

# C.M.O.S. NEWSLETTER

OCTOBER 1977

NUMBER 3

## PRESIDENT'S REPORT

As was noted in the last issue, Merton Horita of the Pacific Weather Centre, Vancouver, is replacing W. S. (Bill) Creswick of the Canadian Meteorological Centre, Dorval, as Editor of the CMOS Newsletter. He has now assumed his new responsibilities and on behalf of Council we welcome him and wish him well. It is fortunate that he has such a well developed vehicle upon which to build and for this we send thanks to the retiring Editor. Bill Creswick, in charge since its inception in 1973, has played a major role in shaping Newsletter into the useful information sheet that it is now. His selection by the executive of the day was an excellent choice and we thank Bill for the time and effort he has given to the job.

In this first message, we also wish to welcome into our midst the Oceanographers who now as a professional group are an integral part of the Canadian Meteorological and Oceanographic Society. In this context, it may be useful to comment that the purpose of Newsletter is to provide a ready means of communication within the Society and that it may be so used by professional groups within the Society, particularly when the information may be of some interest to other members. It is the intention that Newsletter be published regularly, at least six times a year, and that its pages be used to advantage. Our new Editor has ideas of how this may be done and we are sure he would welcome others from interested members of the Society.

While it was suggested at Winnipeg that this would be a year of consolidation for the Society, it certainly will not be one without change. Already a new Editor for Atmosphere-Ocean has been appointed, Dr. Tim Oke of the University of British Columbia, as has a new Chairman to the Ad Hoc Committee on the Standards of Meteorological Consulting in Canada, Dr. D. P. McIntyre formerly Director General, Atmospheric Research Directorate, Atmospheric Environment Service. Through Newsletter, we plan to keep you informed on changes such as these and on the work that they and others are doing on your behalf.

Finally, a brief word of thanks to those members who worked hard and well to bring about the changes to the Society that were accepted at the 11th Congress in Winnipeg in June. That the motions were so well received was not only a tribute to the Meteorologists and Oceanographers who developed and promoted them, but is also an excellent indicator for the future of the Society.

## EDITOR'S COMMENTS

This is the first Newsletter under the banner C.M.O.S. and also my first issue as Editor. As mentioned in the President's report, Bill Creswick,

the former Editor, has put our Newsletter on a solid footing upon which we may build. Hopefully, our Newsletter will be used to report timely news from all branches of our Society.

I welcome letters to the Editor. Perhaps by this means our membership may express their personal opinions on controversial matters, or simply raise issues. One area which could be discussed is the problem of acquiring more Meteorologists, particularly the Forecasters, into our Society.

I also solicit suggestions on the content and format of our Newsletter.

Editor.

LETTERS TO THE EDITOR

This Section is provided for your comments and opinions for inclusion in our December Newsletter. Please forward your letters before November 4.

Editor.

NEWS FROM YOUR NATIONAL EXECUTIVE (as of Aug. 30/77)

President	- Ken Harry	- Consultant (A.E.S.-retired)
Vice President	- Ron Burling	- Institute of Oceanography U.B.C.
Treasurer	- Gary Schaefer	- A.E.S. - B. C.
Recording Secretary	- Peter Sagert	- Air Engineering Division, Van.
Corresponding Secretary	- Brian Sagar	- Department of Geography Simon Fraser University Burnaby, B. C. V5A 1S6 (604) 291-3327

1. First Executive Meeting of the C.M.O.S. was held on June 16, 1977.

- a) Appointment of Mert Horita as Editor of Newsletter;
- b) Appointment of Tim Oke as Editor of Atmosphere-Ocean;
- c) Oceanographic division of C.M.S. disbanded;
- d) Discussed obtaining financial assistance from O.A.S.;
- e) CMS booklet should be redirected due to new status of CM & OS;
- f) Possibility of 1979 Congress in Victoria;
- g) Reprinting of Constitution and By-Laws deferred to the fall.

2. Second Executive Meeting of the C.M.O.S. scheduled for September 14, 1977.

NEWS FROM YOUR CENTERS (as of September 1/77)

Vancouver:      President - Don Faulkner  
                        Vice President - Mert Horita  
                        Sec. Treasurer - Vello Puss

Video-tape entitled "A Forecaster's Day" is being prepared. It follows Ike Baerg, a Meteorologist, through a twelve-hour dayshift at the Pacific Weather Centre. Preliminary screening will be held in the week of September 5 at the Executive Meeting.

Alberta:      President - Bob Humphrey  
                  Vice President - L. Wojtiw  
                  Sec. Treasurer - G. Lunn

Executive Meeting to be held early in September to discuss fall program. Also up for discussion will be the possibility of preparing an exhibit for the Strathcona Science Park in Edmonton.

Regina:      President - Alex Paul  
                  Sec. Treasurer - P. J. O'Brien

General Meeting to be held in September. Saskatoon Chapter's Corresponding Secretary, John Maybank, will be resigning this month and a new Corresponding Secretary will be elected.

Winnipeg:      President - Mike Shewel  
                  Vice President - Doris Siemieniuk  
                  Sec. Treasurer - Pat Murray

Mike Shewel is acting as interim President and will be stepping down in September.

Toronto:      President - Nancy Waller  
                  Treasurer - Fred Conway  
                  Secretary - Isaac Savdie

The Executive of the Toronto Centre has had a couple of meetings in August and information on the fall and winter program should be forthcoming shortly. Nancy Waller has sent a short note on a problem which has arisen at the Ontario Science Centre. It is of concern to the Toronto Centre - (see News and Notes for Nancy's note).

Ottawa:      President - Don Boyd  
                  Vice President - Neil Campbell  
                  Sec. Treasurer - Ken Morris

Ottawa Centre recessed for summer. History of Ottawa Centre sent to Editor (see News and Notes).

Montreal:      President - Conrad East  
                  Secretary - Gilles Desautels  
                  Treasurer - Serge Roy

First Executive Meeting scheduled for early September to plan fall program.

Quebec:      President - Gaston Paulin  
                  Vice President - Raymond Poire  
                  Sec. Treasurer - Guy Bergeron

Executive Meeting to be held early in September. Quebec Centre has built a mobile meteorological station. Description of this unit is reported in the News and Notes section.

Halifax:

President - R. Shaw  
Secretary - John Dublin  
Treasurer - Dave Dockendorf

Executive Meeting held August 29 to plan fall program. Also under discussion will be the preparation of about 10 identical educational kits to assist Junior High School teachers in teaching meteorology. The plan is to make these kits available to the schools through the Nova Scotia museums.

NEWS AND NOTES

(Copy of letter to Dr. Collin from C.M.O.S. President Ken Harry).

Dear Dr. Collin:

We have received notice of your appointment as Assistant Deputy Minister, Atmospheric Environment Service and on behalf of the Canadian Meteorological and Oceanographic Society I am writing to congratulate you on your appointment and to wish you well in your new work. Speaking not only for many of the meteorologists and oceanographers in Canada but also personally as a meteorologist who spent many years in the Atmospheric Environment Service, I can say how welcome the news is that a man of your ability, energy and experience is now the head of Canada's national weather service. Considering the steps taken recently within the Society, it seems quite appropriate that an oceanographer is to direct the activities of the Atmospheric Environment Service.

Recalling the excellent relations that for many years have existed between Service and Society, we look forward to maintaining these as the members of both organizations pursue their particular interests in meteorology and oceanography.

Again may we congratulate you.

Call for Assistance

Attention retirees: The Ontario Region has had to remove their EG employed full time at the Ontario Science Centre. The Centre is quite concerned as the weather module, consisting of a film and short talk, is one of their most popular. We were wondering whether any retired meteorologists and technicians would be interested in some part time work (4 hours a day, preferably 10:00 A.M. - 2:00 P.M., the Centre's busy period), particularly in the fall and winter months when there are tours of school children. If you are interested, please get in touch with Nancy Waller for further information.

(Nancy can be reached at (416) 667-4607 Ed.)

Nouvelles de la Societe de Meteorologie de Quebec

par Gaston Paulin, président

L'un des projets de la société de Météorologie de Québec a été réalisé durant la saison dernière. En effet, une station météorologique mobile a

NEWS AND NOTES (continued)

éte montée et est à la disposition des organismes qui en font la demande.

Elle comprend un abri météorologique, des thermomètres à maximum et à minimum, un psychromètre, un pluviomètre, un pluviographe à augets basculeurs, un barographe, un héliographe et un anémomètre. La station est installée dans une petite remorque servant à son transport.

La station a été prêtée au camp d'été du service de Loisirs des jeunes de Ville Vanier durant le mois de juillet. La station mobile a permis à plus de 350 jeunes de s'initier aux principes de base météorologiques qui, de l'avis des dirigeants, sont assez méconnus parmi les jeunes. Cette première nous a semblé un succès et la société de Météorologie de Québec continuera dans le futur d'offrir la station à tout groupe ou organisme intéressé, il suffira d'en faire la demande.

History of the Ottawa Centre

The roots of the Ottawa Centre, CMS go back to a meeting at the RA Centre on 19 January 1966, when a group of interested meteorologists located in Ottawa heard an address by Mr. J. R. Noble and decided to proceed with the information of the Ottawa Centre of the Canadian Branch of the Royal Meteorological Society (RMS). This was just a few months prior to the last Congress of the RMS Canadian Branch, held at Sherbrooke, Quebec, when the decision was made to dissolve that organization and to form the CMS.

The management of the Ottawa Centre in this first year of operation was in the capable hands of Messrs. G. W. Robertson, W. E. Cooper and M. S. Webb. These gentlemen had the distinction of forming, simultaneously, the first and only executive of the Ottawa Centre under the RMS flag, and becoming the first executive of the Centre in its new CMS colours. Within a few months of this organization change, the Ottawa Centre had the privilege of hosting the first annual congress of the CMS which was held at Carleton University from 24-26 May 1967.

Members of the executive from the setting up of the Centre to the present are given below:

YEAR	CHAIRMAN	VICE CHAIRMAN	SEC/TREASURER	OTHER
1966-67	G.W. ROBERTSON	W.E. COOPER	M.S. WEBB	*
1967-68	H.V. TUCKER	D.J. WRIGHT	M.S. WEBB	
1968-69	D.J. WRIGHT	D.R.F. TAYLOR	S. EDEY	
1969-70	L. MACHATTIE	W.F. GANONG	S. EDEY	
1970-71	W.F. GANONG	R.A. PARRY	S. EDEY	
1971-72	R.A. PARRY	K.H. CLARKE	H.J. WILSON	
1972-73	H.J. WILSON	C.J. STEAD	A.P. BENTON	
1973-74	C.J. STEAD	D.G. McCORMICK	A.P. BENTON	
1974-75	K.H. CLARKE	D.G. McCORMICK	W.B. WATSON	A.D. RUTKUS (1)
1975-76	W.B. WATSON	A.D. RUTKUS	H.R. ARMSTRONG	C. MacNEIL (1)
1976-77	H.H. WATSON	H.R. ARMSTRONG	K.C. MORRIS	N.J. CAMPBELL(2)

\* See next page for notes.

NOTES: \*Each Executive also includes the previous year's Chairman, as Past Chairman.

- (1) Public Information.
- (2) Oceanographic Division Representative.

I am indebted to the following for helping to assemble the information given above: W.B. Watson, D.J. Wright, H.V. Tucker, M.K. Thomas and M.S. Webb.

A file has been established (to be held by the Secretary-Treasurer) of notices of meetings held by the Centre since its formation. Some notices are missing, but the search for these will continue.

H. H. Watson.

ANNOUNCEMENTS

CALL FOR PAPERS - TWELFTH ANNUAL CONGRESS

The Twelfth Annual Congress and Annual General Meeting of the Canadian Meteorological and Oceanographic Society will be held at the University of Western Ontario, London, Ontario, at the end of May 1978. The theme of the opening session will be "Energy, the Meteorologist and the Oceanographer" as presented by invited and contributed papers. Subsequent sessions will deal with contributed papers on meteorology and oceanography, including sessions of common interest, according to the papers submitted.

Titles and definite abstracts (less than 300 words) should reach the program committee by 1 February 1978. Papers on meteorology should be sent to Dr. D.R. Hay, Department of Physics, University of Western Ontario, London, Ontario, N6A 3K7. Papers on oceanography should be sent to Dr. Farrell M. Boyce, Canada Centre for Inland Waters, 867 Lakeshore Road, Burlington, Ontario, L7R 4A6.

24th Canadian Spectroscopy Symposium (Oct. 23-26, 1977)

See following pages. Note the joint session with CMOS. Ed.

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MH/gt

# PROGRAMME

## 24th CANADIAN SPECTROSCOPY SYMPOSIUM

### 24ième SYMPOSIUM CANADIEN DE SPECTROSCOPIE



The Government Conference Centre / Le Centre de Conférence du Gouvernement

Ottawa, Canada, October 23-26, 1977

#### ATOMIC AND ANALYTICAL SPECTROSCOPY

##### ANALYTICAL I

###### Monday Morning

Chairman: D. A. Stiles  
Co-Chairman and Discussion  
Leader: D. S. Gamble

*Metal Specific Detectors for Chemical Speciation.* Jon C. Van Loon. (INVITED PAPER)

*Chemical Speciation.* R. D. Guy, C. L. Chakrabarti, K. S. Subramanian, and J. E. Suras. (INVITED PAPER)

*Graphite Furnace Interferences.* W. Slavin and D. C. Manning.

*Simultaneous Two-Element Determinations by Atomic Absorption Spectroscopy.* R. H. Emmel, S. B. Smith, Jr. and R. L. Stux.

*The Use of Argon Jet on an Atomic Absorption Instrument.* A. Turek, D. Mitchell, D. Quirt and C. Riddle.

*The Use of Molecular Emission Cavity Analysis (MECA) in the Analytical Determination of Halogen-Containing Pesticides.* M. H. K. Abdel-Kader, M. E. Peach and D. A. Stiles

##### ANALYTICAL II

###### Monday Afternoon

Chairman: J. C. Van Loon  
Co-Chairman and Discussion  
Leader: S. R. Koirtyohann

*Herzberg Award Address. Electrothermal Atomization in Graphite Furnace Atomic Absorption Spectrometry.* C. L. Chakrabarti.

*Electrodeposition of Heavy Metals in Graphite Furnace Atomization.* G. E. Bately, E. J. Czobik and J. P. Matoušek. (INVITED PAPER)

*Simultaneous Multielement Atomic Emission Spectrochemical Measurements Using a Fourier Transform Spectrometer.* W. K. Yuen and Gary Horlick.

*Performance Appraisal of a Routine Semi-Automatic Atomic Absorption Method of Analysis of Major Elements in Rocks and Ores.* Paul F. Ralph and M. A. Chaudhry.

*Recent Advances in Graphite Furnace Atomic Absorption Spectrometry.* D. C. Grégoire and C. L. Chakrabarti.

*Advantages of the Internal Standard Mode in Atomic Absorption Spectroscopy.* John J. Sotera, R. Emburgh and Herbert L. Kahn.

##### ANALYTICAL III

###### Tuesday Morning

Chairman: W. R. Boos  
Co-Chairman and Discussion  
Leader: M. D. Silvester

*Barringer Research Award Address. The Measurement of Spectrochemical Information.* Gary Horlick.

*Spatial Structure of the ICP Discharge and Its Effect on Analytical Utility.* S. R. Koirtyohann, D. A. Yates and F. E. Lichte. (INVITED PAPER).

*Simultaneous Multielement Analysis Using an Inductively Coupled Plasma Source and a 1024 Element Photodiode Array Spectrometer.* Gary Horlick.

*Problems Associated with the Analysis of Geological Materials and Industrial Plant Samples Using Inductively Coupled Plasma Excitation.* R. H. Scott, A. Strasheim, and R. B. Wemyss.

*Spatial Profiles of Emission from an Inductively Coupled Plasma Source Using a Self Scanning Photodiode Array.* Gary Horlick, and T. E. Edmonds.

*Development of an ICAP Emission Spectrometer for Simultaneous Multielement Trace Analysis.* S. S. Berman and J. W. McLaren.

##### ANALYTICAL IV MARINE ANALYTICAL CHEMISTRY

###### Tuesday Afternoon

Chairman: D. S. Russell  
Co-Chairman and Discussion  
Leader: S. S. Berman

*Marine Analytical Chemistry—Some of the Urgent Problems and Approaches.* W. D. Jamieson and M. D. MacKinnon. (INVITED PAPER).

*Electroanalytical Chemistry in the Marine Environment.* John A. Page. (INVITED PAPER).

*Direct Determination of Trace Amount of Molybdenum in Synthetic Sea Water by Graphite Furnace Atomic Absorption Spectrometry Using Time-Resolved Selective Volatilization of Salt Matrix.* T. Nakahara and C. L. Chakrabarti and R. E. Sturgeon.

*Direct Determination of Trace Amount of Copper in Synthetic Sea Water By Graphite Furnace Atomic Absorption Spectrometry using Time-Resolved Selective Volatilization of Salt Matrix.* S. J. Bruce and C. L. Chakrabarti.

##### ANALYTICAL V

###### Wednesday Morning

Chairman: W. D. Johnson  
Co-Chairman and Discussion  
Leader: S. Abbey

*Inorganic Trace Analysis.* S. S. Berman. (INVITED PAPER).

*Preparation and Certification of Trace Elements in Water and Air Particulates Standard Reference Materials.* Theodore C. Rains. (INVITED PAPER).

*Unexpected Sources of Analytical Problems in Atomic Absorption Analysis.* L. P. Morgenstern and V. J. Luciano.

*Interferences of Phosphoric Acid with the Determination of Calcium by Atomic Absorption Spectrometry.* D. A. Naranjiti and C. L. Chakrabarti.

*A Controlled Partial Vaporization Method for the Determination of Impurities in Thorium Oxide.* C. R. Hillier and C. P. Brown.

*Electrical Recording of Spark Source Mass Spectra.* P. R. S. Jackson, J. Harris and A. Strasheim.

##### ANALYTICAL X-RAY SPECTROSCOPY

###### Wednesday Morning

Chairman: G. D. Christian  
Co-Chairman and Discussion  
Leader: G. Springer

*The Determination from Aqueous Media, and Evaluation, of Some 300 XRF Inter-element-Effect Correction Coefficients.* J. G. Dick, R. D. Fruscia, and C. C. Wan. (INVITED PAPER).

*Extended Uses for the Multichannel Analyzer Display.* Robert B. Shen and John C. Russ.

*Analytical Possibilities in the Ultra-Soft X-Ray Region.* W. P. van der Burg, and Phillips Almelo.

*The Correlation Between X-Ray Diffraction Response and Phase Contrast Microscopy Count.* Jean-C. Meranger, Wayne W. Reid, Jean Leroux and Albert B. C. Davey.

*Resolving Spectrum Interferences Using Non-Gaussian Peaks.* John C. Russ

*On-Line Determination of Light Elements to Improve the Assay of Cu, Mo, Pb, Zn, and Ni in Various Slurries.* A. H. Smallbone and Y. M. Gurvich.

##### ANALYTICAL VI

###### Wednesday Afternoon

Chairman: L. P. Morgenstern  
Co-Chairman and Discussion  
Leader: J. D. Dick

*Rapid Scanning Fluorescence Spectroscopy for Multicomponent Analysis.* Gary D. Christian, James B. Callis, David W. Johnson, Chu-Ngi Ho, and Ernest R. Davidson. (INVITED PAPER).

*Gamma-Ray Spectrometric Technique for the Rapid Screening of Rock Samples for Uranium Content and for the Determination of Uranium and Thorium in Ores.* J. B. Davies, W. M. Johnson and P. R. Ralph.

*Routine Determination of 29 Elements in Common Rocks, Minerals and Ores Using a Direct Reading Optical Emission Spectrometer.* W. H. Champ and C. F. Meeds.

*Vacuum Ultraviolet Emission Spectra and Lifetime Measurements in Highly-Ionized Fluorine.* E. J. Knystautas and R. Drouin.

*Improved Method for Spectrochemical Determination of Eighteen Volatile Trace Metals in Silicates by Fractional Distillation in a D.C. Arc.* W. H. Champ and P. G. Belanger.

*Spectrophotometric Determination of Hg(II) with N-Pyridyl-N'-B-Naphthyl Thiourea.* S. P. Mathur.

#### MOLECULAR SPECTROSCOPY

##### ANALYTICAL ADVENTURES WITH FOURIER TRANSFORM IR SPECTROSCOPY

###### Monday Morning

Chairman and Discussion  
Leader: J. E. Bertie

*Practical Experience with Fourier Transform Infrared Spectrometry at Revenue Canada, Customs and Excise.* Tom Mayerhof.

*Recent Developments in GC/IR Automated Analysis.* D. Wall, W. H. Chan and A. W. Mantz.

*Employ d'un spectrophotomètre à transformées de Fourier dans l'analyse des surfaces peu réfléchissantes.* G. Verville et E. J. Casey.

*The Identification of Substances in Consumer Products by Fourier Transform Infrared Spectrometry.* F. R. S. Clark, D. J. Moffatt, A. T. Rakke and R. Vieu.

*A Real Time Programmable Infrared GC Detector.* David Mattson.

*A Modular Michelson Interferometer for Fourier Transform Spectrochemical Measurements from the Mid-IR to the UV.* Gary Horlick and W. K. Yuen.

*Detailed Rate Constants for the Reactions of F Atoms with Formaldehyde and Formic Acid.* R. G. MacDonald and J. J. Sloan.

*Aspects of Interferometer/Signal Processor Matching in Fourier Transform Spectrometers.* H. L. Buljs, G. L. Vail and J. N. Bérubé.

#### INFRARED VIBRATIONAL SPECTROSCOPY

##### A Session in Honour of R. Norman Jones, F.R.S.C.

###### Monday Afternoon

Chairman: M. Falk  
Co-Chairman and Discussion  
Leader: R. N. Jones

*Hydrogen Bonding in Aqueous Acids and Bases.* P. A. Giguère and Sylvia Turrell. (INVITED PAPER).

*Infrared Spectra of the Ices at -6°K and the Interpretation of the νOD(D<sub>2</sub>O) Bands of Ices II and IX.* Frances E. Bates, Stephen M. Jacobs and John-E. Bertie.

*Vibrational Frequency Shifts in Polyatomic Solutes.* George Turrell.

*Effect of Ring Substitution on the Amino Group Inversion Vibration of Anilines.* R. A. Kydd, P. J. Krueger and J. Fong.

*Infrared Intensity Measurements on Thin Films of Solids and Liquids by Transmission and Reflection — Determination of the Optical Constants.* D. G. Cameron, T. G. Goplen, G. K. Ribbegård and R. N. Jones.

*Infrared Studies of Equilibrium in Solution — Temperature Dependence of Molar Absorption Coefficients.* H. F. Shurvell and B. Petschelt.

*Vibrational Spectra of Pentacarbonyl(solo-nocarbonyl) chromium (O), Cr(CO)<sub>5</sub> (CS<sub>6</sub>) Ian S. Butler, Ann M. English and Keith R. Plowman.*

## OPTICAL METHODS APPLIED TO BIOLOGICAL MOLECULES PART I — RAMAN AND RESONANCE RAMAN SPECTROSCOPY

A Session in Honour of Harold J. Bernstein, F.R.S.C.

Tuesday Morning

Chairman: H. J. Bernstein  
Co-Chairman and Discussion Leader: J. A. Koningstein

*Raman Spectroscopic Studies of Biological Membranes and their Constituents. Richard Mendelsohn. (KEYNOTE PAPER — INVITED SPEAKER).*

*Laser Raman Spectroscopy of Intact Single Muscle Fibers. M. Pézolet, M. Pigeon-Gosselin, and J. P. Caillé.*

*Application of Resonance Raman Spectroscopy to the Study of Enzyme and Membrane Mechanisms. P. R. Carey, (KEYNOTE PAPER — INVITED SPEAKER)*

*Resonance Raman Spectroscopic Evidence for Two Astaxanthin Molecules in the Lobster Egg Carotenoprotein Ovo-verdin V. R. Salares, N. M. Young, P. R. Carey and H. J. Bernstein.*

*Resonance Raman Studies of Metalloporphyrins. S. Sunder and H. J. Bernstein.*

## OPTICAL METHODS APPLIED TO BIOLOGICAL MOLECULES PART II — LUMINESCENCE AND CIRCULAR DICHROISM

Tuesday Afternoon

Chairman: P. R. Carey  
Co-Chairman and Discussion Leader: C. H. Langford

*A Molecular Microprobe System. Edward Da Silva, Don Landon and Angelo Grillo. Emission Spectroscopy and Molecular Motion. W. C. Galley. (KEYNOTE PAPER — INVITED SPEAKER).*

*Luminescence Measurements of Solutions of Chlorophyll *a* and *b*. R. M. Leblanc, R. Le Sage and A. Tessier.*

*Circular Dichroism as a Probe for Conformational Change, Protein — Protein Interaction and Ligand Binding. K. J. Dorrington. (KEYNOTE PAPER — INVITED PAPER)*

*Potato Spindle Tuber Viroid RNA; Investigation of its Secondary Structure by Absorption, CD and Fluorescence Spectroscopy. R. E. Williams, and R. P. Singh.*

## MAGNETIC RESONANCE SPECTROSCOPY

Wednesday Morning

Chairman: I. C. P. Smith  
Co-Chairman and Discussion Leader: J. W. ApSimon

*Deuterium — The Much Maligned Magnetion. Applications in Chemistry and Biology. I. C. P. Smith (INVITED PAPER).*

*The Hindered Rotation in Heptachloro-Ortho-Xylene as Determined by the Line Shape and Saturation Spin Transfer Techniques. W. E. Hiebert, V. Mark and H. M. Hutton.*

*A Possible Proton NOE Reference Material? E. P. Mazola.*

*Structure of Olefinic Hydrocarbons by Proton NMR Spectroscopy and Force Field Calculations. F. H. A. Rummens.*

*Studies of the Binding of Inhibitors to Cobalt Carbonyl Anhydride by <sup>1</sup>H and <sup>13</sup>C NMR Spectroscopy. R. Deslauriers, I. C. P. Smith, J. Westerik and B. Sarkar.*

*Structural Analysis via <sup>13</sup>C-Heteronuclear Spin Coupling. G. W. Buchanan.*

*A Fourier Transform C-13 NMR Study of Some 2-Thiohydantoin. L. D. Colebrook and M. A. Khadim.*

## ANALYTICAL MASS SPECTROSCOPY

Wednesday Afternoon

Chairman: S. Safe  
Co-Chairman and Discussion Leader: W. D. Jamieson

*The GC-MS Study of the Formation of Chlorinated Aromatic Hydrocarbons Under Sewage Treatment Conditions. T. Sakuma, T. Ma, B. Shushan and O. Merez, Ontario, Canada, M9W 5L1. Analysis of Organics in Drinking Water by Gas Chromatography, Mass Spectrometry. Frank M. Benoit.*

*The Electron Impact Induced Fragmentations and Collision Activation Mass Spectra of the Terphenyls. R. K. Boyd, S. MacKinnon and S. Safe.*

*Ion Containment by Radio-Frequency Fields. J. E. Fulford and R. E. March, and R. F. Bonner.*

*Analytical Aspects of Ion Storage Mass Spectroscopy. M. A. Armitage and R. E. March.*

*Study of Drugs and Explosives in a Three-Dimensional Quadrupole Mass Spectrometer. J. E. Fulford, D. N. Hoa, and R. E. March.*

*Mass Spectra of Some Organometallic Complexes of Chromium(0), Manganese(1) and Ruthenium(1). Ian S. Butler, Daniel Cozak.*

*Mass Spectra of Some Organometallic Complexes of Manganese(1) Containing Organosulphide Ligands. Ian S. Butler, Amelia Garcia-Rodriguez and Tsutomu Sawai.*

## RAMAN VIBRATIONAL SPECTROSCOPY

Wednesday Afternoon

Chairman: H. F. Shurvell  
Co-Chairman and Discussion Leader: T. Theophanides

*Industrial Applications of Computerized Laser Raman Spectroscopy. M. A. Hazel, L. E. Wolfram and J. R. Mooney.*

*Raman Spectrometer Modification for Multichannel Detection. Rodrigue Savoie, Jean Sturm, and Warner L. Petrucci.*

*Raman Spectro Studies of Aquated Cations. T. Jarv and D. E. Irish.*

*Water-Orthophosphate Interactions with Model Pollutants: Deep-Well Waste Disposal Problems Studied by Raman Spectroscopy. Caroline M. Preston and W. A. Adams.*

*Thermodynamic Parameters for Ionic Equilibria Calculated from Raman Spectroscopic Measurements in Aqueous Solutions. W. A. Adams and Caroline M. Preston.*

## FEATURE PRESENTATIONS

### SPECTROSCOPY OF AGRICULTURAL CHEMICALS

Monday Morning

Chairman: H. Morita  
Co-Chairman and Discussion Leader: J. L. Holmes

*Agricultural Chemicals — Spectroscopy and Synergism. F. H. A. Rummens (INVITED PAPER).*

*Applications of Mass Spectrometry in Pesticide Analysis. S. Safe. (INVITED PAPER).*

*Analysis of Mirex and Photomirex in Lake Ontario Biota. R. J. Norstrom and D. J. Hallett, F. I. Onuska and M. E. Comba.*

*Spectroscopy Research in Lead Generation for New Agricultural Chemicals. W. R. Boos.*

*Use of <sup>31</sup>P NMR Spectroscopy for Rapid Analysis of Fenitrothion Forms and Technical Products. R. Greenhalgh.*

*Identification of Low Level Contaminants in Foods by Combined Gas Chromatography-High Resolution Mass Spectrometry. W. F. Miles.*

*High Resolution Glass Capillary Chromatography and Mass Spectrometry of Po-*

*lynucliar Aromatic Hydrocarbons and Organochlorine Residues in Great Lakes Herring Gulls. D. J. Hallett and R. J. Norstrom, F. I. Onuska and M. E. Comba.*

## REFERENCE MATERIALS FOR CHEMICAL ANALYSIS OF NATURAL SUBSTANCES

A Session Arranged In Co-Operation with the Analytical Chemistry Division of the Chemical Institute of Canada

Monday Afternoon

Chairman: W. D. Jamieson  
Co-Chairman and Discussion Leader: T. C. Reina

*Biological Reference Materials for Inorganic Chemical Analysis. M. Ihnat.*

*Problems with Reference Materials for Analysis of Drug Residues in Foods. J. J. Ryan.*

*Reference Materials for the Analysis of Exogenous and Endogenous Substances in Biological Fluids. J. Rosenfeld.*

*Reference Standards for Inorganic Substances with Special Emphasis on Environmental and Geological Applications. M. D. Silvester.*

*Reference Materials for Chemical Analysis of Pesticides in Agricultural Products. D. Earle Coffin.*

## MEASUREMENTS OF ATMOSPHERIC COMPOSITION WITH SPECTROSCOPIC INSTRUMENTATION

A Session Arranged In Co-Operation with the Canadian Meteorological Society

Monday Afternoon

Chairman: W. F. J. Evans  
Co-Chairman and Discussion Leader: M. M. Millan

*LIDAR Observations of Tropospheric Aerosols. R. M. Hoff and F. J. Froude.*

*The Correlation Spectrometer and Its Application to Studies of the Regional Transport of SO<sub>2</sub>. Milan M. Millan.*

*A Review of Brown Haze: Aerosol or NO<sub>2</sub>? W. J. Megaw and W. R. Leggett.*

*High Resolution and Medium Resolution Spectra of Atmospheric Absorption. W. Fabian and R. W. Nicholls.*

*The Measurement of Atmospheric Ozone and Nitrogen Dioxide by Spectrophotometric Techniques. J. B. Kerr and C. T. McElroy.*

*In Situ High Resolution Measurements of Stratospheric Absorption in the 300 nm Wavelength Region. D. I. Wardle.*

*Thermal Emission Measurements of Stratospheric Constituents. W. F. J. Evans and R. S. O'Brien.*

*Stratospheric Concentration of N<sub>2</sub>O, CO and H<sub>2</sub>O by Solar Infrared Absorption Spectroscopy. R. P. Lowe.*

*A Balloon-Borne Far Infrared Michelson Interferometer for Atmospheric Emission Studies. D. J. W. Kendall and T. A. Clark.*

*Instrumental Considerations in Balloon-Borne Far Infrared Absorption Spectroscopy for Stratospheric Studies. D. A. Naylor, Rita T. Boreiko and T. A. Clark.*

## SPECTROSCOPIC SIGNATURES IN REMOTE SENSING

A Session Arranged In Co-Operation with the Canadian Society for Remote Sensing

Tuesday Morning

Chairman: A. R. Davis  
Co-Chairman and Discussion Leader: J. Kruus

*Investigation of Crop Spectra and Selection of Optimal Spectral Channels. V. R. Rao, A. R. Mack, and E. J. Brach.*

*Spectral Reflectance and Transmission Measurements of Snow and Ice from 400 to 750 nm. W. A. Adams and P. Flavelle.*

*Rotational Raman Spectroscopy for the Remote Detection of Atmospheric Pollutants in Smokestack Plumes. P. J. Thomas, and R. L. Hummel and J. W. Smith.*

*Application of Sequential Theory to Atmospheric Infrared CO<sub>2</sub> — Band Spectral Absorption. Richard B. Gomez, Joseph P. Pierluissi, and Wing-Ki Liu.*

*Detection of Organophosphorus Compounds in the Atmosphere by Non-Dispersive Correlation Spectroscopy. J. M. Preston and G. R. Floyd and R. V. Ward.*

*Fourier Transform Spectroscopy in the Stratosphere. H. L. Buils and G. L. Vall.*

## APPLICATIONS OF SPECTROSCOPY TO ART AND ARCHAEOLOGY

Tuesday Afternoon

Chairman and Discussion Leader: J. F. Hanlan

*Introduction — Analysis and Examination of Museum Objects. J. F. Hanlan.*

*Spectroscopy Applied to Archaeology. B. G. Trigger, O. Birgul, M. Diksic, J. M. Fossey, M. Attas, L. Yaffe, and J. Pendegast.*

*Spectrographic Analysis of Ancient Objects — Dreams and Realities. U. M. Franklin.*

*The Measurement of Color. Gunter Wyseck.*

*Diamond Cell Infrared Spectroscopy in Art and Archaeological Conservation Research. Marilyn Wheeler.*

*Neutron Activation Analysis of Ancient Artifacts. R. G. V. Hancock.*

*Microscopical Studies in Art and Archaeological Conservation Research. Ian N. M. Wainwright.*



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