigan 48706

About The Cover: Four Seasons in Michigan

Cover: Four Seasons in Michigan
Lake Superior Shoreline,
Cherry Blossom Time — Traverse City,
Northern Michigan Hardwoods,
Quiet Trout Stream

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ULTRA CARBON
the graphite specialists

Left to right
N. Venkataraman – Alcan – India – Responsible for administrative organization; I. Clucas – Alcan – Australia; J. E. Tremblay – Alcan – Arvida; Q. O. Johansen – ASV – Norway; K. Mukai – NKK – Japan; A. S. Reid – Alcan – Jamaica; L. J. Poirier – Alcan – Arvida.

Background
B. Carke – Alcan – Australia.

"WE ARE IN SERIOUS BUSINESS"

Left to right
C. Cardinal – Université de Montréal; G. Machabee – Université de Montréal; I. Clucas – Alcan – Australia; N. Venkataraman – Alcan – India; J. S. Lobos – Alcan – Arvida; L. J. Poirier – Alcan – Arvida; Carl Leistner – Ultra Carbon – U.S.A.

"CHEERS TO SPECTROSCOPY"

Left to right
W. Dunwoody – Alcan – U.K.; R. P. Doble – Alcan – Arvida – Responsible for technical programme; J. D. Zwicker – Alcan – Arvida.

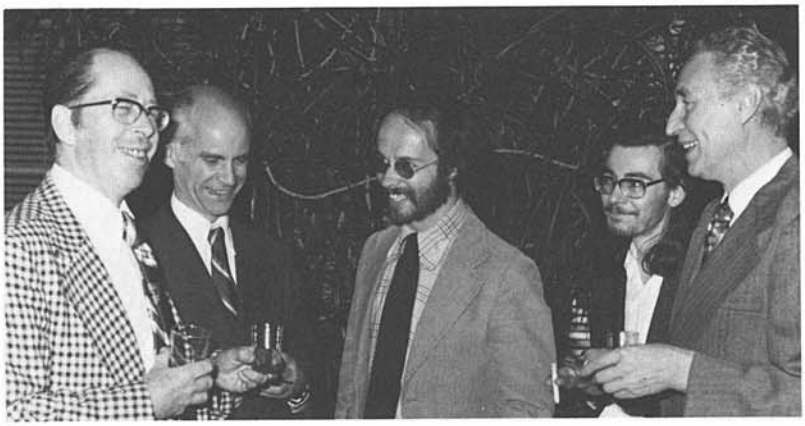
"AH! THAT IS A BRIGHT SPARK"

ALCAN SYMPOSIUM

For the past several years Alcan has held an annual symposium for their laboratory personnel. The aim of these meetings is to improve communications and to assess present and future needs in Alcan's eighty analytical laboratories located throughout the world.

The topic for the 1975 Symposium held in October was, "Spectroscopy and Computerization." Alcan personnel from nine foreign countries and Canada attended the ten day session held at the Analytical Centre. Universities, government and equipment manufacturers were also represented as active participants through presentation of technical papers.

Left to right
B. J. Wahl – Alcan – Arvida; J. D. Zwicker – Alcan – Arvida; F. Burton – Alcan – Kitimat; D. Begin – Université du Québec à Chicoutimi; E. J. Gairdner – Alcan – Kitimat.



"WE ARE ENJOYING THE SYMPOSIUM"

Left to right
J. D. Bond – Alcan Corp. – U.S.A.; H. Berg – ASV – Norway; C. A. Askinis – Alcan – Brazil; M. Leroux – Alcan – Arvida; J. Baird – Alcan Metal Powders – U.S.A.; J. E. Sperino – Alcan Corp. – U.S.A.

"A HAPPY FRATERNITY"

ALUMINUM COMPANY OF CANADA LTD ANALYTICAL CENTRE

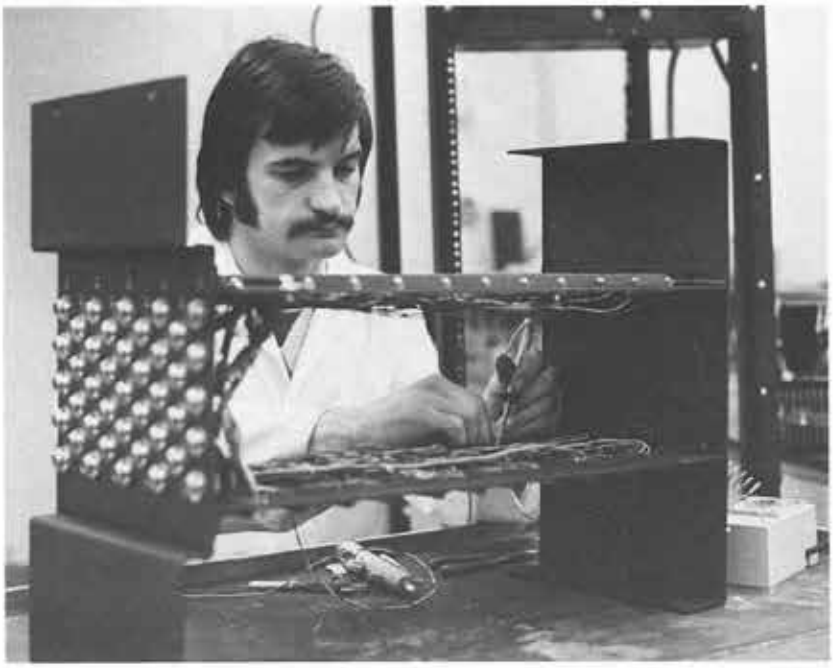
The Analytical Centre — part of the Arvida Research Centre — is one of the largest analytical centres of its kind in the world. It is located in Arvida, province of Quebec, in Canada. In the same location Alcan has the largest integrated aluminum plant in the world with an installed capacity of 450,000 short tons of metal per year. This capacity is combined with a wide variety of chemical plants allied to the main operations of aluminum extraction. Included are two Bayer alumina plants which have a capacity to process about 2.5 million short tons of bauxite per year, two sulphuric acid plants, a caustic plant, an aluminum fluoride plant, a cryolite recovery plant, an aluminum sulphate plant, a carbon plant and so on. Each of these units could in itself be considered a large and important operation. Combined they form one of Canada's largest inorganic chemical complexes.

continued on next page . . .

The unique design of the laboratory building is illustrated by the central court with a fountain and tropical plants. Glass panels from floor to ceiling are used as partitions and the "atrium" can be seen from all offices and laboratory modules.

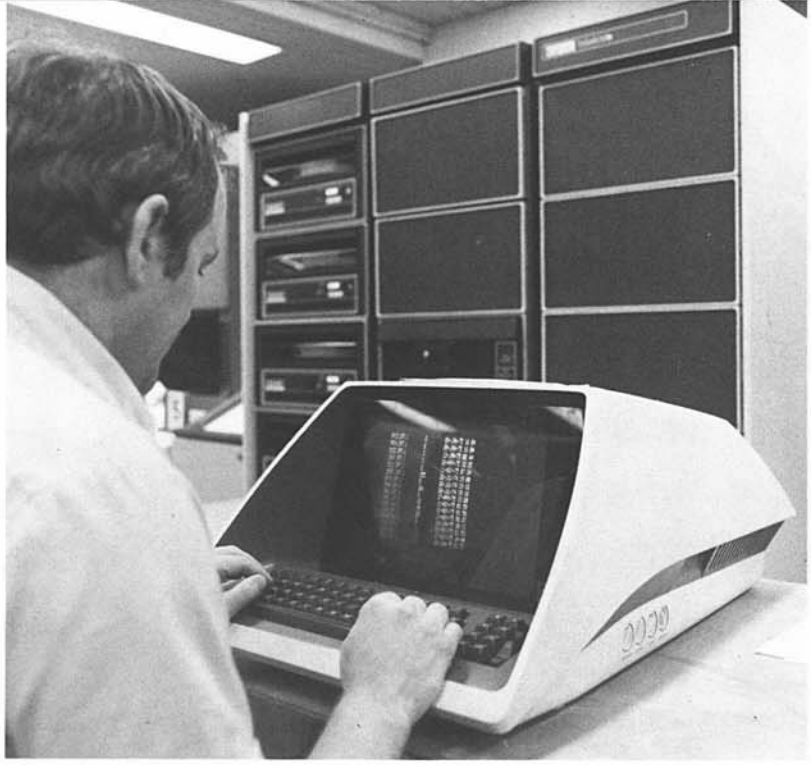
Raymond Tremblay is shown installing pin samples on the automatic sample feeder developed in house for an ARL Quantometer Spectrometer. All the operations are controlled by a computer automated console shown at left; this console, which was built in house around a DEC PDP11-10 minicomputer, reads the output voltages, transforms them into concentrations and sends the results to a DEC PDP-11-40 midicomputer shown in the far background.

Jacques Simard is busy at the construction of one of the modules of the computer automated console for the control of Spark Emission Spectrometer. Similar consoles have also been installed in other laboratories outside of Arvida.



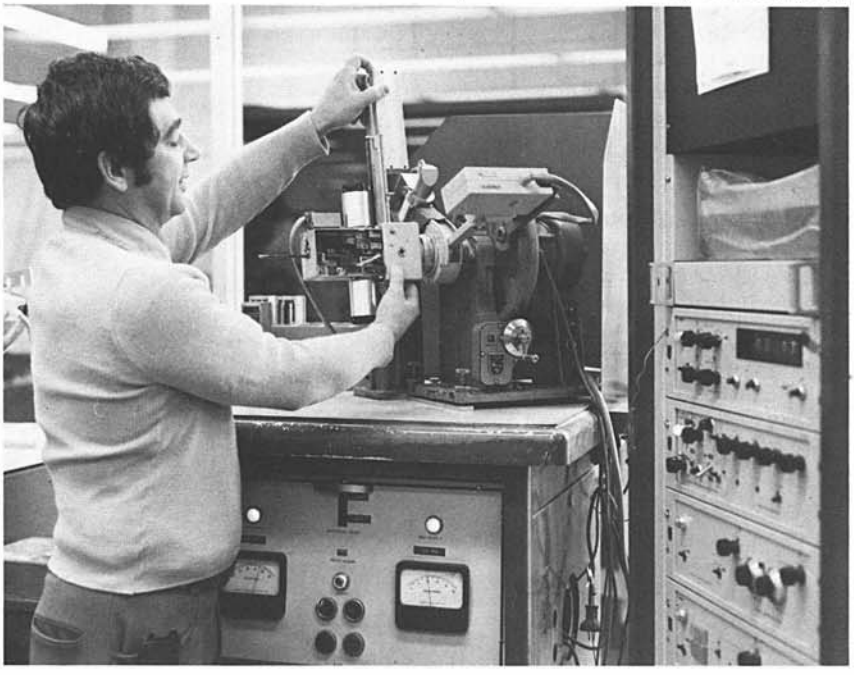
Analytical control of such a large operation is complex and costly. Each day 150 analysts and technicians analyse nearly 1,100 chemical samples. This represents about one sample every 25 seconds, around the clock. This work force is backed-up by a team of 35 staff which includes 13 chemists and 5 physicists. More than 1,200 analytical methods have been developed or perfected in Arvida. The present inventory of standard samples is valued close to a million dollars: these samples are prepared and certified by the Analytical Centre. The 75 spectrometers — most of which are direct-readers, — used throughout the world by Alcan for metal control, required an outlay of several million dollars.

ANALYTICAL CENTRE



The results received at the midicomputer from the minicomputer are used for batch making, for the control of operations in the casting plant and for inventory purposes. D. Larouche is shown here working on a batch composition with the help of the DEC PDP11-40 midicomputer shown in the background.

The control of the smelting process in the potromms is done through the analysis of the electrolytic bath in each of the pots. The concentrations of some of the chemical constituents in the bath are measured with the help of an X-ray diffraction instrument controlled by a computer. Robert Pineault is shown here installing a tray of samples in the automatic sample feeder on the X-ray diffractometer.



Almost all these systems were put into operation by Arvida personnel using an analytical system developed in Arvida. In order that these methods and instruments be used accurately and efficiently the Analytical Centre must oversee Alcan's overall analytical effort and balance the interests of the different groups involved. Over the years, Arvida Analytical Centre has established a sound reputation within Alcan as well in the industrial and academic communities. It intends to maintain this lead, and to continually show that the diversity, speed and depth of analytical techniques at the disposal of Alcan's plants are essential for high quality of products.

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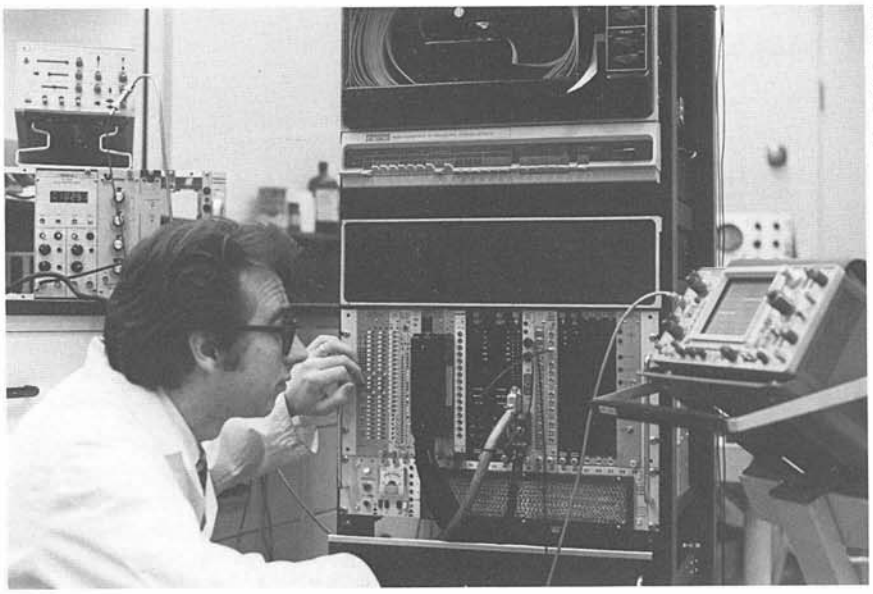
ALUMINUM COMPANY OF CANADA LTD

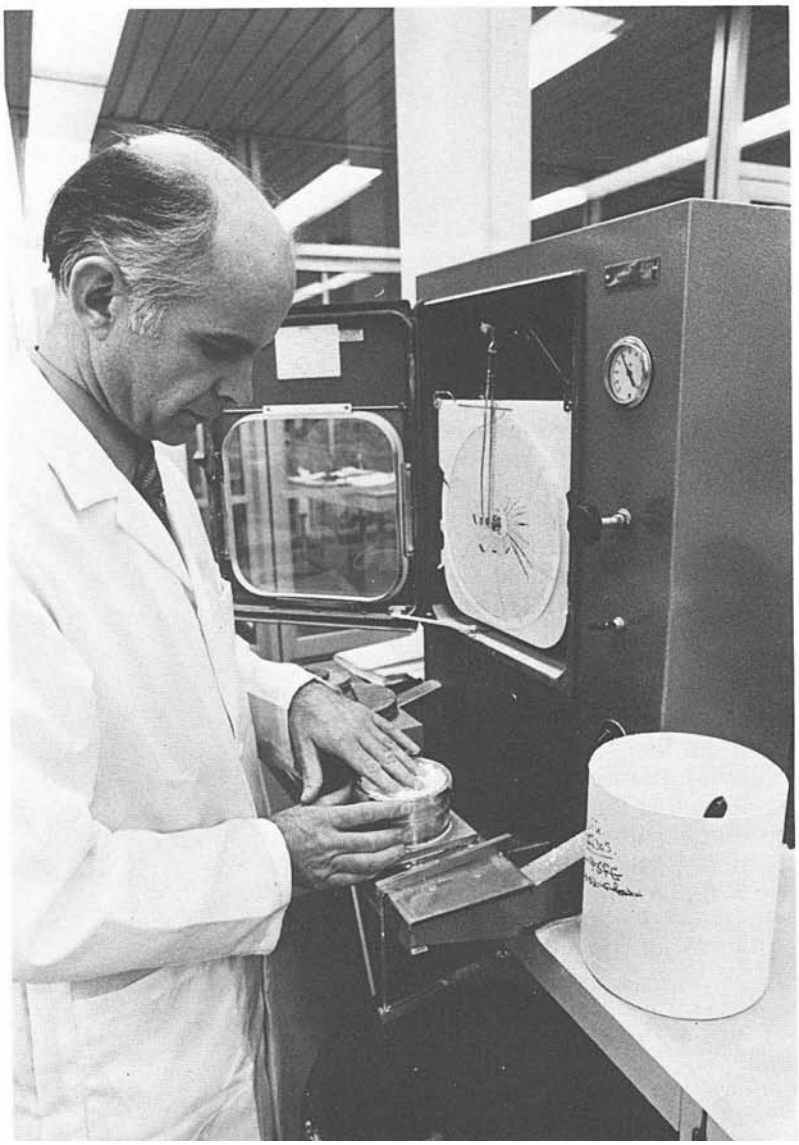


The implementation of new electronic modules complying to NBS CAMAC standards is a major step toward X-ray instrumentation control. Dr. René Vaillancourt is shown here at work with a newly developed console that will eventually control X-ray equipment.

J. D. Zwicker prepares a powder specimen in the shear cell of the Jenike Flow Factor Tester for subsequent shearing to determine the relationship between consolidating pressure and strength. The values are used to assess flowability and to design bins.

In order to achieve greater efficiency in all its operations all analytical facilities at Arvida are now centralized under one roof, in a new laboratory. The two-story building has no walls except for the exterior ones. It consists of series of modules and offices featuring floor-to-ceiling partitions made entirely of glass. The central court has a fountain in the middle and massed plants and ferns standing on its tiled floor. The downstairs cafeteria has a decorative skylight through which one can see to the top of the building. The latest safety devices have been installed and the whole building is air conditioned. A large tunnel connects the analytical laboratory to another part of the Arvida Research Centre.

Although classical chemical methods are still the backbone of Alcan's analytical system, modern instrumental techniques are quickly becoming more and more important, e.g. emission spectroscopy, X-ray diffractometry and X-ray fluorescence spectroscopy atomic absorption spectroscopy, liquid and gas chromatography, differential thermal analysis, polarography, plasma spectroscopy, etc. There is a continuing extensive development program which in future will automate most process control analyses. This involves the introduction of in-plant laboratory automatic analysers and the installation of in-plant automatic sampling and analysis systems for continuous on-site monitoring of plant processes.



ANALYTICAL CENTRE

This broader scope calls for a different type of analytical chemist. He has to have knowledge in many fields such as chemistry, physics, electronics, statistics, mathematics, computer and programming, instrumentation and maintenance, as well as plant operation if he is to design proper analytical systems for process control. The analytical chemist no longer observes the plant operations merely as a bystander with a feeling that he is only indirectly responsible for their function and efficiency. In the present highly competitive market, the success of his company in a large part depends on his ability to help it not only to compete at the existing quality level but to lead the field in providing more effective and economical control of processes and final products.

Particularly noteworthy progress in automation has been made in the physics laboratory, which has now entered into its second phase of automation of spectrographic and X-ray equipment. Up to recently the physics laboratory used two medium size computers to automate two of its emission quantometers, two X-ray diffractometers and one X-ray fluorescence spectrometer; another X-ray fluorescence spectrometer and one emission quantometer were operated manually. Each of the two computers was acting, independently of one another, as a central control for its own block of instruments.

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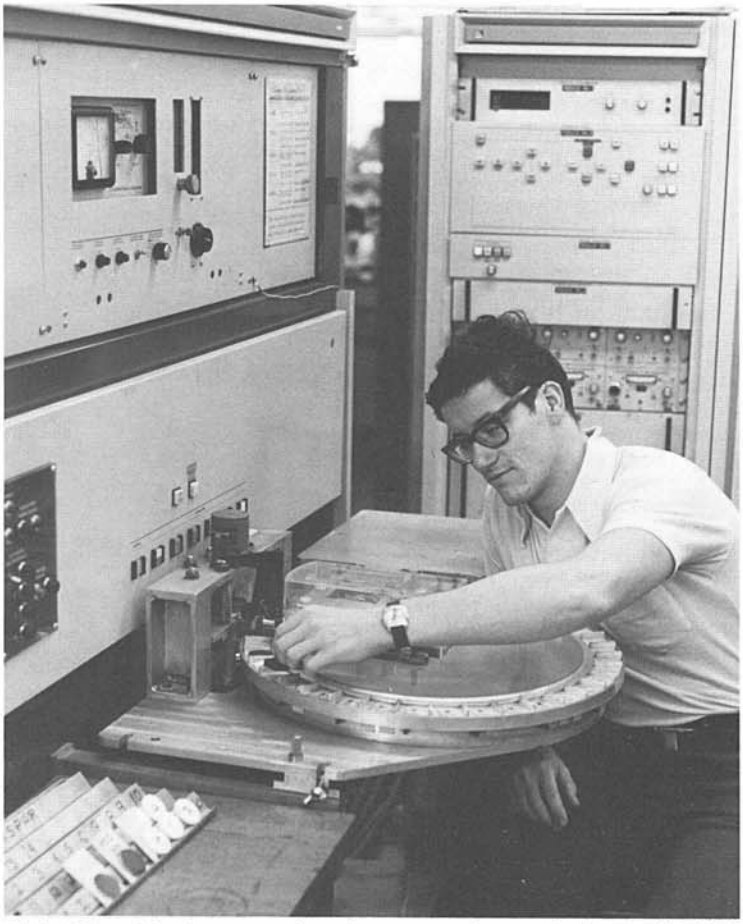
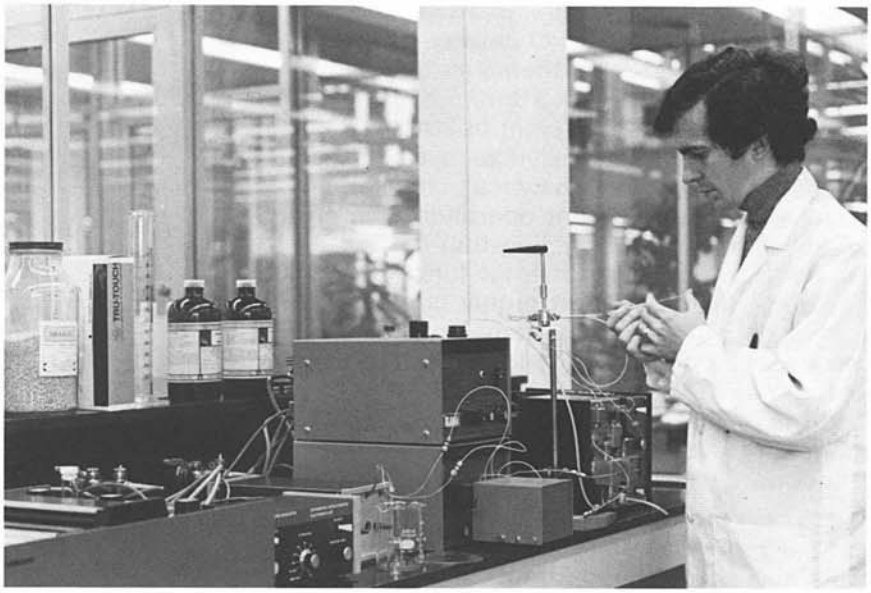


Michel Forté is demonstrating the automatic sample feeder for XRF analysis developed in house for pellet samples and fused beads. On the left, the ARL Production Multichannel X-ray Quantometer is shown with its computer controlled console at the back.

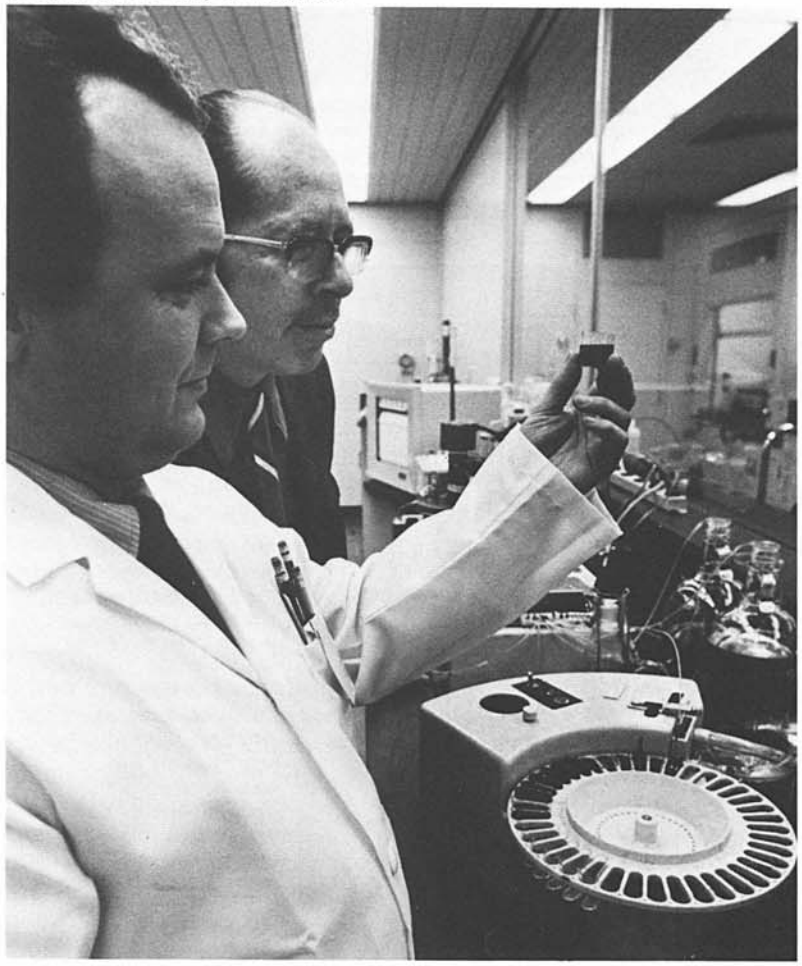
Mr. G. Dubé selects a suitable spectral line on the Spectraspan emission spectrograph, which uses a plasma source for exciting the elements from an atomized sample solution. Both qualitative examination and quantitative determination – down to low trace levels – can be quickly accomplished in many materials for all the elements normally determined by emission analysis.

ALUMINUM COMPANY OF CANADA LTD



A modular liquid chromatography system, consisting of a Waters Associates pump, a Valco injection valve, and a Schoeffel UV detector, is very useful to determining trace organics, collected in environmental monitoring samples. Dr. J. Doucet is making an injection of a filter extract.

A sample cuvette is being inspected by Messrs. G. Auger and B. J. Wahl, before placing it in (the turn table of) the Technicon Autoanalyser. This chemical robot automatically aliquots, dilutes, heats, adds reagents, mixes, does final measurements and records up to 30 results per hour, for example on fluorine, on a variety of materials.



Now with the advent of minicomputers, a new scheme is put forward based on the distributed intelligence philosophy, in that each instrument can now have a small minicomputer to control its operations. These minicomputers can further do some basic data handling to give a report of the analysis at hand. Additional processing of data, extensive reports, statistical computations and the like are handled by a high capacity central computer. The laboratory ends up with a distributed mini-computer network but still integrated through a midicomputer. This concept provides fully automated analytical instruments at a relatively low cost which can be afforded even by low-budget laboratories. Emission spectrometers of other Alcan laboratories are gradually being fitted with stand-alone computer automated consoles; some laboratories outside of Alcan have also shown interest and are purchasing Alcan computer-console for direct reading spectrographs.

Another activity of the Analytical Centre is the production of spectrochemical standards — disc and pin types — for the analysis of aluminium alloys, in particular for day-to-day standardization of direct reading optical emission spectrometers. All standards are tested for uniformity, and their composition analyzed

ANALYTICAL CENTRE

Standard samples being prepared at the Research Centre. A 175 lb capacity gas-fired furnace can be seen in the background. Pin standards are being poured using book-moulds.

Disk standards are also available. They are 1 inch slices cut from direct chill-cast ingots, 2¼ inches diameter. They contain the alloying elements at the nominal levels and a number of trace elements at levels compatible with the alloy end use. Compositions of the standards are given in a catalogue available upon request. Element percentages have been certified by the best analytical techniques, including modern instrumental methods and classical wet-chemistry procedures.

statistically to ensure that the certification is of the highest order.

To improve communication and to assess present and future needs in Alcan's eighty analytical laboratories distributed throughout the world, the Analytical Centre has been organizing symposiums on various subjects. In 1973 the topic was environmental control, last year it was sampling. This year, the symposium was on spectroscopy and computerization. It was held in the Analytical Centre from 20 to 31 October and was attended by members of Alcan laboratories from nine different countries in addition to Canada. Universities, Federal government and equipment manufacturers were also represented as active participants through presentation of technical papers. The symposium proved to be a highly profitable communication medium from both technical and personal standpoints. Not only did it permit to disseminate information on the newest analytical techniques, but it also led to a better understanding of individual technical problems and to closer personal contact among the participants.

A push of a button by Mr. G. Patry, and the Princeton Polarographic Analyser is ready to sweep through the selected potential range, to determine in succession several metals.

ULTRA CARBON CORPORATION is proud to be of service to FACSS, by giving you an opportunity to plan ahead for this very important international symposium.

ANNOUNCEMENT AND CALL FOR PAPERS

THIRD ANNUAL MEETING FEDERATION OF ANALYTICAL CHEMISTRY AND SPECTROSCOPY SOCIETIES

Co-sponsored by
XIX Colloquium Spectroscopicum Internationale
and Sixth International Conference on Atomic Spectroscopy

November 15 - 19, 1976 • Philadelphia, Pennsylvania USA

This year, 1975, marks Ultra Carbon's 30th Anniversary. For 20 of those years, through the pages of ARCS & SPARKS, Ultra has participated in and aided in the advancement of many local and national organizations. The first issue in 1955 was to publicize the program and exhibits of the 6th Annual Pittsburgh Conference.

It has been, and will continue to be, the aim of Ultra Carbon to assist in any legitimate endeavor which has the purpose of bringing together our scientific community to share their knowledge with others, both here and abroad.

FACSS is a dream realized for a group of dedicated people who symbolize the high calibre of the societies which they represent. The future of FACSS is assured.

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the graphite specialists

26th Pittsburgh Conference

Professor Fred W. McLafferty (left) of Cornell University is presented with the 1975 SSP Award by Gerald L. Carlson, Chairman of the Spectroscopy Society of Pittsburgh. Professor McLafferty received the award for his outstanding contributions to the science of mass spectroscopy. In addition to the beautiful plaque the award carries a $1,000 honorarium.

First Lady of the Pittsburgh Conference, Dr. Mary Warga, discusses business with Alex Kavoulakis, Conference Vice President. Dr. Warga organized the first spectroscopy conference in Pittsburgh, a meeting which later led to the first general Pittsburgh Conference in 1950.

The Coblentz Award is given to a molecular spectroscopist under 36 years of age who contributes significantly in an area of this science. For his investigations and reports in Raman Spectroscopy, Professor Bernard J. Bulkin (left), Hunter College, receives the award from Coblentz Society President, Dr. James R. Durig.

Recipient of the 1975 Hasler Award, Professor Kai Siegbahn (right) Uppsala University, Uppsala, Sweden, receives the award from Charles J. McCafferty, President of the 1975 Conference. Professor Siegbahn received the award for his pioneering work in the development of electron spectroscopy for chemical analysis (ESCA).

Cleveland, Ohio — March 3-7, 1975

The Conference officially opens! Monday morning at 9:00 Mayor Ralph Perk of Cleveland cuts the ribbon. Left to right, Alex Kavoulakis, Conference Vice President, Mayor Perk and 1975 Conference President Charles McCafferty.

1975 Conference President, Charles J. McCafferty and wife, Irene, welcome their guests at the President's Reception on Wednesday evening.

Dr. R. W. Roberts, Director of the National Bureau of Standards, during his address "The Other Face of the Measurement Base" given at the symposium, "The Role of Standards in Accurate Measurements."

John F. Jackovitz (left) 1975 Publicity Chairman and Richard S. Danchik, Chairman-Elect, roll out the official welcome to the 1975 Pittsburgh Conference.

Candids . . .

Dr. Mary Warga and Dr. Ed. Hodge.

R. Michaelis, National Bureau of Standards, Al DeLeonardi, Kennecott Refining, Bourdon Scribner, National Bureau of Standards and Ted Linde, Bethlehem Steel.

Albert de Leonardi, (left) Chief Chemist, Kennecott Refining, Baltimore, is presented with the 1974 ASTM SCRIBNER AWARD by Bourdon Scribner at the E-2 Committee Meeting.

On the left, Dr. A.H.C.P. Gillieson receives his Honorary Membership to the ASTM E-2 Committee for past services to this committee from Les Mason, Dept. of Energy, Mines and Resources, Ottawa.

Joe Goleb, U.S. Treasury Dept., Jae Hwang, Instrumentation Labs and T. Rains, National Bureau of Standards.

26th Pittsburgh Conference

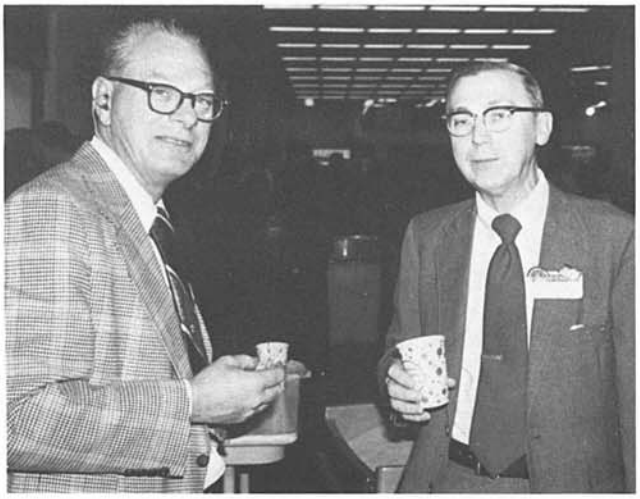
March 3-7, 1975

Bob Ratallack, PPG Industries, Walt Edgell, Purdue University, Bob O'Connell and Ron Stewart, both of Universal Oil Products.

Richard Sanzolone, Jim Seeley, both of the U.S. Geological Survey, and Del Hughes, Ultra Carbon.

M. Jursik, Gordon Blank, both of National Lead, Ohio and Bob Anthony, Ultra Carbon.

W. R. Kennedy, American Cast Iron & Pipe and Oscar Fritzshe, Armco Steel Research.



Carl Leistner, Ultra Carbon, Sabina Slavin, Perkin-Elmer and Dr. Jack Hurwitz, U.S. Steel Research.

Fifth International Conference

Monash University, Clayton, Victoria, Australia

Photos taken by Frank Lugton, CSIRO Division of Chemical Physics

Book of Abstracts Available

Books of abstracts of all plenary and contributed papers are available at a cost of Aust. $7.50, postage paid. Write:

The Australian Academy of Science
P.O. Box 216
Civic Square
Canberra 2608, Australia

From left to right: Max Greaves (Convener of the Exhibition Sub-Committee), Kurt Laqua and Paul Schmider, both of West Germany, and John Willis (Secretary of the Conference).

Some of the Plenary Lecturers. From left to right: Drs. Peter Hannaford (Australia), Nicolo Omenetto (Italy), Alan Walsh (Australia), Douglas Segar, Norman Tolk, Gary Hieftje (all of the U.S.A.).

Dr. Alan Walsh (left), Chairman of the Conference, has a cup of coffee with Sir Ian Wark. Sir Ian, now retired, was Chief of the CSIRO Division of Industrial Chemistry, where Dr. Walsh did his first work on atomic absorption spectroscopy in the early 1950's.

Committee member Jack Sullivan (left) with Pat Butler, of South Africa.

on Atomic Spectroscopy August 25 - 29, 1975

Sponsored by the Australian Academy of Science

Professor and Mrs. C. Th. J. Alkemade (Netherlands) examine a display of diffraction gratings ruled at the CSIRO Division of Chemical Physics. In the background, facing the camera, Professor Ray Woodriff, U.S.A.

Left to right: Professor H. C. Bolton, of the Physics Department, Monash University, with Douglas Segar (U.S.A.).

Dr. Norman S. Ham (left), Deputy Chairman of the Conference, talks to Drs. Singhal (centre) and Sinha, both of the Fertilizer Corporation of India.

Left to right: Walter Slavin (U.S.A.), Peter Sadesky (Australia), Sabina Slavin and Alan Walsh.

The following were invited Discussion Leaders at the Conference:

C. Th. J. Alkemade (Netherlands)
M. D. Amos (Australia)
G. Baudin (France)
C. B. Belcher (Australia)
L. R. P. Butler (South Africa)
D. J. David (Australia)
V. A. Fassel (U.S.A.)
J. A. Goleb (U.S.A.)
S. Greenfield (U.K.)
G. F. Kirkbright (U.K.)
R. N. Kniseley (U.S.A.)
S. R. Koirtyohann (U.S.A.)
T. C. Rains (U.S.A.)
R. K. Skogerboe (U.S.A.)
J. V. Sullivan (Australia)
J. C. Van Loon (Canada)

Candids FACSS SECOND NATIONAL

(Federation of Analytical Chemistry

G.H. Hieftje, Indiana University, Peter Keliher, Villanova University and Stan Crouch, Michigan State University.

Alvin Bober, U.S. Customs Laboratory, Mrs. Bober and G. Day, Elderado Nuclear.

Professor David F. Boltz (left) Wayne State University was recipient of the ANACHEM AWARD. The presentation was made by John Cramer, BASF-Wyndotte Corporation.

The well known Indianapolis entertainer, Ken Jagger at the Hammond Organ during the Conference Mixer. Mr. Jagger's appearance was sponsored by Ultra Carbon Corporation.

Roby Hott, U.S. Naval Avionics and R. Woodriff, Montana State University.

L. Casper (left) Spex Industries, presenting the WILLIAM F. MEGGERS AWARD to John A. Ferraro (center) and Louis J. Basil, both of Argonne National Laboratories.

Glen West, Plasma-Therm, R.M. Barnes, University of Massachusetts and Ron Deferrari, Plasma-Therm.

and Spectroscopy Societies)

Ken Aldous, N.Y. State Dept. of Health, Peter Keliher, Villanova University, D. Mitchell, N.Y. State Dept. of Health, 2nd from right, and T. H. Risby, Penn State University.

G.T. Day, Elderado Nuclear, John Gilfrich, Naval Research Laboratory and D. Jones, Rigaku/USA.

Mike Parsons, Arizona State U. and Tom Lanigan, Plenum Publishing Corp.

Professor Peter Zuman (left) Clarkson College of Technology recipient of the BENEDETTI-PICHLER AWARD receiving the plaque from Dr. Peter Kelihery, Villanova University.

Gene Levy, Chemical Data Systems.

Marvin Margoshes, Technicon Instruments and Joe Dunn, Jarrell-Ash Co.

Dr. Michaelson, Tech Research International, Ray Vogel, University of Illinois and J. Langmyher, University of Oslo, Oslo, Norway.

22nd Spectroscopy Symposium

MONTREAL, QUEBEC, CANADA October 26-29, 1975

M. Trudel and Z. Katzendorfer, both of the Ministry of Natural Resources, Quebec.

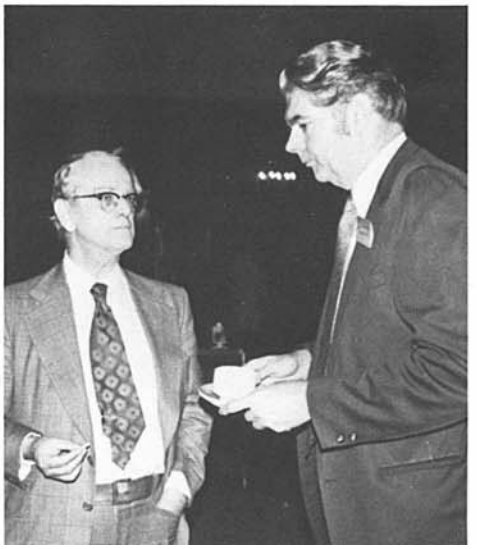
C. Craid, Sherwin-Williams, R. Burley and G. Woolertin both of Northern Electric.

J. Djandjikian, Steinberg Industries, J. Fresco, McGill University and D. Emmerson, Editor of Chemistry in Canada and R. Zienius, Concordia University.

The Organizing Committee l. to r. T.R. Dunn, Sec.-Treas., CN Technical Research Center, P. J. Skerry, Chairman, Northern Electric Co., and C. Ratzkowski, Program, Hoffman-LaRoche.

A.W. Wolkoff, Canada Center for Inland Waters and R.C. Lao, Air Pollution Directorate.

M. Boudreau, IL International Canada, D.S. Russell and R. Debeka, both of National Research Council, Canada.



Dr. A. Gillieson, A.C.L.A. and George Peterson, Perkin-Elmer USA.

ULTRA CARBON REPRESENTED IN EASTERN EUROPEAN COUNTRIES

Ultra Carbon Corporation, Bay City, Michigan recently announced the appointment of ICD EXPORT CORPORATION, New York City, as their representative in Russia, Poland, Czechoslovakia, Hungary, Romania, Yugoslavia and Bulgaria.

ICD will handle sales of analytical graphite laboratory stock and custom products as well as custom graphite fabrications for the electronics and other related industries which use graphite components in their manufacturing processes.

With the appointment of ICD, Ultra Carbon now has sales representatives in 14 foreign countries. The past five years have seen a rapidly increasing overseas market for Ultra's laboratory and non-lab graphite fabrication services. At present the major portion of overseas sales are handled directly from their plant in Bay City. ■

NEW LITERATURE AVAILABLE

A new six-page, two-color brochure describing Ultra's facilities and services is now available.

The new brochure describes their special graphite treatments and suggested applications for PT-101, pyrolytic graphite coated graphite, PT-333, silicon carbide graphite conversion and PT-444, silicon carbide coated graphite, developed expressly for epitaxial susceptor use. Ultra graphite purity is described along with stock analytical graphite laboratory products. Most stock laboratory products are available on 24 hour delivery from receipt of order.

Special emphasis is placed on Ultra's unique custom service facility which offers personalized custom service for both the laboratory user and the electronics manufacturer and other areas of industry where graphite is required in production processing. Assistance with designs and improvements and refinements of designs already in use is also detailed as a part of their specialized custom service. If you would like a copy of this facilities and capabilities brochure, write: Ultra Carbon Corporation, Att: M. Tamblyn, Adv. Coordinator, P.O. Box 747, Bay City, Michigan 48706 or call 517-894-2911. ■

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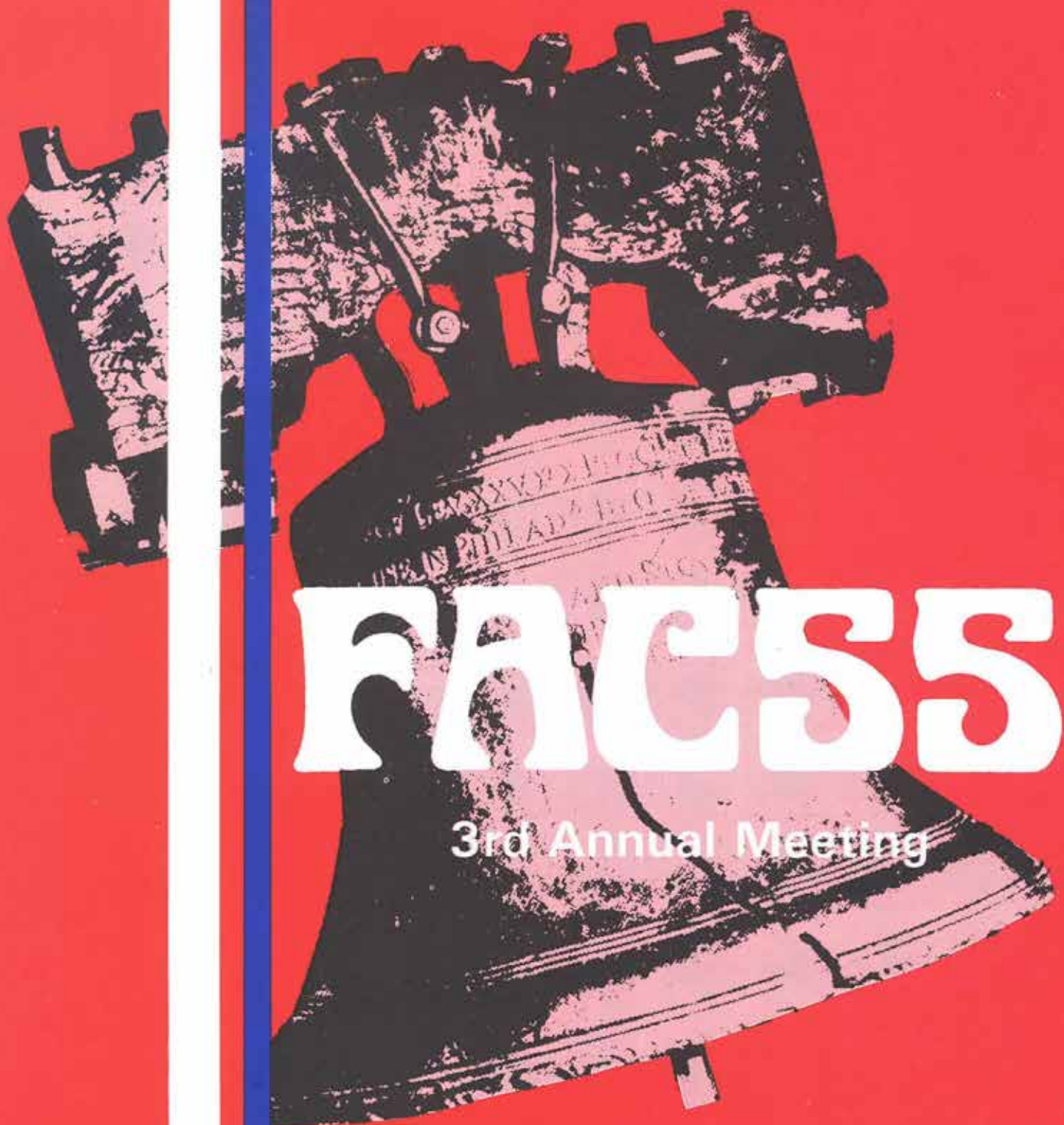
In the bicentennial year . . .
In the bicentennial city . . .



FACSS

3rd Annual Meeting

November 15-19, 1976
Civic Center
Philadelphia, Pa.

Co-sponsored with: XIX Colloquium Spectroscopicum Internationale and Sixth International Conference of Atomic Spectroscopy

ANNOUNCEMENT AND CALL FOR PAPERS

THIRD ANNUAL MEETING
FEDERATION OF ANALYTICAL CHEMISTRY
AND SPECTROSCOPY SOCIETIES

Co-sponsored by
XIX Colloquium Spectroscopicum Internationale
and
Sixth International Conference on
Atomic Spectroscopy

November 15-19, 1976 **Philadelphia, Pennsylvania USA**

SCIENTIFIC PROGRAM

The scientific program will include Award Symposia, Plenary Lectures and numerous symposia on specific sub-topics in Analytical Chemistry and Spectroscopy, in particular:

Spectroscopy, General (Emission, Absorption, Fluorescence)
Molecular Spectroscopy (IR, UV, Visible, Raman)
Magnetic Resonance
Mass Spectroscopy
Electron and X-ray Spectroscopy, X-ray Diffraction
Chemical Analysis for Elements
Microchemical Analysis
Microscopy (Optical, Electron, Microprobe)
Electrochemical Analysis
Chromatography

In addition, specific symposia being considered are: Trends in Teaching Analytical Chemistry, Computers in Analytical Chemistry, Pattern Recognition, Forensic Chemistry, Food Chemistry, Air and/or Waste Monitoring, Process Analysis, Instrument Calibration and Standards (methods and materials). A large laboratory equipment exhibition and technical workshops will be coordinated with the scientific program.

CALL FOR PAPERS

Both invited and submitted papers will be considered for the program, before May 1, 1976, the closing date. A 250-300 word abstract in English must be sent in triplicate for review to:

Dr. Edward C. Dunlop
Program Chairman, FACSS 1976
DuPont Experimental Station
Wilmington, Delaware 19898 USA

Upon acceptance of a paper, a long abstract of 750-1000 words will be required for publication and distribution at the meeting.

LANGUAGE

The official language of this meeting will be English, but papers will be accepted in English, French, or German.

GENERAL INFORMATION

This meeting will be held at the Civic Center in the historic city of Philadelphia in the bicentennial year of 1976. A program of social and cultural events, travel, and tourist arrangements will be scheduled for your delight.

For further information, or if you plan to attend this meeting, please complete the enclosed form and forward to:

Dr. Edward G. Brame, Jr.
General Chairman, FACSS 1976
DuPont Experimental Station
Wilmington, Delaware 19898 USA

ANNOUNCEMENT AND CALL FOR PAPERS

THIRD ANNUAL MEETING
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Atomic Spectroscopy

FACSS

FACSS

November 15 - 19, 1976

Philadelphia, Pennsylvania USA

FORM - FORMULAIRE - FORMULAR

Mail to:
à renvoyer à l'adresse suivante:
an die folgende Adresse zurücksenden:

(type, or block letters)
(à remplir à la machine à écrire ou en lettres majuscules)
(bitte mit Maschinenschrift oder in Druckbuchstaben ausfüllen)

Dr. Edward G. Brame, Jr.
General Chairman, FACSS 1976
DuPont Experimental Station
Wilmington, Delaware 19898 USA

Surname, Nom, Name _____

First Name, Prénom, Vorname _____

Address, Adresse, Adresse _____

Firm or Institution, Firme ou Établissement, Firma oder Institut _____

_____

1. I would like to receive further information. * ☐
   Je désire recevoir des informations additionels.
   Ich wünsche weitere Auskünfte.

2. I think I will be able to attend the meeting. * ☐
   J'espère pouvoir participer au Congrès.
   Ich denke, am Kongress teilzunehmen.

3. I wish to present a paper. * ☐
   Je compte présenter une communication.
   Ich beabsichtige, einen Diskussionsvortrag zu halten.

4. I wish to present an exhibit. * ☐
   Je compte participer à l'exposition d'instruments.
   Ich beabsichtige, an der Geräteausstellung teilzunehmen.

*Cross in box(es) of your choice.
*Inscrire une croix en cas de réponse positive.
*Im Falle einer positiven Antwort bitte ankreuzen.

Date: _____ Signature: _____
Datum: Unterschrift:

Dr. Edward G. Brame, Jr.
General Chairman, FACSS 1976
DuPont Experimental Station
Wilmington, Delaware 19898 USA

ANKÜNDIGUNG UND AUFRUF FÜR VORTRÄGE

FACSS

Dritter Jährlicher Kongress
Federation of Analytical Chemistry and Spectroscopy Societies
Gemeinschaftlich veranstaltet mit dem
XIX Colloquium Spectroscopicum Internationale,
und der Sechsten Internationalen Konferenz über
Atomische Spektroskopie

FACSS

15. - 19. November 1976 — Philadelphia, Pennsylvania USA

WISSENSCHAFTLICHES PROGRAMM

Das wissenschaftliche Programm schliesst Ehrensitzungen, Plenarvorlesungen, und zahlreiche Sitzungen über spezifische Fachgebiete der analytischen Chemie und Spektroskopie ein, wie z.B.:

Allgemeine Spektroskopie (Emission, Absorption, Fluoreszenz),
Molekular-Spektroskopie (IR, UV, sichtbares Gebiet, Raman),
Magnetische Resonanz,
Massenspektroskopie,
Elektronen- u. Röntgenspektroskopie, und Röntgenbeugung,
Chemische Bestimmung der Elemente,
Mikrochemische Analyse,
Mikroskopie (optisch, Elektronenmikroskopie, Mikrosonde),
Elektrochemische Analyse,
Chromatographie.

Des Weiteren werden die folgenden spezifischen Sitzungen in Anbetracht gezogen: Tendenzen im Unterricht der analytischen Chemie, Rechenmaschinen in der analytischen Chemie, Pattern recognition, Forensische Chemie, Nahrungsmittelchemie, Luft- u. Abwasserkontrolle, Prozessanalyse, Instrumenteichung, und Standards (Methoden und Materiale).

Eine umfangreiche Ausstellung von Laborgeräten u. technische Werktagungen werden mit dem wissenschaftlichen Programm koordiniert werden.

AUFRUF FÜR VORTRÄGE

Sowohl erbetene wie beigetragene Vorträge müssen bis 1. Mai 1976 einlaufen. Eine kurze Zusammenfassung von 250 bis 300 Worten in Englisch muss in dreifacher Ausführung an

Dr. Edward C. Dunlop
Program Chairman, FACSS 1976
DuPont Experimental Station
Wilmington, Delaware 19898, USA

zugesandt werden. Nach Annahme eines Vorträges wird eine ausführlichere Zusammenfassung, von 750 bis 1000 Worten, für Veröffentlichung und Verteilung zur Zeit des Vorträges erforderlich.

TAGUNGSSPRACHEN

Die offizielle Sprache des Kongresses ist Englisch. Jedoch können Vorträge in Englisch, Deutsch oder Französisch gehalten werden.

ALLGEMEINE AUSKUNFTE

Der Kongress wird im Civic Center in der historischen Stadt Philadelphia, in 1976, dem 200. Jahre der Amerikanischen Unabhängigkeitserklärung, stattfinden. Ein Programm gesellschaftlicher und kultureller Ereignisse, Reisen, und touristischer Anbietungen wird für Ihre Unterhaltung zusammengestellt.

Für weitere Information oder Teilnahmeranmeldung werden Sie gebeten, das beiliegende Formular ausgefüllt und die folgende Adresse zu senden:

Dr. Edward G. Brame, Jr.
General Chairman, FACSS 1976
DuPont Experimental Station
Wilmington, Delaware 19898 USA

ANNONCEMENT ET SOLICITATION POUR CONTRIBUTIONS

FACSS

FACSS

TROISIÈME CONGRÈS ANNUEL
SOUS LE PATRONNAGE DE LA
FEDERATION OF ANALYTICAL CHEMISTRY
AND SPECTROSCOPY SOCIETIES (FACSS)
du
XIX COLLOQUIUM SPECTROSCOPICUM INTERNATIONALE
et de la
6me CONFÉRENCE INTERNATIONALE DE SPECTROSCOPIE ATOMIQUE

Novembre 15-19, 1976 **Philadelphia, Pennsylvania USA**

PROGRAMME SCIENTIFIQUE

Le programme scientifique comprendra la présentation des prix, les conférences plénières et de nombreuses symposia sur des sujets spécifiques en chimie analytique et spectroscopie, et particulièrement sur les sujets de spectroscopie générale (émission, absorption, fluorescence) spectroscopie moléculaire (infrarouge, ultraviolet, visible, Raman), résonance magnétique, spectroscopie de masse, spectroscopie électronique et de rayons X et diffraction de rayons X, analyse chimique des éléments, analyse microchimique, microscopie (optique, électronique et microsonde), analyse électrochimique, et chromatographie.

En plus de ce programme, un nombre de symposia spécifiques sont sous considération: Tendences dans l'enseignement de la chimie analytique, applications des ordinateurs en chimie analytique, identification des structures d'images (pattern recognition), chimie légale, chimie alimentaire, contrôle de la pureté de l'air et des déchets, analyses industrielles, étalonage des instruments et étalons (méthodes et matériaux). Une grande exposition d'instruments de laboratoire ainsi que des groupes de travail seront organisées en parallèle avec les sessions scientifiques.

CONTRIBUTIONS

Les résumés en anglais de 250 à 300 mots des conférences plénières ainsi que celles des contributions courantes, doivent être envoyés en triple exemplaires avant le 1er mai, 1976 au

Dr. Edward C. Dunlop
Program Chairman, FACSS 1976
DuPont Experimental Station
Wilmington, Delaware 19898 USA

Après l'acceptation de la contribution, un résumé plus détaillé, de 750 à 1000 mots, sera necessaire. Il sera publié et distribué à la conférence.

LANGUES

La langue officielle de la conférence est l'anglais, mais les présentations seront acceptés aussi bien en français ou allemand.

INFORMATIONS GÉNÉRALES

Le Congrès sera tenu au "Civic Center" de la ville historique de Philadelphia, pendant l'année de la commémoration bicentennaire de l'indépendance américaine, 1976. Un programme d'activitées sociales et culturelles est pourvu pour la conférence, y comprit des excursions et programmes touristiques.

Pour information supplémentaire, et pour inscription, vous êtes prié de compléter les formes ci-inclues et de les faire parvenir au

Dr. Edward G. Brame, Jr.
General Chairman, FACSS 1976
DuPont Experimental Station
Wilmington, Delaware 19898 USA

ABSTRACT: 250 to 300 words and include three copies on plain white paper. Abstracts must be received before May 1, 1976 to be reviewed for consideration. Projectors for 2 x 2 slides will be available. This abstract must be in English.

_____

(Title of Paper)

_____

(Author) (Organization) (Address) (Zip)

_____

(Author) (Organization) (Address) (Zip)

_____

(Author) (Organization) (Address) (Zip)

PLEASE Designate (*) the speaker and the person to contact for further details.

RETURN TO

Dr. Edward C. Dunlop
DuPont Experimental Station
Wilmington, Delaware 19898
USA

Audio-Visual Requirements: _____

Planned Date(s) of Attendance at Meeting: _____

THIRD ANNUAL MEETING
FEDERATION OF ANALYTICAL CHEMISTRY
AND SPECTROSCOPY SOCIETIES
Co-sponsored by
XIX Colloquium Spectroscopicum Internationale
and
Sixth International Conference
on Atomic Spectroscopy
November 15-19, 1976
Philadelphia, Pennsylvania USA

Hal Ferrari, Publicity Chairman
Lederle Laboratories
Pearl River, New York 10965 USA

FEDERATION OF ANALYTICAL CHEMISTRY AND SPECTROSCOPY SOCIETIES SPONSORING ORGANIZATIONS

American Microchemical Society

Analysis Instrumentation Division, Instrument Society of America

Association of Analytical Chemists, Inc. (ANACHEM)

Division of Analytical Chemistry, American Chemistry Society

Eastern Analytical Symposium

Chicago Session, SAS (Mid-America Conference)

Society for Applied Spectroscopy