Alfred Bader Fonds

Correspondence

Canadian Universities
(Miscellaneous)

QUEEN'S UNIVERSITY ARCHIVES
LOCATOR 5095.5
BOX 4
FILE 29

Victor Snieckus **Memo**

Professor of Chemistry
NSERC/Monsanto Chair in Chemical Synthesis and Biomolecule Design

University of Waterloo

The Guelph-Waterloo Centre
for Graduate Work in Chemistry
University of Waterloo
Waterloo, Ontario, Canada N2L 3G1

Tel: (519) 888-4567, ext. 2492
Fax: (519) 746-5884
E-mail: snieckus@buli.uwaterloo.ca

To Alfred Bader Date 21/10/85

☒ for your interest
☐ for you comment
☐ please return . Yes [✓ No]
☐ for discussion ____ Convenient time

☐ **URGENT**

Please reply by
☐ tel ☐ fax ☐ e-mail

Message

Hello, Alfred!

You probably recognize aspects discussed here.

Hope all is well with you and Isabel.

Victor.

Dr. Alfred Bader
2961 North Shepard Avenue
Milwaukee, Wisconsin 53211

November 8, 1993

Professor Youla Tsantrizos
Department of Chemistry
Concordia University
1455 de Mainsonneuve Blvd. West
Montreal, Quebec H3G 1M8
Canada

Dear Professor Tsantrizos:

Please accept the sincere thanks of Isabel and me for your fine hospitality when we visited Concordia University. Your enthusiasm was truly infectious and we so enjoyed our stay with you.

All good wishes.

Sincerely,

Concordia
UNIVERSITY

DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY
Telephone Nº (514) 848-3366
Fax Nº (514) 848-2868

October 26, 1993

Ms. Marilyn Hassmann
Alfred Bader Fine Arts
924 E. Juneau Ave., Suite 622
Milwaukee, WI.,
63202 U.S.A.

Dear Marilyn,

Thank you very much for the use of Dr. Bader's photo, I am returning it to you as requested. I would also like to thank you for being so helpful.

I had the pleasure of attending Dr. Bader's lecture and I know I speak on behalf of everyone who attended, when I say that it was an opportunity not to be missed.

Once again thank you.

Kathy Usas

Kathy Usas

Enclosure

1455, de Maisonneuve Blvd. W.
Montreal, Quebec H3G 1M8

Concordia
UNIVERSITY
Department of Chemistry & Biochemistry

October 19, 1993

Dr. Alfred Bader
Alfred Bader Fine Arts
Suite 622
924 East Juneau Avenue
Milwaukee, Wisconsin 53202
USA
FAX: (414) 277-0709

Dear Dr. Bader,

I thank you very much for your FAX of October 19, 1993. Your talk on "The History of Sigma-Aldrich" is scheduled for 12:00 noon. I am looking forward to meeting with you and your wife at my office, room 1051-1 of the Hall Building at 1455 de Maisonneuve Blvd West. I would appreciate it, if you could let me know at approximately what time you would like to arrive at Concordia.

We are very much looking forward to your visit and your talk. If you have any questions please do not hesitate to contact me by telephone or by FAX.

Sincerely yours,

YSTsantrizos

Youla S. Tsantrizos
Assistant Professor

Tel: (514) 848-3335
FAX: (514) 848-2868

1455, de Maisonneuve Blvd. W.

Concordia
UNIVERSITY
Department of Chemistry & Biochemistry

June 26, 1993

Dr. Alfred Bader
Alfred Bader Fine Arts
Suite 622
924 East Juneau Avenue
Milwaukee, Wisconsin 53202
USA
FAX: (414) 277-0709

Dear Dr. Bader,

Just a little note to confirm that your talk at Concordia University has been scheduled for 12:00 noon on October 25, 1993.

We are very much looking forward to your visit and I will write to you about further details in the near future. If you have any questions regarding your lecture plans or your trip to Montreal please do not hesitate to contact me by telephone or by FAX.

Sincerely yours,

Youla S. Tsantrizos
Assistant Professor

Tel: (514) 848-3335
FAX: (514) 848-2868

1455, de Maisonneuve Blvd. W.
Montreal, Quebec H3G 1M8

[illegible]

Concordia
UNIVERSITY
Department of Chemistry & Biochemistry

June 9, 1993

Dr. Alfred Bader
Alfred Bader Fine Arts
Suite 622
924 East Juneau Avenue
Milwaukee, Wisconsin 53202
USA
FAX: (414) 277-0709

Dear Dr. Bader,

Further to our conversation of a few weeks ago, I am very pleased and honoured that you have accepted our invitation to come to Concordia University and deliver your talk entitled: "History of Sigma-Aldrich".

We have tentatively scheduled your talk at noon time so that faculty and students from neighboring Universities will also be able to attend. We hope that you will be able to arrive at our Department Monday morning at approximately ~9-10 am and that you will be able to join us for lunch right after your talk.

I will write to you about further details (hotel accommodations, etc.) in the near future. If you have any questions regarding your lecture plans or your trip to Montreal please do not hesitate to contact me by telephone or by FAX.

We are very much looking forward to your visit.

Sincerely yours,

Y S Tsantrizos

Youla S. Tsantrizos
Assistant Professor

Tel: (514) 848-3335
FAX: (514) 848-2868

1455, de Maisonneuve Blvd. W.
Montreal, Quebec H3G 1M8

Carleton University
Ottawa, Canada K1S 5B6

1942-1992
50

February 3, 1993.

Dr. Alfred Bader
2961 North Shepard Avenue
Milwaukee, Wisconsin 53211
U.S.A.

Dear Alfred:

It was a pleasure to see you and Isabel again and to hear your lecture. The Ottawa Citizen had a nice article soon after, on your life, career and contribution to humanity.

Thanks very much for the enquiry to Dr. Branca about the acetylenic ketone. He could find no record of it - so it may have deteriorated and been destroyed. An undergraduate here failed to make it, so I may try the synthesis myself if time permits. Best wishes to you both.

Sincerely,

Ted

O.E. Edwards.

[illegible] Branca
[illegible]
[illegible]

Department of Chemistry ☐ Steacie Building ☐ (613) 788-3841
Department FAX (613) 788-3749

Carleton University
Ottawa, Canada K1S 5B6

The Chemical Institute of Canada
Ottawa Section

8 December 1992

Dr. Alfred Bader
52 Wickham Ave..
Bexhill-on-Sea
East Sussex
United Kingdom
TN 393 ER

Dear Alfred:

It was a great pleasure to have you here in Ottawa again a few weeks ago, and to meet both Isabel and Marion again as well.

I felt that your lectures here were exceptionally well received. Especially the lecture on Josef Loschmidt had the students enthralled. They rarely pay attention to their normal classes the way they listened to you! You will have awakened a greater interest in the history of chemistry in them. In particular, they will be more aware than before that chemistry is done by real people--people with all the strengths and weaknesses which they will find in themselves. This is an important lesson for them to learn.

The lecture in the National Gallery was also very interesting. I had heard some of that one before, but found it exciting nonetheless. The audience there too was a good size and, even though they didn't ask questions, they were very interested in your authoritative stories.

We look forward to the possibility of meeting you and Isabel again next year when you come to Ottawa. Until then, we hope you have a pleasant and useful time in London.

Yours sincerely,

D.R.Wiles, Chairman.
Ottawa Section, Chemical Institute of Canada

filename: ABADER.LTR

Department of Chemistry ☐ Steacie Building ☐ (613) 788-3841
Department FAX (613) 788-3749

Alfred:

You very kindly agred to look again at photographs of my painting by Cornelius Koekoek (?) I have delayed writing to you because I wanted to get copies of photographs which had been taken earlier. Unfortunately, the photographer couldn't find the negatives so I have to take the picture to him again. I'll send you copies when I can. Thanks again for your generosity.

Don

Don Wiles

Concordia
UNIVERSITY

Department of Chemistry and Biochemistry

Dr. Alfred Bader

Alfred Bader Fine Arts
Founder of the Aldrich-Sigma Company

"The History of Sigma-Aldrich"

October 25, 1993
12:00 noon

McConnell Library Building, Room 125;
1400 de Maisonneuve Blvd. O.
Montreal, Quebec, H3G 1M8
(514)848-3366

NOTE: The above lecture is the first in a three part series:

Second Lecture: **"Adventures of a Chemist Collector"**, subtitled **"Chemsitry in Art Restoration"**. October 25, 6:00 pm, Otto Maass 10, McGill University.

Third Lecture: **"Joseph Loschmidt - The Father of Molecular Modelling"**. October 26, 12:30 pm, Otto Maass 112, McGill University.

Dr. Alfred Bader was born in Vienna in 1924. His father died when he was two weeks old. At the age of fourteen, Nazi laws forced him to drop out of school, and he spent six months buying and selling stamps to earn money before being sent by his mother to England. In 1939 he entered Brighton Technical College, but in May 1940 he was picked up by detectives during the Sunday school break at the Middle Street Synagogue in Brighton. Eventually, he was sent to Canada as a prisoner, where he stayed at an old fortress on an island (on the Richelieu River) near Lake Champlain. In this camp the refugees organized themselves into study and cultural groups. The International Student Service supplied text books, and McGill University allowed the internees to take junior and senior matriculation examinations in June and September of 1941. Bader passed both before being released in November 1941.

He then enrolled in engineering chemistry at Queen's University, and obtained a B.Sc. (1945) and later a M.Sc degree (1947) in organic chemistry under the supervision of A.F. McKay. In 1950, Alfred Bader obtained a Ph.D. degree from Harvard University, where he studied under the supervision of Professor Louis Fieser. On graduation from Harvard, he joined the research laboratories of the Pittsburgh Plate Glass Company in Milwaukee.

Dr. Bader's contributions in the field of Organic Chemistry include 24 scientific publications and 27 patents. His research has contributed to the development of new compounds and synthetic methods in the area of fatty acids, quinones, alkenylphenols, and indoles, and to the mechanisms of organic reactions.

In August 17, 1951, Alfred Bader and Jack Eisendrath (a Milwaukee attorney) decided to start a company of their own to sell research chemicals with the minimum required capital of $250 each of them putting in $250). They tossed a coin for the name of the company; Eisendrath won, and named it after his pretty fiancée, Betty Aldrich. They worked in their spare time, doing paperwork, storage, weighing, labelling, packaging and invoicing in Eisendrath's office.

Sales in the first year were $1705 and, since they drew no salaries, profit was $20. In the second year sales climbed to $5400; in the third, to $15,000. Aldrich eventually became the largest supplier of fine chemicals in the world. However, Bader had decided that the area of greatest growth for fine chemicals lay in biochemistry. In

1975, after many difficulties, Aldrich merged with Sigma of St. Louis, the largest supplier of biochemicals in the U.S. In 1990 Sigma-Aldrich was the 80th largest chemical corporation in the U.S. with annual sales of $440,000,000 (22.6% more than in 1988). The company employs about 4,100 people: about 3,000 in the U.S. and 1,100 in subsidiaries in Switzerland, Belgium, England, France, Germany, Israel, Italy, Japan and Spain.

The rise of Sigma-Aldrich is one of the outstanding success stories in a period when such success has been rare in North America. The history of the Aldrich and Sigma companies is an important part of the history of chemistry and it should be a classic case for study in business schools. Through his outstanding entrepreneurial skills, Dr. Bader may have done more to advance chemistry than any other scientist of this century.

Alfred Bader est né à Vienne en 1924. Son père mourut alors qu'il n'avait que deux mois. En 1938, les lois nazies le forcèrent de quitter l'école, et il passa six mois à acheter et vendre des timbres pour gagner sa vie avant d'être envoyé par sa mère en Angleterre. En 1939, il entra au Collège Technique de Brighton, mais en mai 1940, il fut capturé par des détectives durant la récréation du cathéchisme du dimanche à la synagogue de Middle Street à Brighton. Eventuellement, il fut envoyé au Canada, où il resta prisonnier dans une vieille forteresse sur une île de la rivière Richelieu près du lac Champlain. Dans ce camp, les prisonniers s'organisèrent en groupes d'Etudes et culturels. Le Service Etudiant International leurs procurèrent des livres d'études, et l'université McGill autorisa les prisonniers à se présenter aux examens de juin et septembre 1941. Bader fut reçu aux deux examens avant d'être relaché en novembre 1941.

Alors, il s'inscrivit en génie chimique à l'université Queen's, ou il obtint son baccalauréat (1945) et plus tard sa maîtrise (1947) en chimie organique, sous la direction de A.F. McKay. En 1950, Alfred Bader obtint son doctorat de l'université Harvard, où il étudia sous la direction du professeur Louis Fieser. Ensuite, il accepta un emploi dans les laboratoires de recherche de la division de peinture du Pittsburgh Plate Glass Company à Milwaukee.

Les contributions du Dr. Bader en chimie organique comprennent 24 publications scientifiques et 27 brevets. Sa recherche a contribué au développement de nouveaux composés et de nouvelles méthodes synthétiques dans le domaine des acides gras, des quinones, des alkenylphenols, des indoles, ainsi que des mécanismes de réactions organiques.

Le 17 août 1951, Bader et un avoué de Milwaukee, Jack Eisendrath, décidèrent de démarrer leur propre compagnie pour vendre des produits chimiques pour la recherche (avec le capital minimum requis de 500 $, chacun contribuant 250 $). Ils tirèrent au sort le nom de la compagnie; Eisendrath gagna et nomma la compagnie d'après le nom de sa fiancée toute mignonne, Betty Aldrich. Ils travaillèrent pendant leur temps de loisirs dans le bureau d'Eisendrath, faisant les écritures, le stockage, les pesées, l'étiquetage, l'emballage et la facturation.

La première année, les ventes furent de 1 705 $ et, comme ils ne se payèrent pas de salaire, le profit fut 20 $. La deuxième année, les ventes montèrent à 5 400 $, et la troisième à 15 000 $. Eventuellement, Aldrich devint le plus grand producteur de produits chimiques pour la recherche au monde. Cependant, Bader décida que le domaine de plus grande expansion pour les produits chimiques pour la recherche était en biochimie. En 1975, après de nombreuses difficultés, Aldrich fusionna avec Sigma de St Louis, le plus grand producteur de produits biochimi ques aux Etats Unis. En 1990, Sigma-Aldrich était la 80ème plus grande compagnie chimique aux Etats Unis, avec des ventes annuelles de 440 000 000 $ (22,6% de plus qu'en 1988). La compagnie a environ 4 100 employés: à peu près 3 000 aux Etats Unis et 1 100 dans les filiales en Suisse, en Belgique, en France, en Allemagne, en Israel, en Italie au Japon et en Espagne.

L'essor de Sigma-Aldrich represente un prodigieux succès à une période ou un tel succès a été rare en Amérique du Nord. L'histoire des compagnies Aldrich et Sigma constitue une importante partie de l'histoire de la chimie et devrait être un cas classique d'étude dans les écoles d'affaires.

A travers ses qualités entrepreneuriales exceptionnelles, le Dr. Bader a fait d'avantage pour faire progresser la chimie que n'importe quel autre scientifique de ce siècle.

Dr. Alfred Bader
2961 North Shepard Avenue
Milwaukee, Wisconsin 53211

May 13, 1994

Professor T. W. Swaddle
Director, Awards and Distinctions
Canadian Society for Chemistry
The University of Calgary
Department of Chemistry
2500 University Drive, N.W.
Calgary, Alberta T2N 1N4
Canada

Dear Professor Swaddle:

In response to your query of May 2nd regarding the age limitation of the Alfred Bader award, please allow me to discuss this matter with good friends within the Canadian Society of Chemistry at the meeting in Winnipeg, and I will then reply to you.

All good wishes.

Sincerely,

THE
UNIVERSITY
OF CALGARY

2500 University Drive N.W., Calgary, Alberta, Canada T2N 1N4

Faculty of SCIENCE
Department of CHEMISTRY

Telephone (403) 220-5341
Facsimile (403) 289-9488

Dr. Alfred R. Bader
2961 North Shepard Avenue
Milwaukee, Wisconsin 53211

1994-05-02

Dear Dr. Bader:

I have been instructed by the Board of Directors of the Canadian Society for Chemistry to investigate the advisability of removing age restrictions from the Society's awards. This reflects the rather disappointing response in recent years to calls for nominations for those of our awards which have age limits of 40 years or thereabouts.

There are no such problems with the Alfred Bader Lecture Award. I thought, however, that I should take my mandate very literally, and ask you whether you may now wish to remove the age limit (currently, 60 years on January 1 of the year in which the nomination becomes effective), or perhaps change it to 65 years, which would be the normal retirement age in most Canadian universities and would be the same as the current age limit on our John C. Polanyi award.

Yours sincerely,

Tom Swaddle

T. W. Swaddle
Professor
Director, Awards and Distinctions
Canadian Society for Chemistry

cc: D. Goltz

ALFRED BADER FINE ARTS

DR. ALFRED BADER ESTABLISHED 1961

March 10, 1995

Professor Richard Oakley
Conference Chair
Department of Chemistry and Biochemistry
University of Guelph, Guelph
Ontario N1G 2W1 Canada

Dear Professor Oakley:

Further to our discussion last week, Isabel and I very much look forward to being with you from May the 27th through the 30th.

By that time, the Canadian publisher, Little, Brown headquartered in Toronto should have copies of my autobiography, *Adventures of a Chemist Collector*, available and would, I believe, give you a substantial discount if you would like to offer these during the Conference. I enclose a copy of the cover, the introduction and the table of contents.

I am trying to locate the name, address, telephone and fax numbers of the person in charge at Little, Brown and when I have this, I will fax it to you.

With all good wishes, I remain,

Yours sincerely,

Enclosures

By Appointment Only
ASTOR HOTEL SUITE 622
924 EAST JUNEAU AVENUE
MILWAUKEE WISCONSIN USA 53202
TEL 414 277-0730 FAX 414 277-0709

ALFRED BADER FINE ARTS

DR. ALFRED BADER

ESTABLISHED 1961

May 31, 1995

Professor Donald R. Arnold
Department of Chemistry
Dalhousie University
Halifax, Nova Scotia B3H 4J3
Canada

Dear Professor Arnold:

Isabel and I so enjoyed our hours with you and particularly listening to your wonderful lecture.

I know that this will look particularly good in the *Aldrichimica Acta*.

You told me that you hoped to have a manuscript ready by the year-end, and I would like to ask you to send it to the attention of Dr. Mark Drezdzon at the Aldrich Chemical Company at 940 West St. Paul Avenue, Milwaukee, WI 53233.

In your manuscript, I think that there will be no harm in mentioning that you won the Bader Award, but I think it would be far better not to make any other references to me. You will understand why when you have read Chapter 13 of my autobiography.

It would be great if we could meet in Halifax in the autumn of 1996.

With all good wishes, I remain,

Yours sincerely,

AB/cw

c: Dr. Mark Drezdzon (w/enclosure)

By Appointment Only
ASTOR HOTEL SUITE 622
924 EAST JUNEAU AVENUE
MILWAUKEE WISCONSIN USA 53202
TEL 414 277-0730 FAX 414 277-0709

Dalhousie University

EXAMINATION BOOK

PLEASE PRINT CLEARLY

STUDENT'S NAME ______________________ STUDENT # __________
(surname , given names)

CLASS and SECTION # (eg. BIOCHEMISTRY 2000(1)) ______________________

INSTRUCTOR'S NAME ______________________

DATE ______________ STUDENT'S SIGNATURE ______________

BOOK # ______ OF ______ BOOKS

INSTRUCTIONS TO CANDIDATES

1. Candidates will not be admitted to the Examination Room more than thirty minutes after the beginning of the examination. Candidates will not be permitted to leave the examination within the first thirty minutes.

2. Candidates are required to present their valid Dalhousie ID card at all examinations scheduled during the official examination periods and sign the signature list.

3. No articles such as books, papers, etc. may be taken into the examination room unless provision has been made by the examiner for reference books and materials to be allowed to the students. All books, papers, etc. not specified on the printed paper must be deposited with the invigilator. Calculators may be used at the discretion of the instructor.

4. Smoking is not permitted in the Examination Room.

5. Candidates may not leave their seats during an examination except with the consent of the invigilator. Candidates wishing to use the washroom must be accompanied by an invigilator.

6. Answers to questions must be written on the right hand pages and properly numbered. The left hand pages may be used for rough work, but no sheets may be detached.

7. Each question should be started on a separate page.

8. If more than one book is used, the total number should be marked in the space provided above. The other books should be properly marked and placed inside the first book. All books supplied must be returned to the invigilator.

9. Candidates found communicating with one another in any way or under any pretext whatever, or having unauthorized books or papers in their possession, even if their use be not proved, shall be subject to expulsion.

10. After the first thirty minutes have elapsed, students may hand in their examination book(s) to an invigilator and quietly leave the Examination Room. Candidates may not leave the Examination Room during the last fifteen minutes of the examination.

EXAMINER'S REPORT

Question Number		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
Total		

Date ______________ ______________________
Examiner's Signature

1) The radical cation of methyl 2,2-diphenylethyl ether, generated by photo-induced single electron transfer, cleaves to give diphenylmethane and the acetal of formaldehyde in high yield (Reaction 1). In marked contrast, the radical cation of the cyclic analog, 2-methoxy-1-phenylindane does not cleave, it just undergoes *cis* - *trans* isomerization (Reaction 2). If you REALLY WANT CLEAVAGE what would you do?

a) Put a *meta* methoxy substituent on the phenyl ring (Reaction 3).

b) Put a *para* methoxy substituent on the phenyl ring (Reaction 4).

c) Put a cyano substituent at the 5-position of the indane (Reactions 5, 6).

2) If the pKa of toluene is ca. 40, what is the pKa of the radical cation of toluene?

a) 26 (Ken Wiberg's guess).

b) 0 (Leo Paquette's guess)

c) -11 (Yeah right; get real!)

3) What, for heavens sake, is *sigma*-dot *alpha*?

a) A recently discovered neutron star near *alpha centauri*.

b) A radical new substituent constant.

c) An expensive antique European sports car.

4) What does photo-NOCAS mean?

a) It's a disease you might get if you stay out in the sun too long.

b) $T + A_N + A_R + D_n$

c) A photochemical reaction with **NO CLASS**.

5) Now that you know what photo-NOCAS is, what is ***anti*** photo-NOCAS?

a) It's an ointment you spread all over yourself, before you go out in the sun, to prevent photo-NOCAS.

b) $D_n + A_R + A_N + T$

c) $T + D_n + A_R + A_N$

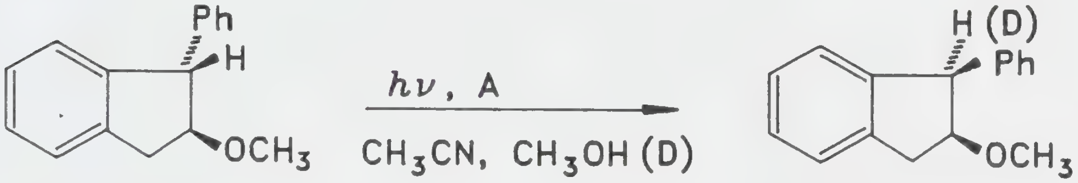
Reaction [1]

$$\underset{\underline{1}}{Ph_2CHCH_2OCH_3} \xrightarrow[CH_3CN,\ CH_3OH]{h\nu,\ A} \underset{\underline{2}}{Ph_2CH_2} + \underset{\underline{3}}{CH_3OCH_2OCH_3}$$

A = 1,4-dicyanobenzene (4, an electron accepting photosensitizer)

"Radical Ions in Photochemistry. III. The Photosensitized (Electron Transfer) Cleavage of β-Phenethyl Ethers." D.R. Arnold and A.J. Maroulis, *J. Am. Chem. Soc.*, **98**, 5931-5937 (1976).

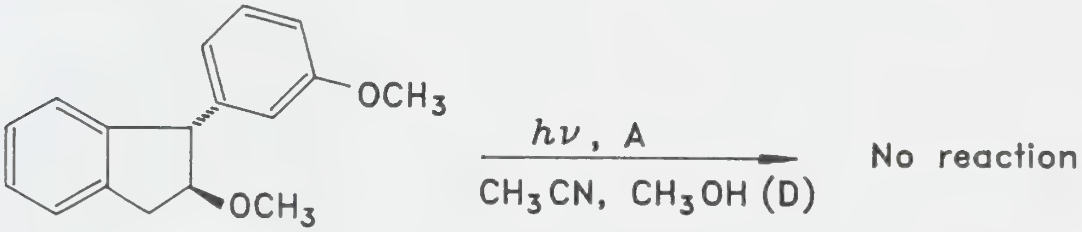
Reaction [2]



5a *trans* 5a *cis*

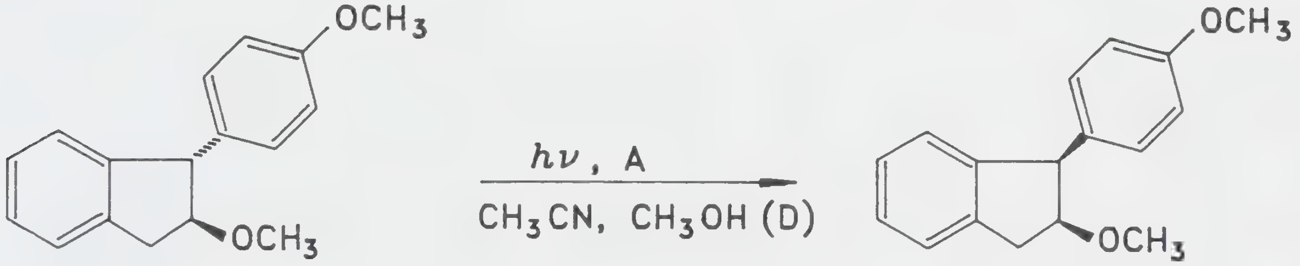
"1,n-Radical Ions. The Photosensitized (Electron Transfer) Formation of 1,5-Radical Cations." D.R. Arnold, B.J. Fahie, L.J. Lamont, J. Wierzchowski, and K.M. Young, *Can. J. Chem.*, **65**, 2734-2743 (1987).

Reaction [3]



5b *trans*

Reaction [4]

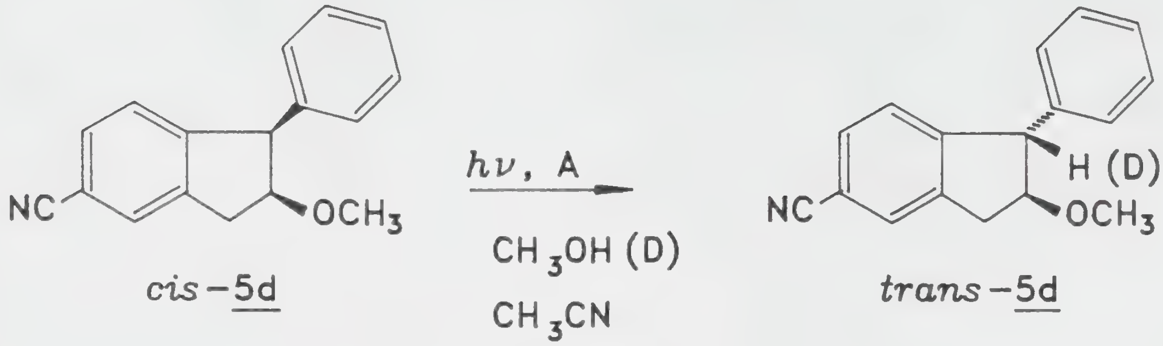


5c *trans* 5c *cis*

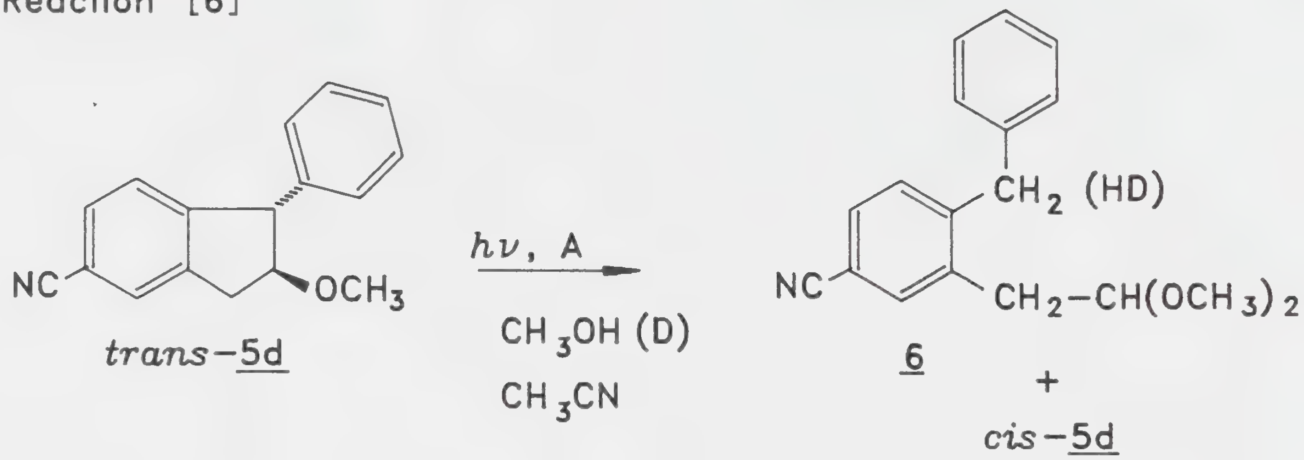
(D incorporated at the bis-benzylic position)

"The Effect of *meta-* and *para-*Methoxy Substitution on the Reactivity of the Radical Cations of Arylalkenes and Alkanes. Radical Ions in Photochemistry. Part 26." D.R. Arnold, X. Du, and K.M. Henseleit, *Can. J. Chem.*, **69**, 839-852 (1991).

Reaction [5]



Reaction [6]



"The Effect of *meta-* or *para*-Cyano Substitution on the Reactivity of the Radical Cations of Arylalkenes and Alkanes. Radical Ions in Photochemistry, Part 34." D.R. Arnold, X. Du, and J. Chen, *Can. J. Chem.*, **73**, 307-318 (1995).

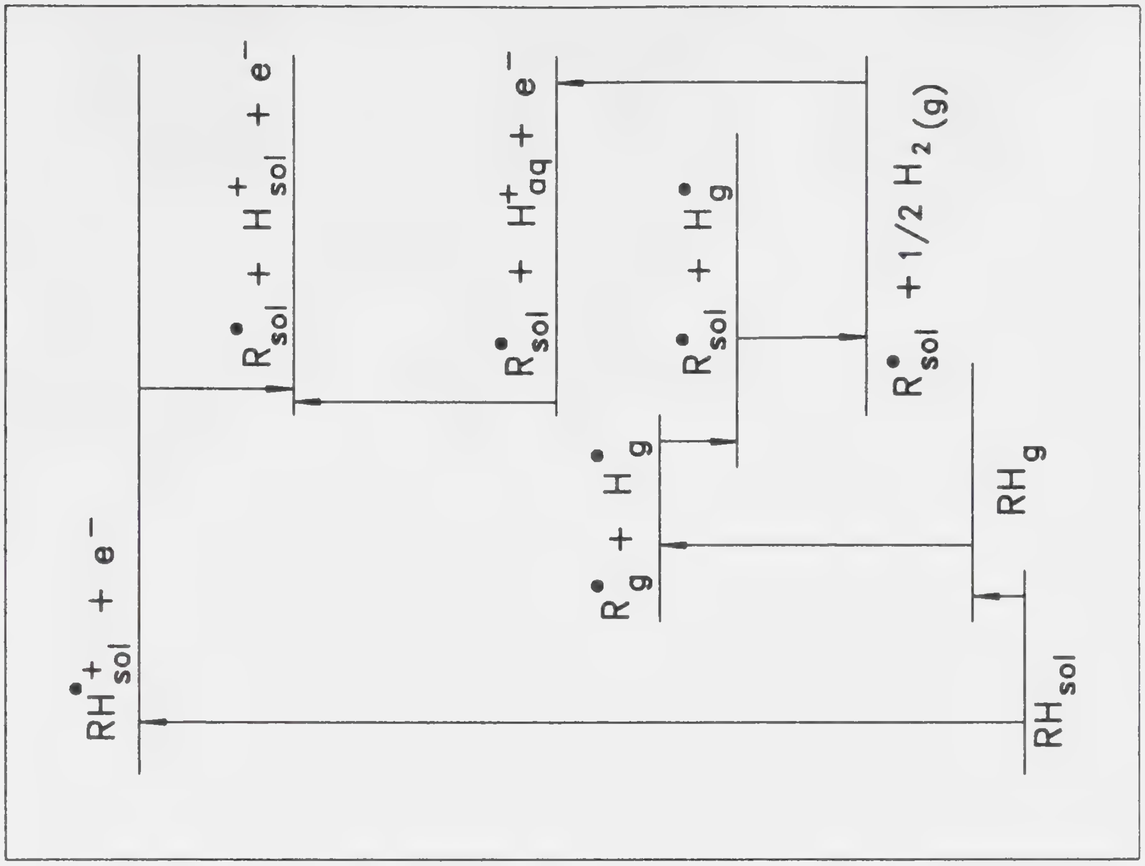
"Radical Ions in Photochemistry. 16. The Photosensitized (Electron Transfer) Carbon-Carbon Bond-Cleavage Reaction of Radical Cations." A. Okamoto and D.R. Arnold, *Can. J. Chem.*, **63**, 2340-2342 (1985).

"Photosensitized (electron transfer) Carbon-Carbon Bond Cleavage of Radical Cations: the Diphenylmethyl System." A. Okamoto, M.S. Snow, and D.R. Arnold, *Tetrahedron*, **42**, 6175-6187 (1986).

"Radical Ions in Photochemistry. Carbon-Carbon Bond Cleavage of Radical Cations in Solution: Theory and Application." R. Popielarz and D.R. Arnold, *J. Am. Chem. Soc.*, **112**, 3069-3082 (1990).

"1.n-Radical Ions. The Photosensitized (Electron Transfer) Carbon-Carbon Bond Cleavage. Formation of 1,6-Radical Cations." D.R. Arnold, L.J. Lamont, and A.L. Perrott, *Can. J. Chem.*, **69**, 225-233 (1991).

"The Importance of Conformation in the Reactivity of Radical Cations. Changing Configuration at Saturated Carbon Centres." A.L. Perrott and D.R. Arnold, *Can. J. Chem.*, **70**, 272-279 (1992).



Thermochemical Cycle Relating the pK_a of the Radical Cation to the Standard Oxidation Potential and Bond Dissociation Energy.

"Thermochemical Parameters for Organic Radicals and Radical Ions. Part I. The Estimation of the pKa of Radical Cations Based on Thermochemical Calculations." A.M. de P. Nicholas and D.R. Arnold, *Can. J. Chem.*, **60**, 2165-2179 (1982).

"Thermochemical Parameters for Organic Radicals and Radical Ions. Part 2. The Protonation of Hydrocarbon Radicals in the Gas Phase." A.M. de P. Nicholas, R.J. Boyd, and D.R. Arnold, *Can. J. Chem.*, **60**, 3011-3018 (1982).

"Thermochemical Parameters for Organic Radicals and Radical Ions. Part 3. The Relationship between Bond Dissociation Enthalpy and Radical Stability in Alkyl Systems." A.M. de P. Nicholas and D.R. Arnold, *Can. J. Chem.*, **62**, 1850-1859 (1984).

"Thermochemical Parameters for Organic Radicals and Radical Ions. Part 4. The Relationship between Bond Dissociation Enthalpy and Radical Stability in Benzenoid Systems." A.M. de P. Nicholas and D.R. Arnold, *Can. J. Chem.*, **62**, 1960-1966 (1984).

$\sigma^{\cdot}_{\alpha}$ Values defined by equation: $\sigma^{\cdot}_{\alpha} = 1 - (\text{hfc } \alpha - H_x \ / \ \text{hfc } \alpha - H_o)$

Substituent	$\sigma^{\cdot}_{\alpha}$ ($\times 10^{-2}$)	Substituent	$\sigma^{\cdot}_{\alpha}$ ($\times 10^{-2}$)
4-SMe	6.3	4-Cl	1.1
4-NO_2	6.3*	4-i-Pr	0.9
4-Ph	6.2*	4-t-Bu	0.8
4-COMe	6.0	4-S(O_2)Me	0.5
4-SPh	5.8	3-Me	0.2
4-COPh	5.5	4-OCOPh	0.0
4-COOMe	4.3	H	0.0
4-CN	4.0	3-OMe	-0.1
4-SCOMe	2.9	3-OPh	-0.2
4-S(O)Ph	2.6	4-OCOMe	-0.5
4-OMe	1.8	2-F	-0.7
4-OPh	1.8	3-Cl	-0.7
4-S(O)Me	1.8	3-F	-0.9
4-S(O_2)Ph	1.8	4-CF_3	-0.9
4-$SiMe_3$	1.7	4-F	-1.1
4-S(O)OMe	1.6	3-COOMe	-1.4
4-Me	1.5	3-CF_3	-1.7
4-SO_3Me	1.3	3-CN	-2.6
4-Et	1.2		

The total range of $\sigma^{\cdot}_{\alpha}$ values , from *para*-thiomethyl to *meta*-cyano, represents a variation in benzylic radical stability of 1.9 kcal mol^{-1} .

"Substituent Effects on Benzyl Radical E.S.R. Hyperfine Coupling Constants. The $\sigma \cdot \alpha$ Scale Based Upon Spin Delocalization." J.M. Dust and D.R. Arnold, *J. Am. Chem. Soc.*, **105**, 1221-1227 and 6531 (1983).

"Substituent Effects on Benzyl Radical Hyperfine Coupling Constants. Part 2. The Effect of Sulphur Substituents." D.D.M. Wayner and D.R. Arnold, *Can. J. Chem.*, **62**, 1164-1168 (1984).

"Substituent Effects on Benzyl Radical Hyperfine Coupling (hfc) Constants. Part 3. Comparison of the α-hfc for Substituted Benzyl Radicals with the β-hfc for Substituted Cumyl Radicals." D.R. Arnold, A.M. de P. Nicholas, and M.S. Snow, *Can. J. Chem.*, **63**, 1150-1155 (1985).

"Substituent Effects on Benzyl Radical Hyperfine Coupling Constants. Part 4. The Effect of Branching of the Alkyl Substituent." D.D.M. Wayner and D.R. Arnold, *Can. J. Chem.*, **63**, 2378-2383 (1985).

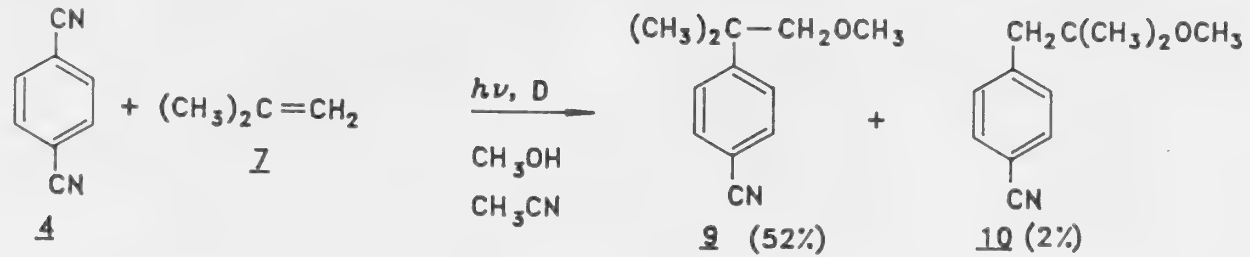
"Substituent Effects on Benzyl Radical Hydrogen Hyperfine Coupling Constants (hfc's). Part 5. The Comparison of Electron Spin Resonance hfc's and the Stabilization Energy of π-Radicals due to Spin Delocalization." A.M. de P. Nicholas and D.R. Arnold, *Can. J. Chem.*, **64**, 270-276 (1986).

"A Comparison of ESR α- and β-Hyperfine Coupling Constants in *para*-Substituted α-Phenethyl Radicals." D.R. Arnold, A.M. de P. Nicholas, and K.M. Young, *Can. J. Chem.*, **64**, 769-772 (I986).

"The Effect of Substituents on Benzylic Radical ESR Hyperfine Coupling Constants. The $\sigma \cdot \alpha$ Scale Based Upon Spin Delocalization." D.R. Arnold; in *Substituent Effects in Radical Chemistry*, H. G. Viehe et al (eds.), D. Reidel Publishing Co. (1986); 171-188. (NATO Advanced Science Institutes (ASI) Series.)

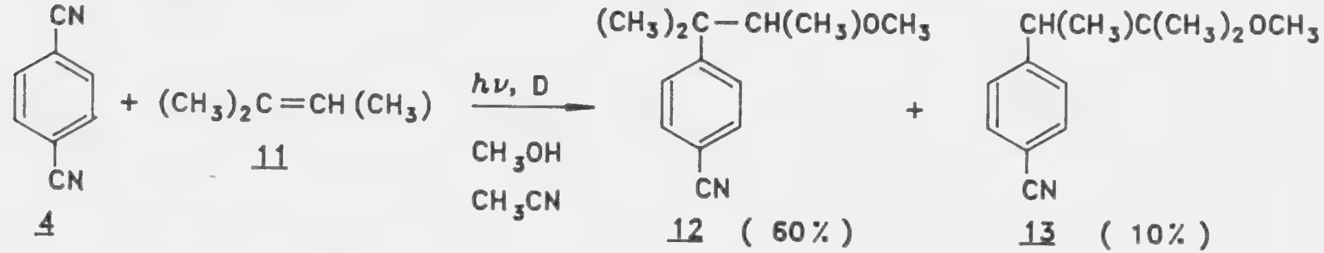
* W.P. Neumann, A. Penenory, U. Stewen, and M. Lehnig, *J. Am. Chem. Soc.*, **111**, 5845-5851 (1989)

Reaction [7]



D (codonor) = biphenyl (8)

Reaction [8]



D (codonor) = biphenyl (8)

"Radical Ions in Photochemistry. 15. The Photosubstitution Reaction Between Dicyanobenzenes and Alkyl Olefins." R.M. Borg, D.R. Arnold, and T.S. Cameron, *Can. J. Chem.*, **62**, 1785-1802 (1984).

"The Photochemical Nucleophilic-Olefin Combination, Aromatic Substitution Reaction (Part 2): Methanol-Cyclic Olefins, 1,4-Dicyanobenzene." D.R. Arnold and M.S. Snow, *Can. J. Chem.*, **66**, 3012-3026 (1988).

"The Photochemical Nucleophile-Olefin Combination, Aromatic Substitution Reaction: Methanol - α- and β-Pinene - 1,4-Dicyanobenzene. The Photo-NOCAS Reaction 3." D.R. Arnold and X. Du, *J. Am. Chem. Soc.*, **111**, 7666 (1989).

"The Photochemical Nucleophile-Olefin Combination, Aromatic Substitution (Photo-NOCAS) Reaction: Methanol-Olefins, Methyl 4-cyanobenzoate." K. McMahon and D.R. Arnold, *Can. J. Chem.*, **71**, 450-468 (1993).

"The Photochemical Nucleophile-Olefin Combination, Aromatic Substitution (Photo-NOCAS) Reaction. Part 5: Methanol-Monoterpenes (α- and β-Pinene, Tricyclene, and Nopol), 1,4-Dicyanobenzene." D.R. Arnold and X. Du, *Can. J. Chem.*, **72**, 403-414 (1994).

"Photochemical Nucleophile-Olefin Combination, Aromatic Substitution (Photo-NOCAS) Reaction, Part 6: Methanol, Nonconjugated Dienes, and 1,4-Dicyanobenzene." D.R. Arnold, K.A. McManus, and X. Du, *Can. J. Chem.*, **72**, 415-429 (1994).

"Photochemical Nucleophile-Olefin Combination, Aromatic Substitution (Photo-NOCAS) Reaction. Part 7: Methanol, Conjugated Dienes, and 1,4-Dicyanobenzene." K.A. McManus and D.R. Arnold, *Can. J. Chem.*, **72**, 2291-2304 (1994).

Reaction [9]

$$\underset{\underline{14}}{Ph_2C{=}CH_2} \xrightarrow[CH_3CN,\ CH_3OH]{h\nu,\ A} \underset{\underline{1}}{Ph_2CHCH_2OCH_3}$$

A = 1,4-dicyanobenzene (4, an electron accepting photosensitizer)

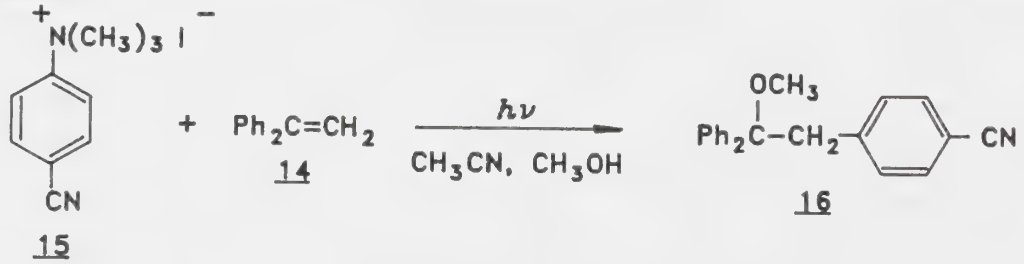
"Radical Ions in Photochemistry. 1. The 1,1-Diphenylethylene Cation Radical." R.A. Neunteufel and D.R. Arnold, *J. Am. Chem. Soc.*, **95**, 4080-4081 (1973).

"Radical Ions in Photochemistry. The Sensitized (Electron-Transfer) Photochemical Reactions of Some 1-Phenylcycloalkenes in Polar, Nucleophilic Solvents." Y. Shigemitsu and D.R. Arnold, *Chem. Comm.*, 407-408 (1975).

"Radical Ions in Photochemistry. 5. The Photosensitized (Electron Transfer) Cyanation of Olefins." A.J. Maroulis, Y. Shigemitsu, and D.R. Arnold, *J. Am. Chem. Soc.*, **100**, 535-541 (1978).

"Radical Ions in Photochemistry. 11. The Photosensitized (Electron Transfer) Preparation of Some β-Trifluoroethyl Ethers." A.J. Maroulis and D.R. Arnold, *Synthesis*, 819-820 (1979).

Reaction [10]



Acknowledgements

I am deeply indebted to my former and present students and postdoctorial fellows; I am really proud of them. Working with young people, anxious to learn, is clearly one of the major attributes of an academic career. I would also like to thank my colleagues, past and present. They are my friends.

I often wonder what I would be doing if Paul de Mayo hadn't given me a chance.

Financial support has come from the Canadian tax payer, through the Natural Sciences and Engineering Research Council.

Thank you, Alfred and Isabel Bader, for establishing the Alfred Bader Award. There really are many outstanding Organic Chemists in this country who deserve this recognition and I thank the committee for having chosen me. Winning will make me work (even) harder.

And congratulation to you, Alfred, upon receipt of the 1995 Charles Lathrop Parsons Award, given in recognition of outstanding public service.

Victor Snieckus

[illegible]

[illegible]

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FAX 519 746 5884 3 pages

Johann Josef Loschmidt (1821-1895): a forgotten genius

Benzene rings and much more in 1861

To Professor VICTOR SNIECKUS
with best wishes
Alfred Bader

→ *William J. Wiswesser*

One of the most puzzling problems facing chemists in the middle of the last century was the structure of benzene and its derivatives. Ask chemists anywhere in the world who was the first person to present the structure of benzene correctly, and the answer will be August Kekulé, probably followed by a reference to his dream about a snake biting its tail. Much has been written about this dream, yet it is really quite irrelevant, because Kekulé was not the first chemist to propose the structure of benzene. It was, in fact, Johann Josef Loschmidt who first published the correct structure in 1861.

Johann Josef Loschmidt was so far ahead of his contemporaries, and so shy and self-effacing, that they may be forgiven for overlooking his monumental contributions to the structural representation of molecules. Today, however, it is a shameful neglect of our chemical heritage to continue to disregard his famous firsts:

1. The first correct cyclic structure of benzene and of many aromatic chemicals, 121 in all.
2. The first representation of the allyl moiety.
3. The first representation of the vinyl moiety and of many others.
4. The first representation of cyclopropane, 21 years before it was made by Freund.
5. The first picture book of molecules, containing graphic displays with atomic domains, rather than abstract bond lines.
6. The first double- and triple-bond marks (within the overlaps).
7. The first realistic displays of atomic sizes and bond distances (largest overlap with triple bonds).
8. The first set of diagrams with correct C = 12, N = 14, O = 16 formulas.
9. The first textbook use of atomic-group symbols.
10. The first use of valence prime marks on these and atomic symbols ("Valenz" was introduced by Wichelhaus in 1868, 7 years later).
11. The first LINE-FORMULA NOTATIONS ("rational formulas").
12. The first revelations of hexavalent and tetravalent sulfur.

It was Richard Anschütz, a Kekulé student, who first recognized Loschmidt's importance. In 1913, he republished Loschmidt's work and graphic representation of molecules, added a brief biography of Loschmidt, and made many comments about the work.

Loschmidt was born to a poor peasant family in a village near Carlsbad, Bohemia, in 1821. In Loschmidt's obituary in 1895, his good friend, Ludwig Boltzmann, related that Loschmidt so hated farm work that his parents considered him useless for anything but studies. Encouraged by his village priest and teacher, he went to high school, and eventually attended Prague University. At the age of 21, he went to the University and the Polytechnic Institute (now the Technical University) in Vienna, first studying philosophy and mathematics, and then the natural sciences, physics and chemistry.

Loschmidt then became involved in several industrial ventures in Lower Austria, Styria, Bohemia and Moravia, making potassium nitrate and oxalic acid, among other products. These ventures were technical successes but financial failures. In the early 1850's, he returned to Vienna penniless, took a job as a concièrge, and then qualified as a school teacher.

Loschmidt was always attracted to the major theoretical problems in the natural sciences, and today he is best remembered for the "Loschmidt Number", his 1865 calculation of the number of molecules in one milliliter of an ideal gas.

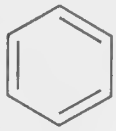
Four years earlier, however, he had published privately what can be called the monograph of the century. This was a modest octavo booklet containing a 47-page essay entitled *Constitutions-Formeln der organischen Chemie in geographischer Darstellung.*[2]

In each generation since, someone has recognized and written about Loschmidt's greatness. It was a brief reference to Loschmidt's work in Kekulé's famous paper presented in Paris in 1865 and published in *Bull. Soc. Chim. Fr.* **1865**, *3*(2), 100 that kindled Richard Anschütz's interest. Intrigued, he tried to find out more. At first, all he could discover was a brief description in a reference by Hermann Kopp, a German crystallographer, the teacher and friend of Kekulé. Eventually he obtained a copy of Loschmidt's pamphlet from an antiquarian book dealer in Vienna. In the comments which he added to his 1913 reprint, Anschütz expressed the amazement with which he read this little work. He immediately wondered whether Kekulé had also read it, and, if not, where he had heard about Loschmidt's work. He came to the conclusion that Kekulé had definitely not read the book but believed that he must have heard of it from Hermann Kopp who

had written the abstract for *Liebigs Jahresbericht* **1861,** *1,* 335. Unfortunately, Kopp was not well versed in organic chemistry and probably did not realize the full significance of the work he was reviewing.

August Kekulé's lone reference to Loschmidt's work is in a single sentence in that French paper of 1865 *"Elle me parait préférable aux modifications proposées par M.M. Loschmidt et Crum-Brown."*

Kekulé proposed the hexagonal structure (I) of benzene.



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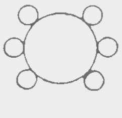
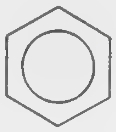
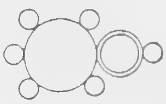


II



III

Four years earlier, Loschmidt had proposed the circular (II) structure 185, in the work of 1861. Few chemists now using III realize how close this is to Loschmidt's formulation. Phenol was shown as 186, anisole as 187, toluene as 197, 121 aromatic compounds in all, many of these correct.



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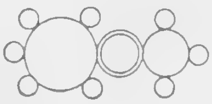

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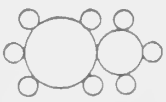

197

In 1945 Moritz Kohn wrote an article about Loschmidt based on Anschütz's biography, and published it in the *Journal of Chemical Education.*[3] Three years later, Hubert de Martin wrote a dissertation[4] at the University of Vienna.

Dr. de Martin's well written thesis refers to many original documents and gives a number of details of Loschmidt's personal life, few of which were mentioned by Anschütz. At the age of 66 Loschmidt married his housekeeper Karoline Mayr, 25 years his junior. Their only son, Josef Karl, died of scarlet fever in 1898, at age ten, three years after his father's death. Karoline Loschmidt lived until 1930, when she died of cancer.

Dr. de Martin also discusses Loschmidt's chemical essay of 1861 in detail (pp 58–64 in the thesis), and concludes that it was almost unknown because it was privately printed and was not read by chemists who understood it—until Anschütz read it some 50 years later. Thus it is clear that, although Loschmidt is well known among physicists for the Loschmidt/Avogadro number, he remains virtually unknown among chemists.

In order to make his work more widely available, Aldrich is offering copies of Anschütz's republished work of 1913, including his comments on Loschmidt's work. This is much easier to use than the 1861 book, because the original fold-out plates, which are clumsy to handle and which can be torn easily, have been reduced in size. Also, Anschütz has made some minor corrections to the structures. But for the serious chemical historian, Aldrich also offers copies of the small book of 1861 together with the seven fold-out plates. In that book of 54 pages, the first 47 deal with 368 chemical structures, including 121 of aromatic compounds. The remaining six pages deal with studies in physics, gas kinetics, unrelated to chemical structures.

Two important questions arise: why has Loschmidt not been recognized as the first person to depict correctly the structures of benzene and many other compounds, and why was his genius as a chemist not recognized by scientists in Vienna?

The answers to both questions lie in the personality of Loschmidt himself. He was a shy and self-effacing man who never travelled outside the Austro-Hungarian Empire, who never pushed himself to publish in the major chemical journals or to give lectures at important international meetings. His small book was a masterpiece, but who knew about it? In contrast, August Kekulé was a world-famous professor, a great lecturer and teacher, and author of the most widely read textbooks of his time.

In 1890, the 25th anniversary of 'his' formulation of the structure of benzene, Kekulé spoke of his dream. Perhaps he really did have that dream, based on what he had heard of Loschmidt's work. It is not of great importance; Loschmidt had published his simple and brilliant work four years earlier.

Anschütz began his comments about Loschmidt (page 99) with the words: "The Austrian physicist, Joseph Loschmidt . . . was originally a chemist." Clearly, Anschütz thought of Loschmidt first and foremost as a physicist.

It must have been unusual for a man to come to Vienna penniless, to start as a caretaker, a "Hausbesorger", and eventually to qualify as a university professor. That he finally became a close personal friend of Josef Stefan and Ludwig Boltzmann (much younger men who were the greatest Viennese physicists of their time) is evidence that he was appreciated but, again, almost entirely as a physicist and physical chemist.

In 1866, he became Privatdozent at the University of Vienna, and, two years later, Associate Professor. He was elected to the Royal Academy of Sciences (Kaiserliche Akademie der Wissenschaften) in 1867, and the following year the University gave him the honorary degree of Doctor of Philosophy. The next year he founded the "Chemisch-Physikalische Gesellschaft", a society of chemists and physicists in Vienna, and in 1875 became the chairman of the Physical Chemistry Institute. He became Dean of the Faculty of Philosophy in 1877, and in 1885 was elected to the Senate of that faculty. Despite these honors, all his contemporaries failed to realize that that tiny book of 1861 was really the masterpiece of the century in organic chemistry.

Acknowledgements:

I would like to thank Dr. Christian Noe and Dr. Alfred and Isabel Bader for their exceptional help with this essay.

References:

1) Anschütz, R. *Konstitutions-Formeln der organischen Chemie in graphischer Darstellung,* Loschmidt, J., republished in Ostwald's *Klassiker der exakten Wissenschaften,* Leipzig, 1913.
2) Loschmidt, J. *Chemische Studien, A. Constitutions-Formeln der organischen Chemie in geographischer Darstellung, B. Das Mariotte'sche Gesetz,* Vienna, 1861.
3) Kohn, M. *J. Chem. Educ.* **1945,** 381.
4) Loschmidt, J. *Sein Leben und Wirken.* Ph.D. thesis of Hubert de Martin, submitted to the faculty of philosophy of the University of Vienna in November, 1948. 235 typewritten pages, with documents.

About the Author

William J. Wiswesser graduated with a B.S. from Lehigh University in 1936 and received an honorary D.Sc. from Lehigh in 1974. He has worked for the Hercules Research Center, Trojan Powder Co., Picatinny Arsenal, Cooper Union, Willson Products, and the U.S. Army at Fort Detrick and is presently working in the Weed Science Research Laboratory, Agricultural Research Service, U.S. Department of Agriculture. His interest in simplifying chemical structure descriptions began in college when he developed a chemical shorthand based on valence-line diagrams. Today, some 50 different research organizations have more than three million Wiswesser Line Notation (WLN) records in their computers. He has written or coauthored over 50 papers, and is editor of *CWIK List News* (Chemical World Index Key) as well as the *Pesticide Index*. He is past chairman of the Lehigh Valley Section and of the History of Chemistry Division of ACS. His honors include the U.S. Army Exceptional Civilian Service award, the first "Reading Chemist of the Year" award, the Austin M. Patterson award, the Herman Skolnik award of the ACS Division of Chemical Information, the Chemical Notation Association award, and the 1981 award of the Institute of Information Scientists.

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Richard Anschütz, a Kekulé student, republished Loschmidt's book (described above) including the molecular structures, and added many of his own comments as well as a brief biography of Loschmidt.

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*We wish to thank the National Library in Vienna for their help with these.

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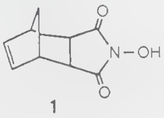
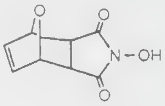


1



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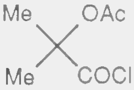

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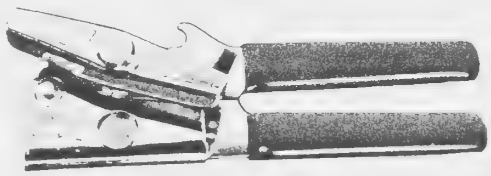

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May 9, 1995

Professor Don Wiles
Department of Chemistry
Carleton University
Steacie Bldg.
Ottawa, Canada K1S 5B6

Dear Professor Wiles:

I am sorry that my reply to your most interesting letter of April 10th is so long delayed, but you addressed it to the Aldrich Chemical Company, which dismissed me some three years ago.

The help that you are suggesting for students is very important and parallels the Project SEED of the American Chemical Society. Isabel and I have been much involved with this.

I hope that your library will have my autobiography, *Adventures of a Chemist Collector*, described on the enclosed. There, on pages 263-266, you will read about our involvement.

We have also been trying to help Canadian students, but have been somewhat disappointed. There are three Bader prizes of $1,000 each for Canadian students beginning to study toward their Ph.D. I think that these prizes are well-advertised by the CIC, and yet several times only two prizes were awarded, because there weren't sufficient applicants!

I would love to discuss your interests with you. Will you be at the CIC meeting in Guelph? If not there, then we could meet in Ottawa where Isabel and I will be at the end of October.

With all good wishes, I remain,

Yours sincerely,

AB/cw

Enclosure

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10 April 1995

Dr. Alfred Bader,
c/o Aldrich Chemical Company
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U.S.A. 53233

Dear Alfred:

I am writing you on the suggestion of Karl Diedrich to describe a plan that I have come upon recently. Perhaps you may find it interesting.

One of the most difficult problems we deal with in the education world is the apathy of the students. Hence, it is quite a delight to meet a few students who are not only very intelligent but also very enthusiastic about their studies. We have recently been presented with four of these, coming from our First Year, who are most interested in working in the laboratories during the summer. They are mostly Canada Scholars, and all are doing very well in their current studies. It turns out that they are willing to spend the summer in the laboratories, even at a very low wage.

When I met the first of these, I wrote out a personal cheque for $1000, and persuaded a research supervisor to promise an additional $1000. This is for a girl who wants to pursue synthetic organic chemistry, a field in which you have provided a guiding example. My small consulting company has now contributed a further $1000 and another research supervisor can find $1000. My thought is to write to a number of our more successful graduates and to a few friends of the Department to see whether or not we could raise an additional few thousand dollars for this summer. Perhaps we could even manage to set up a summer scholarship for First Year students. I have personally established a scholarship for one student entering Second Year. We have a few other scholarships but none to cover summer stipends.

Department of Chemistry ☐ Steacie Building ☐ (613) 788-3841
Department FAX (613) 788-3749

What would you expect to get out of this? Exactly as I do, you would get the satisfaction of helping young people who are bright and enthusiastic. You know this feeling well -- we would not need more reward than this.

An important criterion would have to be that the supervisor be willing to spend a good deal of time with each such student. We wouldn't want these young people to spend the summer washing dishes or running errands. Fortunately, we have excellent supervisors arranged. Another criterion that I have set for myself is that I must play no role in the selection, so as to avoid all possibility of personal bias.

If you would find a project such as this interesting, we would be very happy. In any case, I would be interested to get your opinion of this type of scheme. Please write to me if you have any thoughts.

We haven't seen you in Ottawa for a couple of years. I hope you will soon return--there will be birthdays coming up in the Fall, perhaps we will see you then. I haven't seen Marion Dick since you were here last time.

My little book on the Chemistry of Art and Artifacts has now been published. The publisher is not very enthusiastic about marketting the book, but I have now arranged that it be reviewed in J Chem Ed, and by the Canadian Chemical News. Perhaps that will spread the word a bit. I can send you a copy if you are interested.

With kind personal regards,

Don Wiles

D.R.Wiles.

ALFRED BADER FINE ARTS

DR. ALFRED BADER

ESTABLISHED 1961

April 19, 1995

Professor Victor Snieckus
Department of Chemistry
Guelph-Waterloo Centre
University of Waterloo
Waterloo, Ontario N2L 3G1
Canada

Dear Victor:

I listened to some of the lectures which you chaired in Anaheim, but didn't have a chance to shake your hand.

Now Professor Oakley has asked me to send you some short CV, which surprises me because when I visited you last in Waterloo, you gave me one of the best introductions that I ever received.

I hope that by the time you will introduce me, you will have a chance to look at my autobiography, *Adventures of a Chemist Collector*, which will be sold both by Queen's and by Little, Brown. I don't think that you will need more material, but also now enclosed is a copy of Paul Walter's introduction at the Parsons Award ceremony in Anaheim.

Isabel and I much look forward to seeing you next month.

With all good wishes, I remain,

Yours sincerely,

AB/cw

Enclosure

c: Professor Richard Oakley (w/enclosure)

By Appointment Only
ASTOR HOTEL SUITE 622
924 EAST JUNEAU AVENUE
MILWAUKEE WISCONSIN USA 53202
TEL 414 277-0730 FAX 414 277-0709

ALFRED BADER FINE ARTS

DR. ALFRED BADER

ESTABLISHED 1961

May 4, 1995

Professor Richard Oakley
Conference Chair
Department of Chemistry and Biochemistry
University of Guelph
Guelph, Ontario N1G 2W1
Canada

Dear Professor Oakley:

Please find enclosed herein a snapshot of Dr. Bader, as you requested by telephone earlier this week. I hope this will be sufficient for your purposes. Please return the snapshot when you are finished using it.

If you would like any other information about Dr. Bader for your publicity purposes, etc., please do not hesitate to ask.

Thank you.

With all good wishes, I remain,

Yours sincerely,

Cheryl Weiss
Office Manager

Enclosure

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RECTI CULTUS PECTORA ROBORANT

UNIVERSITÉ
BISHOP'S
UNIVERSITY

December 20, 1994

Dr. Alfred Bader
2961 North Shepard Avenue
Milwaukee, Wisconsin 53211
U.S.A.

Dear Dr. Bader:

I enjoyed our casual meeting at the CSC Conference Banquet in Winnipeg last June and hope that we can involve you to a greater extent at the Organic Division's activities at our Guelph meeting in 1995. More of which at another time.

I am writing to you at this time primarily with regard to the publicity for the Alfred Bader Scholarships that emanates specifically from the Organic Division of the Canadian Society for Chemistry.

You will by now have received a letter from Diane Goltz outlining the publicity for these Scholarships that has been managed directly from our National Office.

Within the Organic Division of the Canadian Society for Chemistry, we agreed last summer that we would attempt to ensure that a wider and more effective publicity of the Alfred Bader Scholarships than heretofore, be achieved by direct Divisional initiatives. I might also add that this is in addition to publicity in Newsletters from the CSC Organic Division to all of its 700-some members.

In my capacity, therefore, as Chairman of the Organic Division of the Canadian Society for Chemistry, I have recently completed mailings to the Chairmen of all Canadian Chemistry Departments, to the Faculty Advisors of all CSC Student Chapters, and to the Student Presidents of all CSC Student Chapters in the country. In each case, a covering letter encourages the submission of applications from well-qualified candidates and a second page is

Lennoxville, Quebec, Canada J1M 1Z7
Tel: (819) 822-9600 Fax: (819) 822-9661

a flyer that announces the details of eligibility, application, and selection procedures. I believe that in these ways we are able to reach <u>all</u> potential undergraduate honours candidates for the Alfred Bader Scholarships and that we have been able to establish the importance, prestige, and example that is associated with your generosity. In connection with the latter, I have also sent out to all Student Presidents a few copies of the article on you (by Jack Edward) that appeared in the June 1992 issue of ACCN.

With best wishes to you and yours on this Holiday season.

Yours sincerely,

Ron Yeats

Dr. R. B. Yeats
Chairman, Organic Division
Canadian Society for Chemistry

RBY:jop

cc: Dr. Anne Alper, Executive Director, CSC
Ms. Diane Goltz, CSC Programme Manager, Awards
Dr. V. Snieckus, CSC Organic Division Executive
Dr. Tom Swaddle, FCIC, CSC Director, Awards

ALFRED BADER FINE ARTS

DR. ALFRED BADER

ESTABLISHED 1961

March 6, 1995

Professor Richard Oakley
Conference Chair
Department of Chemistry and Biochemistry
University of Guelph
Guelph, Ontario
Canada

Dear Professor Oakley:

I was so encouraged by your kindness expressed in your telephone conversation on Friday.

I had felt so badly that your package of January 17th simply got buried due my absence in England and subsequent serious operation and stroke suffered by my secretary on the day that I returned from England.

Of course, I was happy to know that no permanent harm was done.

I look forward to giving the talk, 'The Adventures of a Chemist Collector' and will concentrate on paintings that we have already given to Queens University.

I really think that my best talk for chemists is the one on Josef Loschmidt, and I would be happy to present that if time allows. Also, if there are students of the fine arts and theology who might be interested in the talk, 'The Bible through Dutch Eyes', I would be happy to give that. Three talks in three days, from Sunday through Tuesday, would certainly not be too much.

I enclose some details about my autobiography, which will be published by Weidenfeld & Nicolson in London next month and should be available from Little-Brown in Toronto in May. I will try to find out the name and telephone number of the person at Little-Brown in Toronto responsible for this and will fax it to you. Of course I would be happy to sign copies of the book.

With all good wishes to you and your associates, I remain,

Yours sincerely,

By Appointment Only
ASTOR HOTEL SUITE 622
924 EAST JUNEAU AVENUE
MILWAUKEE WISCONSIN USA 53202
TEL 414 277-0730 FAX 414 277-0709

Dr. Alfred Bader
2961 North Shepard Avenue
Milwaukee, Wisconsin 53211

A Chemist Helping Chemists

August 2, 1995

Professor John A. Weil
Department of Chemistry
University of Saskatchewan
110 Science Place
Saskatoon, SK S7N 5C9
Canada

Dear Professor Weil:

Please don't mind that a long trip to Europe has delayed my thanking you for your letter of July 10th.

Of course, we would love to see you in Milwaukee again, but unfortunately, we plan to spend almost all of December in our English home and don't plan to return to Milwaukee until the very end of December. Is there any chance that you could extend your stay with your daughter in Kenosha until the first week of January?

As you will be able to imagine, we receive many, many requests for funding, sometimes several times a day. There is, of course, no question that Professor Herzberg is a very great physicist, but the fund in his honor is somewhat outside of our main interests. I do that hope you will understand.

With all good wishes, I remain,

Yours sincerely,

AB/cw

July 10, 1995

Dr. A. Bader
2961 N. Shepard Avenue
Milwaukee WI 53211
U.S.A.

Dear Dr. Bader:

I am writing today, as I am sure many others do, to explore whether you might wish to pitch in on a broad research funding project. I refer to the Herzberg Fund, which I am organizing here at the University of Saskatchewan, as explained in the enclosed brochure.

Stage 1 is now coming to an end, and consisted of private solicitations from among our own local friends and students. The goal was $100,000, and indeed we are approaching $90,000. This certainly demonstrates both our enthusiasm and our sense of urgency and need. The next stage will be to approach appropriate commercial and industrial organizations. If you have an interest, your own advice about this phase would be much welcomed.

Dr. Herzberg is still much in evidence here, and paid us (his home for a decade) a wonderful visit last autumn, giving a 'standing room only' lecture entitled *'Molecules in Space'*. He is personally supportive of the Fund, especially since its goal is (exclusively) the support of graduate students and their research. You will know how revered Herzberg is internationally. I enclose some excerpts from a recent issue of the Canadian Journal of Physics, dedicated to him on his 90th birthday.

Our long-term goal for the Herzberg Fund Drive is to fund three graduate fellowships, of overlapping but not exactly simultaneous tenure. That will take, say $30,000 per year - which implies presence of a sizable principal sum. We wonder whether you can help.

Independent of the above, I'll turn now to more personal matters. My own research in EPR of various systems continues to go well, despite the usual problems. The latest publication reports the first of a series of studies, done in collaboration with a group in Pharmacology, on the role of oxygenic free radicals in Alzheimer's disease. My group also is working on certain nitroaromatic hydrazines. Our primary project continues to be the study of magnetic defects in silicon dioxide. Next year, I must officially retire, at 67, but hope to continue research.

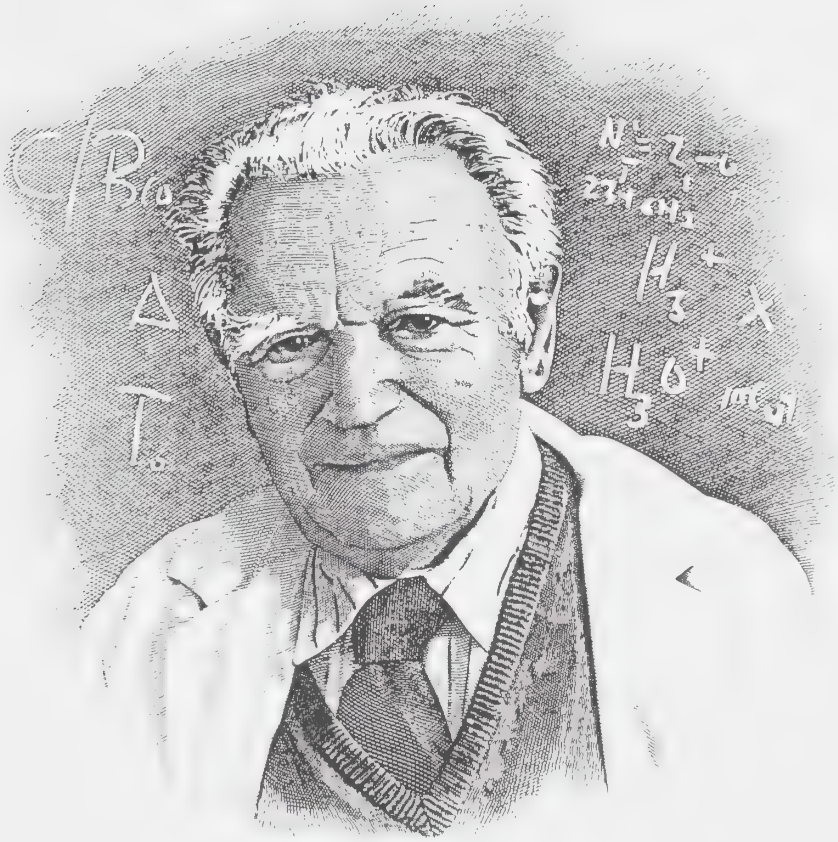
Andrea and I would much like to visit the Baders again, to see the latest paintings too. Our next visit to Wisconsin will probably only occur in December: Xmas/Hannukkah at our daughter's in Kenosha.

With best personal regards,

Yours sincerely,
John Weil
John A. Weil
Professor

JAW:rd
encls.

Department of Chemistry, University of Saskatchewan
110 Science Place, Saskatoon SK S7N 5C9, Canada Telephone: (306)966-4654 Facsimile: (306)966-4730



Gerhard Herzberg

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Photograph courtesy of National Research Council Canada
Photographie courtoisie du Conseil national de recherches Canada

Dedication

The Editor and Editorial Board are pleased and proud to dedicate this Festschrift — a special ssue of the *Canadian Journal of Physics* — to Dr. Gerhard Herzberg, 1971 Nobel Laureate in Chemistry, on the occasion of his 90th birthday.

Gerhard Herzberg was born in Hamburg, Germany, on December 25, 1904. He received the degree of Doctor of Engineering Physics from the Technical University of Darmstadt in 1928. After postdoctoral years at Gottingen and Bristol Universities, Dr. Herzberg returned to Darmstadt to serve as Privatdozent from 1930–1935. During this period his research in atomic and molecular spectroscopy flourished and his scientific reputation at home and abroad grew.

In 1935, at the invitation of Dr. J.W.J. Spinks, Dr. Herzberg joined the faculty of the Department of Physics at the University of Saskatchewan. During his ten years in Saskatoon he became recognized throughout Canada and the United States as an outstanding spectroscopist, and made major applications of spectroscopy to physics and chemistry. Dr. Herzberg and his wife moved to the United States in 1945 where he had been appointed Professor of Spectroscopy at the Yerkes Observatory of the University of Chicago.

In 1948 the Herzbergs returned to Canada, where Dr. Herzberg took a position at the National Research Council laboratories in Ottawa, and he soon became Director of the Physics Division. When he was awarded the Nobel Prize in Chemistry in 1971, the citation stated, ...Dr. Gerhard Herzberg is generally considered to be the world's foremost molecular spectroscopist, and his large institute in Ottawa is the indisputed centre for such research...." His closest colleague at the National Research Council for many years, Dr. Alex Douglas, has said that "[Herzberg's] most fruitful study has been the production and analysis of the spectra of...free radicals...."

Gerhard Herzberg was and is a very hard working and methodical person. For many years, long days during the week were dedicated to research, Saturdays to writing, and Sundays to recreational activities, hiking and music being his favourites. The late Luise Herzberg, his first wife, worked closely with her husband and was his coauthor on several papers.

Since 1969 Dr. Herzberg has been a Distinguished Research Scientist at the National Research Council, and from 1975 until recently he held this position in the Herzberg Institute of Astrophysics. He currently holds the same position in the National Research Council's Steacie Institute for Molecular Sciences. He has received many other

Dédicace

Le directeur scientifique et le comité consultatif sont heureux et fières de dédicacer ce « Festschrift » — un numéro spécial de la *Revue canadienne de physique* — à M. Gerhard Herzberg, prix Nobel de chimie 1971, à l'occasion de son 90^{e} anniversaire.

Gerhard Herzberg est né à Hambourg, en Allemagne, le 25 décembre 1904. Il obtient son diplôme de doctorat en génie physique de l'université technique de Darmstadt en 1928. Après un séjour postdoctoral aux universités de Göttingen et de Bristol, M. Herzberg retourne à Darmstadt à titre de « Privatdozent » de 1930 à 1935. Durant cette période, sa recherche sur la spectroscopie atomique et moléculaire le fait connaître, et sa renommée scientifique au pays et à l'étranger ne cesse de croître.

En 1935, en réponse à l'invitation lancée par M. J.W.J. Spinks, M. Herzberg se joint au corps professoral du département de physique de l'université de Saskatchewan. Durant ses dix années à Saskatoon, il devient réputé partout au Canada et aux États-Unis comme expert en spectroscopie en appliquant la spectroscopie à la physique et à la chimie. Par suite de la nomination de M. Herzberg comme professeur de spectroscopie à l'observatoire Yerkes de l'université de Chicago en 1945, ce dernier et son épouse déménagent aux États-Unis.

En 1948, les Herzberg reviennent au Canada. Gerhard Herzberg se retrouve aux laboratoires du Conseil national de recherches à Ottawa, où il devient peu après directeur de la Division de la physique. Lorsqu'il est proclamé lauréat du prix Nobel de chimie de 1971, on dit à son sujet qu'il est parmi les plus grands experts en spectroscopie moléculaire du monde et que l'important institut où il oeuvre à Ottawa est sans contredit le plus solide centre de recherche dans le domaine. Son principal collaborateur au Conseil national de recherches pendant de nombreuses années, M. Alex Douglas, déclare que « l'étude la plus productive [de M. Herzberg] est celle sur la production et l'analyse du spectre ... des radicaux libres... »

Gerhard Herzberg était et demeure un travailleur assidu et méthodique. Pendant de nombreuses années, la semaine (de longues journées en fait) fut consacrée à la recherche, le samedi à l'écriture et le dimanche aux loisirs, dont ses préférés : la randonnée et la musique. Feue Luise Herzberg, sa première épouse, a travaillé en étroite collaboration avec son mari et a été coauteure de plusieurs mémoires de recherche.

M. Herzberg est, depuis 1969, l'un des plus éminents chercheurs du Conseil national de recherches et, de 1975 jusqu'à tout récemment, il a occupé pareil rang à l'Institut Herzberg d'astrophysique. Il est également membre éminent de l'Institut Steacie des sciences moléculaires du Conseil national de recherches. Il a reçu d'autres importantes distinctions, y compris trois douzaines de marks of high distinction, including some three dozen honorary degrees, many prestigious medals, honorary fellowships, and distinguished lectureships. He was a member of the Editorial Advisory Board of the *Canadian Journal of Physics* for many years, and we are honoured that Dr. Herzberg continues his association with our Journal as Honorary Patron.

For those interested in further biographical information about Dr. Herzberg's remarkable career and his scientific endeavours, we warmly recommend the article "G.H." by Dr. Boris Stoicheff in the April 1972 Special Issue of *Physics in Canada*, published in honour of Dr. Herzberg on the occasion of his receipt of the Nobel Prize.

We wish Dr. Gerhard Herzberg a very happy birthday, and we look forward to another celebration of excellence in physics with a special issue on the occasion of his hundredth birthday.

diplômes honorifiques, de nombreuses médailles prestigieuses, des bourses honorifiques et des invitations comme conférencier de marque. Il a siégé au Comité consultatif de la *Revue canadienne de physique* pendant de nombreuses années, et nous sommes très fiers que M. Herzberg continue de collaborer à la Revue à titre de patron d'honneur.

Toute personne intéressée à en connaître davantage sur la vie et la carrière remarquables de M. Herzberg et sur ses réalisations scientifiques est invitée à lire l'article « G.H. », de M. Boris Stoicheff, paru en avril 1972 dans un numéro spécial de la *Physique au Canada*, une revue publiée en l'honneur de M. Herzberg à l'occasion de sa réception du prix Nobel.

Nous souhaitons à M. Gerhard Herzberg un très heureux anniversaire et anticipons le plaisir de souligner à nouveau son excellence en physique, dans un numéro spécial à l'occasion de son 100^{e} anniversaire.

Donald D. Betts JA Coxon

Donald D. Betts and/et John Coxon
Editors of this special issue / Les directeurs scientifiques du présent numéro

Dr. Alfred Bader
2961 North Shepard Avenue
Milwaukee, Wisconsin 53211

A Chemist Helping Chemists

August 31, 1995

Dr. Hugh J. Anderson
Department of Chemistry
University of Newfoundland
St. John's, Newfoundland A1B 3X7
Canada

Dear Dr. Anderson:

I am sorry that a very long trip to Europe has delayed my thanking you for your gracious invitation to come to St. Johns at the end of next June.

Isabel and I have really enjoyed coming to CIC meetings, but that is very much easier when the meetings are at the end of May and in central Canada.

We have a home in England and generally spend most of June and July there and on the Continent and so sadly, I must decline your kind invitation.

With all good wishes, I remain,

Yours sincerely,

AB/cw

ALFRED BADER FINE ARTS

DR. ALFRED BADER

ESTABLISHED 1961

July 6, 1995

Dr. Hugh J. Anderson
Department of Chemistry
University of Newfoundland
St. John's, Newfoundland A1B 3X7
Canada

Dear Dr. Anderson:

Thank you for your letter of June 21st to Dr. Bader. However, Dr. Bader is in England through the end of July. He will reply personally upon his return to Milwaukee.

Best wishes,

Cheryl Weiss

Cheryl Weiss
Office Manager

By Appointment Only
ASTOR HOTEL SUITE 622
924 EAST JUNEAU AVENUE
MILWAUKEE WISCONSIN USA 53202
TEL 414 277-0730 FAX 414 277-0709

Memorial
University of Newfoundland

Department of Chemistry

June 21, 1995

Dr. Alfred Bader
2961 N. Shepard Avenue
Milwaukee, Wisconsin
53211
U.S.A.

Dear Dr. Bader,

Although you indicated that you would probably not be able to attend the Canadian Society for Chemistry Conference in St. John's next June 23-26, I thought I would persevere and extend a proper invitation. I wanted also to point out that Air Canada offers non-stop flights direct from St. John's to Heathrow (4½-5hrs.). There are usually three, and in summer four, flights per week.

We in the History of Chemistry Group would like to invite you to contribute to our session with an address (35-40 minutes) on a topic in the history area - your choice.

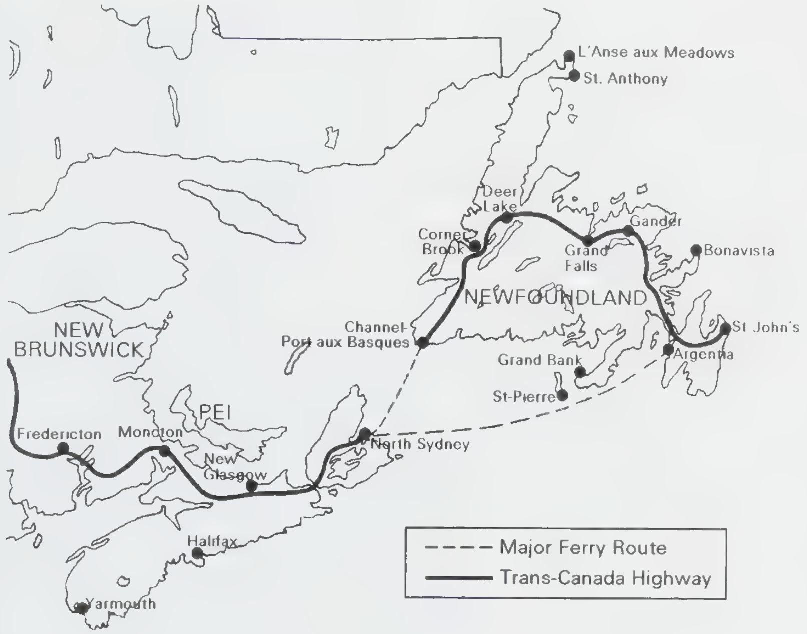
Please give this invitation further thought. It would also enable you to re-examine the harbor, and even to sail out and in on one of the excursion schooners.

Yours sincerely,

Hugh J. Anderson
for the History of
Chemistry Group

HJA/mt

St. John's, Newfoundland, Canada A1B 3X7 • Tel.: (709) 737-8772 • Telex: 016-4101• Fax: (709) 737-3702



Estimated travelling time (by air) to St. John's from...

Halifax	**1½ hrs.**
Montreal	**2½ hrs.**
Toronto	**3 hrs.**
Winnipeg	**5 hrs.**
Edmonton	**6 hrs.**
Vancouver	**7 hrs.**
London, England	**6 hrs.**

Estimated travelling time (by road) to St. John's from...

Port aux Basques	**12 hrs.**
Argentia	**1½ hrs.**
Gros Morne National Park	**9 hrs.**
Gander	**4 hrs.**
Terra Nova National Park	**3½ hrs.**
L'Anse aux Meadows National Historic Park	**14 hrs**

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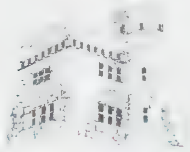

1996

Chemistry Signals the Way

La Chimie Nous Signale La Direction

79 ième Congrès de la Société Canadienne de Chimie et Exposition

79 th Canadian Society for Chemistry Conference and Exhibition

Memorial University of Newfoundland, June 23-26, 1996

The 1996 Canadian Society for Chemistry Conference and Exhibition (CSCCE '96) will be held in St. John's, on the campus of Memorial University of Newfoundland. St. John's, the "City of Legends", has a population of 105,363 and is the capital city of the Province of Newfoundland and Labrador. The city is served by Torbay airport which is within 10 minutes drive from the university. Newfoundland can also be approached by Marine Atlantic ferries from North Sydney, Nova Scotia to Argentia or Port aux Basques (see map on back). Newfoundland's maritime tradition which began at least 1000 years ago (Viking settlement at L'Anse aux Meadows), has continued through the years (John Cabot, 1497) and it still continues today (Hibernia Project). Combine the conference and its exciting scientific program (see inside) with post or pre-conference visits to picturesque fishing villages, seabird sanctuaries, national historic sites or a world heritage site in one of Newfoundland's two national parks.

The Conference begins with a lecture by Nobel Laureate, Roald Hoffmann and a celebration of the 100th anniversary of Becquerel's discovery of radioactivity. The organizing committee invites you to help make the conference, in all respects, a scientific and social success.

Preliminary Scientific Program

Program Chair: C. Robert Lucas (Memorial)

Introductory Public Lecture:

"The Same and Not the Same; Why Chemistry is Interesting"

by

Professor Roald Hoffman (Cornell University)

A Celebration of the 100th Anniversary of the Discovery of Radioactivity:

General presentations for the informed layman on benefits and applications of radioactivity organized by A.C. Vikis (AECL).

Analytical Chemistry (AN)

F.R. Smith (Memorial)

• Analytical Separations	R.J. Helleur
• New Developments in Mass Spectroscopy of Biomolecules (Joint with PH)	J. Banoub
• Biosensors and Chemical Sensors	F.R. Smith
• Applications of Nuclear Chemistry (Joint with RC)	A. Chatt
• Electrode Processes and their Applications (Joint with EN and PH) Sponsored by the Canadian Section of the Electrochemical Society.	F.R. Smith P.G. Pickup
• General Session(s) and Posters	R.J. Helleur

Chemical Education (CE)

J.N. Atherton (Memorial)

• History of Chemical Education	H.J. Anderson
• The Atlantic Provinces' Joint High School Chemistry Program	H.G. Elliott
• Teaching Science to Women	A. -M. Weidler-Kubanek A. Arduini
• Standards for Technicians and Technologists	P. Fisher
• Computers in Chemical Education	B. Rice
• Microscale Laboratory Techniques	G. Rayner-Canham
• General Session(s) and Posters	J.N. Atherton

Environmental (EN)

N.J. Gogan (Memorial)

• Long Range Transport of Pollutants	S. Ray
• Environmental Issues in Aquaculture	S. Ray
• Marine Contaminants and Pollution (Joint with the Marine Chemistry Symposium)	C. Parrish
• Electrode Processes and their Applications (Joint with AN and PH) Sponsored by the Canadian Section of the Electrochemical Society.	F.R. Smith P.G. Pickup
• Multidisciplinary Environmental Research Projects (Workshop)	N.J. Gogan
• General Session(s) and Posters	N.J. Gogan

Inorganic (IN)

L.K. Thompson (Memorial)

• Coordination Chemistry of Main Group π-Systems	M.J. Schriver N. Burford
• Inorganic / Organometallic Stereochemistry	C.R. Jablonski
• Molecular Magnetism and Magnetostructural Studies	L.K. Thompson R.J. Crutchley
• Coordination and Organometallic Chemistry Involving New Materials or Extended Systems	C.R. Lucas M. Zaworotko
• Macrocyclic Complexes - Structures, Properties and Mechanisms	R.I. Haines A. McAuley
• General Session(s) and Posters	H.J. Clase

Medicinal and Biological (MB)

B. Gregory (Memorial)

• New Directions for Antilnflammatory Drugs (Sponsored by Merck-Frosst)	R. Young
• Anti-Cancer Research: Current Trends and Future Prospects	G. Attardo
• Application of Physical-Organic Techniques to Bioorganic Mechanisms (Joint with OR)	A.R. Stein
• General Session(s) and Posters	B. Gregory

Organic Chemistry (OR)

D.J. Burnell (Memorial)

• Cycloadditions (Joint with PH)	R.A. Poirier D.J. Burnell
• Application of Physical-Organic Techniques to Bioorganic Mechanisms (Joint with MB)	A.R. Stein
• Strategies in Total Syntheses	G.J. Bodwell
• Frontiers in Heterocyclic Chemistry	D. MaGee
• Reactive Intermediates in Solution (Joint with PH)	J. Lusztyk D. Armstrong
• General Session(s) and Posters	D.J. Burnell

Physical Chemistry (PH)

R.A. Poirier (Memorial)

• Solution and Interfacial Chemistry	P. Tremaine
(a) High Temperature Water and Aqueous Solution Chemistry	
(b) Colloids and Interfaces	J. Kwak
(c) Spectroscopy of Solutions and Interfaces	M.H. Brooker
• Theoretical Chemistry	
(a) Material Design and Non-Linear Optics	A. Thakkar
(b) Biomolecular Modelling	B. Roux
(c) Molecular Dynamics	G. Patey
• Recent Advances in Hyperfine Interaction Research	S. Mattar
• High Performance Computing in Chemistry	R.A. Poirier J. Lagowski
Cycloadditions (Joint with OR)	R.A. Poirier D.J. Burnell
Reactive Intermediates in Solution (Joint with OR)	J. Lusztyk D. Armstrong
Electrode Processes and their Applications (Joint with AN and EN) Sponsored by the Canadian Section of the Electrochemical Society.	F.R. Smith P.G. Pickup
• New Developments in Mass Spectroscopy of Biomolecules (Joint with AN)	J. Banoub
• General Session(s) and Posters	R. Davis

Surface Science (SS)

K. Griffiths (UWO)

• Recent Advances in Scanning Probe and Scanning Force Microscopies	K. Griffiths R. Sodhi
• General Session(s) and Posters	K. Griffiths

Forestry Chemistry (FC)

G. Strunz (Cdn. Forest Service)

• Chemistry and the Forest: Ecological and Industrial Perspectives (Seeing the Forest and the Trees!)	G. Strunz

Marine Chemistry and Chemical Oceanography (MC)

C. Parrish (Memorial)

• Cold Water Biogeochemistry	C. Parrish
• Marine Toxins and Phytochemistry	C. Parrish
• Marine Contaminants and Pollution (Joint with EN)	C. Parrish

Radiochemistry (RC)

C.R. Lucas (Memorial)

• Radiopharmaceuticals	S. Liu
• Applications of Nuclear Chemistry (Joint with AN)	A. Chatt

Science Policy Forum (SP)

Vice-President, CSC;
V.H. Smith (Queen's)

For further information on any aspect of the scientific program, please contact Robert Lucas, Department of Chemistry, Memorial University of Newfoundland, St. John's, Newfoundland A1B 3X7 Tel: (709) 737-8118 Fax: (709) 737-3702 e-mail: rlucas@kean.ucs.mun.ca

Dr. Alfred Bader
2961 North Shepard Avenue
Milwaukee, Wisconsin 53211

A Chemist Helping Chemists

August 2, 1995

Professor Richard Oakley
Conference Chair
Department of Chemistry and Biochemistry
University of Guelph
Guelph, Ontario N1G 2W1
Canada

Dear Richard:

I am sorry that a long trip to Europe, which included two lectures at the Loschmidt Symposium, has delayed my responding to your letter of July 11th.

Isabel and I so enjoyed our trip to Guelph, and I'm just sorry that the next CIC meeting will be so very far away. But perhaps, if we're around, the CIC will invite us to the 1997 meeting. Do you know where that will be held?

The expenses incurred en route to and from Guelph were so tiny that they are not worth mentioning.

Again, with many thanks for all your help, I remain,

Yours sincerely,

AB/cw

CSC
Guelph

78th
ième

Canadian Society for Chemistry Conference and Exhibition
Congrès et Exposition de la Société canadienne de chimie

University of Guelph, Guelph, Ontario, 28th May - 1st June 1995

11 July 1995

Dr. Alfred Bader
Suite 622, Astor Hotel
924 East Juneau Ave.
Milwaukee, Wisconsin 53202 U.S.A.

Dear Dr. Alfred:

I have spent much of the past month closing down the operations of the CSC Conference. Clearing up after a party is never as much fun as preparing for one, although I confess the stress factor is lower.

I am writing now to thank you and Isabel for coming to our Conference. Of all the many happy memories that I will carry from the Conference, having the opportunity to meet you both ranks very highly. I enjoyed your talk immensely, not only at a personal level, but also from the more selfish perspective of the Conference Chair, anxious to have the Conference off to a good start. In that sense your opening lecture helped set the tone for what I believe was very successful week. Your presence at the various awards ceremonies, not to mention the awards themselves, also represented an invaluable contribution.

On more mundane matters, I enclose the photo that you sent us some months back for publicity purposes; thanks very much. Please don't forget to pass on your receipts for any expenses you incurred while in or en route to Guelph.

I look forward to seeing you at future CSC Conferences.

With very best wishes,

Richard

Richard Oakley
Conference Chair
Department of Chemistry and Biochemistry
University of Guelph, Guelph
Ontario, N1G 2W1 Canada

Phone: 519-824-4120 x3793
FAX: 519-766-1499
e-mail: oakley@chembio.uoguelph.ca

ref: d:\c95\csc95.144

cc/ Diane Goltz, CSC Conference Manager

PS [illegible]

ALFRED BADER FINE ARTS

DR. ALFRED BADER

ESTABLISHED 1961

July 18, 1995

Professor Richard Oakley
Conference Chair
Department of Chemistry and Biochemistry
University of Guelph
Guelph, Ontario N1G 2W1
Canada

Dear Professor Oakley:

Thank you for your letter dated July 11th to Dr. Bader and the return of the photo.

Dr. and Mrs. Bader are in England through the end of the month, and he will reply personally upon his return to Milwaukee.

Best wishes,

Cheryl Weiss

Cheryl Weiss
Office Manager

By Appointment Only
ASTOR HOTEL SUITE 622
924 EAST JUNEAU AVENUE
MILWAUKEE WISCONSIN USA 53202
TEL 414 277-0730 FAX 414 277-0709

Dr. Alfred Bader
924 East Juneau, Suite 622
Milwaukee, Wisconsin 53202
Phone: 414/277-0730
Fax: 414/277-0709

A Chemist Helping Chemists

October 31, 1995

Professor Victor Snieckus
Department of Chemistry
Guelph-Waterloo Centre
University of Waterloo
Waterloo, Ontario N2L 3G1
Canada

Dear Victor:

Thank you for your note and the most interesting enclosures.

Anytime that you hear me say, "Who's Vic Snieckus?", you will know that I have gone senile.

Unfortunately, we will not be able to attend the CIC meeting at the end of June in Newfoundland, but look forward to seeing you again in Windsor in 1997.

Fond regards, as always,

AB/cw

Victor Snieckus

Professor of Chemistry
NSERC/Monsanto Chair in Chemical Synthesis and Biomolecule Design

University of Waterloo

The Guelph-Waterloo Centre for Graduate Work in Chemistry
University of Waterloo
Waterloo, Ontario, Canada N2L 3G1

Tel: (519) 888-4567, ext. 2492
Fax: (519) 746-5884
E-mail: snieckus@buli.uwaterloo.ca

October 12, 1995

Dr. Alfred Bader
Astor Hotel Suite 622
924 East Juneau Avenue
Milwaukee, Wisconsin 53202
USA

Dear Alfred:

A short note to explain that the attached was not captioned by me but by a close friend and colleague. Perhaps it may find its way as a slide at a future meeting?

Hope all is well with you and Isabel.

Sincerely,

Victor.

Encl.

Dr. Alfred Bader
2961 North Shepard Avenue
Milwaukee, Wisconsin 53211

September 16, 1994

Professor Mel Schriver
Department of Chemistry
Memorial University of Newfoundland
St. John's, Newfoundland A1B 3X7
Canada

Dear Professor Schriver:

Thank you so much for your letter of September 1st.

My wife, Isabel, a Canadian, and I would much enjoy a week's tour through the Maritimes in October 1995. You have the seen the "menu" of my talks, and I would be happy to give two or three talks every day.

Some four years ago, 36 of the paintings which I gave to Queen's University travelled through Canada, and as you will see from the enclosed list included Fredericton, Halifax and Wolfville. Also, we toured the Maritimes before then and had such warm welcome everywhere. When we left Wolfville and Antigonish, we said to ourselves that here were two places we had never visited before and certainly wanted to visit again.

The least expensive manner of travel would be to rent a car in Boston and then drive through the Maritimes and return the car to Boston. We feel very uncomfortable being put up in fancy hotels, and would try to keep our expenses to a minimum. Still, I don't believe that it could be kept to Canadian $750.

Please do discuss this with the local sections and also the art museums. Also in cities like Halifax, the Jewish communities might like to listen to my talk "The Bible through Dutch Eyes" which can be subtitled "Rembrandt and the Jews".

I realize, of course, that putting all this together will be hard work, particularly for you being in Newfoundland. We just hope that if the trip comes about you will feel that your efforts will have been worthwhile.

I enclose some articles describing my life.

All good wishes.

Sincerely,

Enclosures

Dr. Alfred Bader
2961 North Shepard Avenue
Milwaukee, Wisconsin 53211

July 25, 1994

Professor Donald R. Arnold
Department of Chemistry
Dalhousie University
Halifax, Nova Scotia B3H 4J3
Canada

Dear Professor Arnold:

Thank you for your gracious letter of July 7th, and please accept my heartiest congratulations on winning the award. I do hope you will be able to submit a paper based on your award address to the *Aldrichimica Acta*. As you know that publication goes to over 200,000 chemists worldwide, and Aldrich takes very good care to present the papers attractively. Please just do not mention my name in your paper.

As you perhaps know, I was dismissed from Aldrich some two years ago, but all of the chemists have remained my good friends. Please send your manuscript to the attention of Dr. Stephen Branca, who is in charge of the publication.

I do hope you will have a chance to visit with us when next you are in Milwaukee.

All good wishes,

c: Dr. Stephen Branca

Dalhousie University

Dr. Donald R. Arnold
Alexander McLeod Professor
of Chemistry
Department of Chemistry
Halifax, Nova Scotia
Canada B3H 4J3
Tel: (902) 494-3714
Fax: (902) 494-1310
Internet: ARNOLD@AC.DAL.CA

July 7, 1994

Dr. Alfred Bader
2961 North Shepard Avenue
Milwaukee, Wisconsin
53211
U.S.A.

Dear Dr. Bader,

You have made my day/year! The Canadian Society for Chemistry has just informed me that I have been chosen the 1995 winner of the Alfred Bader Award in Organic Chemistry. I am so very pleased and proud. Of course, I know the previous recipients well; THEY are all outstanding scientists. It is a tremendous honour for me to join them. I promise to work (even) harder. Thank you, and your wife, for making this possible.

I recall, a few years ago, you and your wife visited Dalhousie and presented a seminar. When you are next in our area, my wife and I would be very pleased to have you visit our home. You would notice how you have previously influenced our lives. For example, we could sit on our deck (weather permitting) and enjoy the flowers that are growing in numerous painted boxes. These nice wooden boxes were originally marked "Milw. Goodwill Inc., Milwaukee, Wis.". We could listen to the robins that nest in bird houses I have made from some of these boxes. We could enjoy home-grown vegetables. Halifax County does not have good soil, too rocky. My garden has profited from years of mulching with vermiculite, also, thanks to you. In the house, you would recognise some of your art, hanging from our walls. Please do come for a visit.

Thank you. And congratulations to you - Winner of the 1995 Charles Lathrop Parson Award. Truly, a well deserved honour!

Sincerely,

Don Arnold

Donald R. Arnold
Alexander McLeod
Professor of Chemistry

Dalhousie University

Department of Chemistry
Halifax, Nova Scotia
Canada B3H 4J3
Tel: (902) 494-3305
Fax: (902) 494-1310

July 21, 1994

RJBOYD@ADM.DAL.CA

Dr. Alfred Bader
924 East Juneau Avenue
Astor Hotel
Milwaukee, Wisconsin 53202
USA

Dear Dr. Bader:

Many thanks for your letter of July 14, 1994 in reply to my letter of June 14, 1994.

I have tremendous admiration for your support of your own universities, and I trust you were not offended by my previous letter. During my term as Chair I hope to establish the first endowed graduate scholarship in the Department of Chemistry at Dalhousie University. If you have any advice you would like to share with us, I would be most grateful for your suggestions.

I am delighted to know that you have good memories of your tour through the Maritimes a few years ago. I hope we will once again have an opportunity to receive you at Dalhousie University.

With best personal wishes,

Yours sincerely,

R.J. Boyd

Russell J. Boyd, Chair
and Professor of Chemistry

RJB/djc

hd dc c:\wp\chair\july20

Dr. Alfred Bader
2961 North Shepard Avenue
Milwaukee, Wisconsin 53211

July 14, 1994

Professor Russell J.Boyd, Chair
Department of Chemistry
Dalhousie University
Halifax, Nova Scotia
Canada B3H 4J3

Dear Professor Boyd:

I am sorry that a long trip to Europe has delayed my responding to your thoughtful letter of June 14th.

I still remember with great pleasure a speaking tour through the Maritimes a few years ago, and the fine welcome Isabel and I received at Dalhousie University. There is, of course, no question in my mind that Dalhousie is one of the fine Canadian universities, but surely you will understand that Isabel and I want to help particularly our own universities, that is Queen's, Harvard and the University of Toronto. There and in the country of my roots, the Czech Republic, we have tried to do what you suggest, namely, setting up scholarships and fellowships for chemists, and also two chairs, one in chemistry and one in art history, at Queen's.

I do hope you will understand.

Sincerely,

Dalhousie University

Department of Chemistry
Halifax, Nova Scotia
Canada B3H 4J3

Tel: (902) 494-3305
Fax: (902) 494-1310

June 14, 1994

RJBOYD@ADM.DAL.CA

Dr. Alfred Bader
924 East Juneau Avenue
Astor Hotel
Milwaukee, Wisconsin 53202
USA

Dear Dr. Bader:

In the course of catching up on recent issues of Chemical and Engineering News, I was delighted to learn that you have been selected by the American Chemical Society to receive the 1995 Charles Lathrop Parsons Award. I think this is a most appropriate recognition of your outstanding contributions to the chemical profession and to society in many parts of the world.

While we have not met, I have been fortunate to hear you speak about your experiences with collecting art. I recall your fascinating talk "*Adventures of a Chemist Collector*" at the Fourth Chemical Congress of North America in 1991 in New York. Unfortunately I was in Spain giving some lectures when you gave an invited seminar entitled "*Challenges of Sigma-Aldrich*" at Dalhousie University in November 1987. I think it would be wonderful if we were able to bring you to Halifax to tell us about your love of art.

As I read the C&EN article I was struck by the thought that you might be willing to help us realize one of our dreams. Specifically we would like to establish a small number of endowed graduate scholarships that would be named in honour of individuals who would be ideal role models for our students. I cannot think of a better basis for such a scholarship than the Alfred Bader story with its beginning in Vienna, internment in eastern Canada, three degrees, including a B.A. in history from Queen's, a Ph.D. from Harvard, the founding and building of Aldrich Chemical and an incredible record of achievement in the collection and restoration of art. Dr. Bader, would you be willing to help us establish an Alfred Bader Graduate Scholarship in Chemistry at Dalhousie University? Of course, we would establish the terms of reference in consultation with you.

2 . . .

Dalhousie University has been a centre of teaching and research in Chemistry for over a hundred and twenty years. In fact, the first Master's degree in Chemistry was awarded in 1871. The Department of Chemistry currently consists of 24 professors, 7 instructors, 14 staff members, over 50 graduate students, and a total of about 30 postdoctoral fellows, visiting scientists, and research associates.

Founded in 1749, Halifax, the capital of Nova Scotia, is one of the oldest centres of population and culture in Canada. It boasts many Canadian firsts, including the first representative parliament, the first protestant church, the first newspaper, and also the first university in the British Commonwealth outside the British Isles. With a metropolitan population of over 300,000 people, Halifax is the cultural, economic, educational and medical centre of Atlantic Canada.

In order to tell you more about our Department, I am enclosing a report on the period 1985 to 1992 and a brochure on our research interests.

In closing I would like to emphasize that I believe we have a very fine Department of Chemistry. I sincerely hope you will like our idea and that you will advise us on how we can achieve our objectives.

With best wishes,

Yours sincerely,

R. J. Boyd

Russell J. Boyd, Chair
and Professor of Chemistry

RJB/djc

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The
Guelph-Waterloo Centre
for Graduate Work in Chemistry

Waterloo Campus, Dept. of Chemistry, University of Waterloo, Waterloo, Ont. N2L 3G1 519/888-4653 Fax 519/746-0435

Tel.: 519-888-4007
Fax: 519-746-5884
E-mail: Snieckus@Buli.uwaterloo.ca

September 28, 1994

Dr. Alfred R. Bader
2961 North Shepard Avenue
Milwaukee, Wisconsin 53211
USA

Dear Alfred:

The warm picture of you and Isabel in the May 9th issue of C & EN News wonderfully reflects one of the many aspects of your person.

Ich bin in Zurich als Gastprofessur gewesen und die C & EN News lange Zeit nicht gelesen. Thus, a most belated but sincere congratulations on receipt of the Parsons Award!

I look forward to reading the Bader autobiography which undoubtedly will have fascinating information which can be passed on in undergraduate lectures.

Hope to see in at the Guelph CSC next June, if not sooner. Best wishes also to Isabel. My Bader Award lecture has been held up in refereeing for *Can. J. Chem.* but I hope it will grace the pages of *Aldrichimica Acta* by early 1995.

Sincerely,

Victor.

V. Snieckus
Professor of Chemistry and
NSERC/Monsanto Chair in Chemical
Synthesis and Biomolecule Design

/df

ALFRED BADER FINE ARTS

DR. ALFRED BADER

ESTABLISHED 1961

July 15, 1994

Dr. Richard Oakley
Conference Chair
Department of Chemistry and Biochemistry
University of Guelph
Guelph, Ontario N1G 2W1
Canada

Dear Dr. Oakley:

Thank you so much for your kind invitation of July 6th.

Isabel and I so enjoyed the meeting in Winnipeg that we would also very much like to visit Guelph, and hence we accept your kind invitation with great pleasure.

Enclosed please find a "menu" of lectures from which you can select one most suitable for the opening lecture.

On Monday or Tuesday, a day or two later, the Chemistry Department in Waterloo might like another lecture, perhaps on the history of Sigma-Aldrich, which would be of interest both to chemists and students in business administration.

All good wishes.

Sincerely,

Enclosure
c: Professor Victor Snieckus

By Appointment Only
ASTOR HOTEL SUITE 622
924 EAST JUNEAU AVENUE
MILWAUKEE WISCONSIN USA 53202
TEL 414 277-0730 FAX 414 277-0709

Dr. Alfred Bader
2961 North Shepard Avenue
Milwaukee, Wisconsin 53211

September 16, 1994

Professor Mel Schriver
Department of Chemistry
Memorial University of Newfoundland
St. John's, Newfoundland A1B 3X7
Canada

Dear Professor Schriver:

Thank you so much for your letter of September 1st.

My wife, Isabel, a Canadian, and I would much enjoy a week's tour through the Maritimes in October 1995. You have the seen the "menu" of my talks, and I would be happy to give two or three talks every day.

Some four years ago, 36 of the paintings which I gave to Queen's University travelled through Canada, and as you will see from the enclosed list included Fredericton, Halifax and Wolfville. Also, we toured the Maritimes before then and had such warm welcome everywhere. When we left Wolfville and Antigonish, we said to ourselves that here were two places we had never visited before and certainly wanted to visit again.

The least expensive manner of travel would be to rent a car in Boston and then drive through the Maritimes and return the car to Boston. We feel very uncomfortable being put up in fancy hotels, and would try to keep our expenses to a minimum. Still, I don't believe that it could be kept to Canadian $750.

Please do discuss this with the local sections and also the art museums. Also in cities like Halifax, the Jewish communities might like to listen to my talk "The Bible through Dutch Eyes" which can be subtitled "Rembrandt and the Jews".

I realize, of course, that putting all this together will be hard work, particularly for you being in Newfoundland. We just hope that if the trip comes about you will feel that your efforts will have been worthwhile.

I enclose some articles describing my life.

All good wishes.

Sincerely,

Enclosures

Memorial
University of Newfoundland

Department of Chemistry

Dr. Alfred Bader
2961 North Shepard Avenue
Milwaukee, Wisconsin
USA, 53211

01 September 1994

Dear Dr. Bader,

Dr. George Strunz of the University of New Brunswick has related to me that you may be interested in a tour of the chemistry departments of our region. Dr. Strunz has also indicated that several art galleries are also interested in having you speak at their institutions. In my official capacity as the seminar tour coordinator for the Atlantic section of the Chemical Institute of Canada [CIC] I would like to pursue these possibilities.

The CIC sponsors the seminar tours of 3 - 4 speakers each year to tour the Atlantic region, speaking at the chemistry departments of our member institutions. Some of our members are small colleges and others are large universities. The objective of our tour program is to allow high profile chemists to visit the smaller universities which would rarely have such visits otherwise and to allow better communication between the institutions of the region. The tour speakers must be flexible [audiences can vary from 10 - 40 people] and able to present a seminar geared at a fourth year honours undergraduate student. Our typical tour speakers visit five institutions on five sequential business days. I would expect that your tour would require more time than this because you would be giving two seminars in many of the cities [one on chemistry and one on art]. Dr. Strunz has relayed to me the list of seminars that you give on your chemistry and life.

Our financial capabilities are limited and I would expect that the most that the local section could budget to support your tour would be $ 750 [Can.] and at this point in time it is not clear how much financial support the art galleries would offer to your tour. Due to extreme budget restraints I must ask that if you accept our offer that you do not exceed this budget in your requests for reimbursement.

Dr. Strunz has indicated that you might be interested in a tour of our region in the fall of 1995. That is a beautiful time of year to be in the Maritimes and I hope that we will be able to have you tour our region. Please contact me if you have any questions or concerns.

respectfully

Mel Schriver

St. John's, Newfoundland, Canada A1B 3X7 • Tel.: (709) 737-8772 • Telex: 016-4101• Fax: (709) 737-3702

General Instructions for TOUR SPEAKERS

Costs: There will be no net cost to you to go on the tour, and no honorarium. In general local costs (accommodation and meals in host cities) will be paid directly by the host institutions. Travel, incidental and meals on the road will be reimbursed after the trip by sending a list of costs and all original receipts to the Tour Coordinator. Because your hotel bill will be sent directly to your host institutions, please be sure to pay for any personal phone calls.

Arrangements: The Tour speaker coordinator will have arranged the dates and places which you will visit. It is up to you to make all the travel arrangements (air reservations and car rental, as applicable). We would very much appreciate it if you could aim for the least expensive means of travel (seat sales, cheapest car rentals, etc.), as this allows us to have more Tour Speakers.

Information Exchange: As soon as possible and convenient, send to the Tour Speaker Co-ordinator:

- detailed information on the travel arrangements you have made,

- a short biographical sketch or summarized C.V. for advanced publicity and/or introductions,

- title of the talk or talks you are prepared to give, with short abstracts if possible.

The Co-ordinator is responsible for sending this material out to all Institutions that you will be visiting. The host institutions will contact you to let you know what time you will be speaking, and where you will be staying. If you have not heard from the host institutions concerning these details by one week before your Tour, please contact them directly. (List of contact persons attached.)

The Tour: Most Tours require a fair bit of traveling, and the usual regime is to travel in the morning, spend the afternoon in the Department, be entertained there that evening, spend the night in that locality, travel to the next place the following morning... In some of the smaller Universities, because of the large teaching loads in the mornings, it is better if you aim to arrive in the Department after lunch, especially if you are not lecturing until 3:00 or 4:00. Of course, if you are lecturing at, say, 12:30, you should aim to be there by 11:30 or so. The larger Universities (Dalhousie, Memorial, UNB) would prefer you to arrive as early in the day as possible. In any case, it would be appreciated if you could let your hosts know your approximate anticipated arrival times.

Dr. Alfred R. Bader
2961 North Shepard Avenue
Milwaukee, Wisconsin 53211

September 27, 1993

Professor James E. D Wuest
Department of Chemistry
University of Montreal
C.P. 6128, succursale A
Montreal, Quebec H3C 3J7
Canada

Dear Jim:

I am scheduled to give three lectures at McGill and Concordia on Monday and Tuesday, October 25 and 26, but nothing is planned for the University of Montreal.

Isabel and I would love to see you, and I am wondering whether you might be able to come to one of my lectures downtown.

Dr. Alfred Bader
Chairman Emeritus

April 23, 1992

Prof. James D. Wuest
Department of Chemistry
University of Montreal
C.P. 6128, succursale A
Montreal, Quebec H3C 3J7
Canada

Dear Jim:

Your thoughtful letter of April 13 gave me a lot of pleasure.

In two weeks we will be leaving for a 2-1/2 month stay in England and on the Continent. In the autumn, probably in October and November, we plan to visit our friends in Canada and hope to have a chance to see you in Montreal at that time.

All good wishes.

Sincerely,

Alfred Bader
AB:mmh

SIGMA-ALDRICH
P.O. Box 355 Milwaukee Wisconsin 53201 USA Telephone (414) 273-3850 Cable Aldrichem TWX 910-262-3052 Telex 26-843 Fax (414) 273-4979

Dr. Alfred Bader
2961 North Shepard Avenue
Milwaukee, Wisconsin 53211

March 30, 1993

Professor John Weil
Department of Chemistry
University of Saskatoon
Saskatoon, Saskatchewan
Canada

Dear John:

Judging from the sketch in your letter of March 10th, the painting referred to was probably the alchemical painting of which I enclose a reproduction.

Do visit us again on your way to Urbana. We will be returning from England on July 26th.

Best wishes,

Enclosure

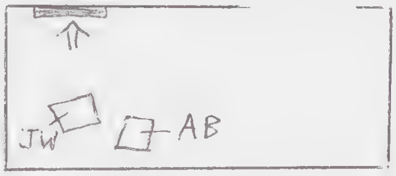
Dr. Alfred Bader
2961 N. Shepard Ave.
Milwaukee WI, 53211 U.S.A.

Mar. 10, 1993

Dear Alfred:

Thank you very much for your letter dated Feb. 23rd, which awaited me on our return from two weeks away in the States.

When I first mentioned my "quartz crystal" and "crystal ball" craze while sitting in your living room, you said something like "as is evident in that painting", referring to one hanging on your wall:



I never had a chance to examine it, since we talked about many other things and made a tour of other rooms in your home. It seems that probably I misconstrued/misunderstood your comment.

We plan to be in Illinois (Urbana) beginning about Aug. 1, for the first 6 months of my sabbatical leave, and hope to have the opportunity of visiting with you and Isabel during that period. In the meantime, best regards also from Andrea,

Yours sincerely,

John

Dr. Alfred Bader
2961 North Shepard Avenue
Milwaukee, Wisconsin 53211

February 23, 1993

Professor John Weil
Department of Chemistry
University of Saskatchewan
Saskatoon, Saskatchewan
Canada

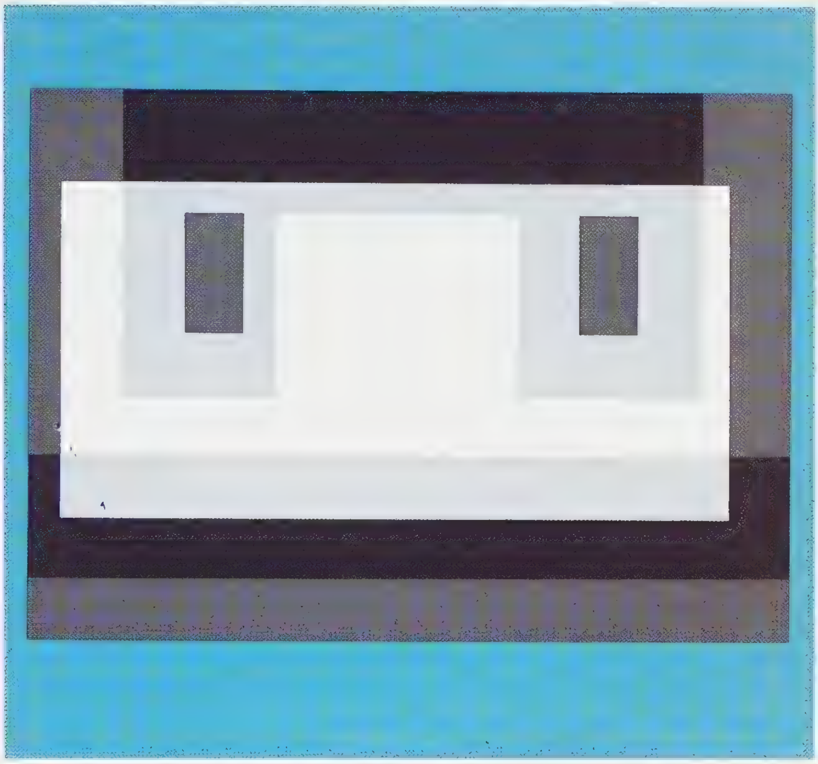
Dear John:

We so enjoyed seeing you in Milwaukee, and also want to thank you for your note of January 21st.

I have been wracking my brain about which of my paintings in our living room incorporates a crystal ball, and I simply cannot think of any.

Do you remember the subject or the painter?

Best regards from house to house,



Variant IV from the Portfolio "Ten Variants"
Josef Albers, German/American (1888-1976)
Serigraph, 1967
Norton Simon Museum, Gift of the artist

1989 NSM
BN11
Printed in Hong Kong

Jan. 21, 1993

Dear Baders:

Thank you once more for the pleasant visit at the gallery and your home. We enjoyed the opportunity greatly, and hope to see you again when we are in Wisconsin.

It occurs to me that I didn't really examine the painting hanging in your living room which you painted incorporates a 'crystal ball'. If it does, is it possible to obtain a color slide of it plus relevant information? As I mentioned, I am assembling a collection of such items.

We hope that we'll be able to host you again at our house in Saskatoon. As I may have mentioned, our plans for 93/94 include a sabbatical leave beginning this July (Urbana for 6 months, then Oxford).

With best regards also from Andrea,

Yours sincerely, John

WEIL

Dr. Alfred Bader
2961 North Shepard Avenue
Milwaukee, Wisconsin 53211

July 12, 1994

Professor Pierre Deslongchamps
Department of Chemistry
University of Sherbrooke
Sherbrooke, Quebec J1K 2R1
Canada

Dear Pierre:

It was such a pleasure to be able to meet you again in Winnipeg, and now I want to thank you for your gracious note of May 27th, so delightfully signed by your co-workers. I really appreciate that thoughtfulness.

Thank you also for sending me the copy of your manuscript submitted to the *Canadian Journal of Chemistry*.

I still remember the wonderful paper which you sent to the *Aldrichimica Acta* some years ago, and I am wondering whether you might like the editor of the *Acta* to consider publishing that paper also. Hence I have taken the liberty of sending the manuscript to Dr. Stephen Branca, the editor of the *Acta*, at Aldrich in Milwaukee.

All good wishes.

Sincerely,

c: Dr. Stephen Branca

Victor Snieckus

Professor of Chemistry
NSERC/Monsanto Chair in Chemical Synthesis and Biomolecule Design

University of Waterloo

The Guelph-Waterloo Centre for Graduate Work in Chemistry
University of Waterloo
Waterloo, Ontario, Canada N2L 3G1

Tel: (519) 888-4567, ext. 2492
Fax: (519) 746-5884
E-mail: snieckus@buli.uwaterloo.ca

September 17, 1997

Mr. Alfred Bader
Astor Hotel, Suite 622
924 East Juneau Avenue
Milwaukee, Wisconsin
U.S.A. 53202

Dear Alfred:

It was a pleasant surprise to see you and Isobel in the front row of Barry Sharpless' lecture at the San Francisco ACS during his lecture in our symposium on *Optimization in Organic Synthesis.*

This gave the opportunity to congratulate you on becoming an Honorary CSC Fellow which I now would like to reinforce. I am glad that V. Smith of Queen's was able to lead this nomination and happy that I could contribute. After all, your contribution to Canadian science has been recognized for a long time - now it is embossed!

I regret that Anne and I were unable to see you and Isobel at the Windsor CSC Meeting.

Best to both of you.

Sincerely,

Vic

Victor Sniekcus

University of Waterloo

CONCORDIA CUM VERITATE

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October 29, 1993

Alfred Bader
2961 North Shepard Avenue
Milwaukee WI 53211

Dear Dr. Bader:

Enclosed is a complimentary copy of the October issue of CHEM 13 NEWS. We carry a brief report on your opening talk at ChemEd93 – see page 6. In case you are not aware of it, Reg Friesen, for whom your opening lecture was named, was one of the founding editors of CHEM 13 NEWS and he guided it for the first 18 years.

Thanks for your contribution to ChemEd93. Should you wish to write an article for CHEM 13 NEWS I would be happy to consider using it. It should be on a topic suitable for high school chemistry teachers – our main readership. Length should not exceed 2000 words, which is two pages in CHEM 13 NEWS.

Best wishes.

Sincerely,

Lew

Lewis J. Brubacher
Editor-in-chief, CHEM 13 NEWS and
Associate Professor of Chemistry.

LJB:kj
encl.

ChemEd 93 reflections

Andy Cherkas
Stouffville District Secondary School
153 Edward Street
Stouffville ON L4A 1A8

(Andy is a veteran ChemEd'er who has reported for us on several of the ChemEd conferences. Our ChemEd 93 reports continue through page 11, with more to come in future issues.)

ChemEd 93 has come and gone, once again with great success. Those attending the conference have returned to their classrooms with more ideas than can possibly be used, and with rejuvenated enthusiasm for the next two years of science and chemistry education, secure in the knowledge that they are not the only "weird" science teacher in the world.

Over the past twenty years the ChemEd conference has evolved from a largely secondary school conference to now include the full spectrum of K-16+ educators. The sharing and help in both directions, K→16, 16→K, between elementary, middle, secondary and post secondary school teachers can only improve science education as we learn and understand where our students are coming from and where they are going.

The scope of chemistry education is also expanding. In the beginning we shared demos, labs and teaching techniques that worked in the classroom. This is still done, but we are also sharing improvements on old ideas, where these ideas can be extended, and how the ideas can be brought into elementary schools, middle schools or secondary schools. There is now, because of shrinking budgets, a move to microchemistry, and "grocery store" chemistry. There is an emphasis on polymer chemistry and the history of chemistry. All this puts science into a personal perspective for students. They can see, touch, smell and feel the relevance of the chemistry around them. There is also a human side to science being emphasized.

The future will certainly bring an interdisciplinary approach to science as is seen in the "Lessons in Chocolate" presented by Ginger Tannenbaum this year (see reports beginning below right). Topics will involve not only chemistry but history, geography, math, ecology, economics, marketing, engineering, etc.

We left Indianapolis having seen and listened to only a fraction of all the wonderful ideas presented. There is only one thing to do; in a little less than two years we will meet again to see what was missed and what is new at ChemEd 95 in Norfolk, Virginia. →

ChemEd 95 to have world's largest periodic table

ChemEd 95 will be held August 5 - 10, 1995 at Old Dominion University in Norfolk, Virginia. Co-chairmen are Richard Furlough and Karin McElvein. Their committee plans to create the world's largest periodic table during the conference. Individuals will be given the opportunity to prepare each of the element blocks in the table. Watch for more details. In the meantime, get on the ChemEd 95 mailing list. Send your name, address and telephone number to ChemEd 95, Department of Chemistry and Biochemistry, Old Dominion University, Norfolk VA 23529-0126. ✻

4th Reg Friesen Honourary Lecture


Alfred Bader

Alfred Bader tells a convincing story. Speaking as the 4th Reg Friesen Honourary Lecturer at the opening of ChemEd 93, he made the case that the father of molecular modelling is Josef Loschmidt, not August Kekule. Kekule has generally been credited with proposing in 1865 that benzene has a circular structure, following a kind of dream in which he saw a snake biting its tail.

Yet Loschmidt, a high school teacher of chemistry and physics in Vienna, represented benzene as a molecule with six carbon atoms in a circle four years earlier in his small book, *Chemische Studien I*, published in 1861. In Bader's view, Loschmidt – a shy, unmaterialistic and self-effacing man – has been unfairly ignored, both in his own day and to the present. Bader took us on a tour of Loschmidt's ideas and thinking, and showed us some remarkably modern-looking structures of such molecules as benzene, cyclopropane and phenol, taken from the book.

Some historians of science argue that Loschmidt didn't really believe that his symbols represented actual chemical structures. Furthermore, he didn't push his ideas. Bader dealt with these criticisms and others, in making his case that Loschmidt deserves more recognition.

Loschmidt went on to become a professor of physics and dean of the Faculty of Philosophy at the University of Vienna. Today he is best remembered for the Loschmidt Number, his 1865 calculation of the number of molecules in 1 cm^3 of a gas. Look for more discussion of Loschmidt's contributions that will come out of a symposium on his work to be held in Vienna in 1995.

The Reg Friesen Honourary Lecture series was initiated at Chem Ed 87 to recognize Reg, who, with the late Leonard Sibley and others, was instrumental in organizing the first several conferences in the Chem Ed series. ✻

Lessons in chocolate

Presenter	Reporter
Ginger Tannenbaum *Fairfield High School* *1111 Nilles Road* *Fairfield OH 45014*	*Andy Cherkas* *Stouffville Dist Sec School* *153 Edward Street* *Stouffville ON L4A 1A8*

The study of chocolate provides excellent interdisciplinary possibilities on a topic that is relevant to all. We can study the history of chocolate from the ancient Maya to the present. The geography and ecology of the cacao growing regions can be studied. The economics of chocolate is another possibility. Finally the chemistry of chocolate can be looked at. This involves plant growth, fermentation, roasting, grinding, refining and conching. To understand the complex chemistry of chocolate, organic chemistry is a must. To understand the complexities of chocolate one must understand cocoa butter, which leads into a study of fats, and could lead into a study of cosmetics. →

76th Canadian Society for Chemistry Conference

The 76th Conference of the Canadian Society for Chemistry, was held at Sherbrooke, Quebec, May 30 - June 3. The focal point of the full chemical education program (previewed in our May 1993 issue, page 13) was the Tuesday symposium on women's contributions to chemistry. High school teachers, among others, would have found this session full of invaluable sources of anecdotes and role models for their female students. Fortunately, most of the papers have been printed in a 182-page book, *Women's Contributions to Chemistry.* It's available free while they last to teachers in Canada. Write to Professor Viola Birss, Department of Chemistry, University of Calgary, Calgary, Alberta T2N 1N4.

Maureen Julian, a crystallographer at Virginia Polytechnic Institute, led off with *Women in Crystallography*, with particular emphasis on Kathleen Lonsdale, Rosalind Franklin, Isabella Karle and Dorothy Crowfoot Hodgkin. She concluded, "In many ways crystallography is the scientific legacy of the Braggs [William Henry Bragg, the father, and William Laurence Bragg, son]. They had women in their laboratories and the lineage we have traced shows how important this was in ultimately determining the large contribution women have made to this field. Because of the Braggs, doors were opened. Positive action taken by a few individuals can make a difference!"

Marelene and Geoffrey Rayner-Canham gave brief reports of women chemists, from Tapputi-Belatekallim (ca 2000 BC) through to May Sybil Leslie (1887-1937). In light of the obstacles faced by them, these women "were some of the survivors, the ones who succeeded against all odds."

Janice Kelland of Memorial University of Newfoundland presented fascinating synopses of interviews with seven Newfoundland women who obtained their first science degrees prior to 1950. One of these was Marion (Peters) Scott, who completed her B.Sc. at McGill in 1942. Initially asked to be a lecturer at Memorial University College in 1946, she was hired by the Board to the lesser position of demonstrator. Yet the following year found her giving both the Chemistry 1 and Chemistry 3 course lectures to the returning servicemen (photo, below) when the regular professor became ill.

The career of Ellen Gleditsch, who was appointed Professor of Chemistry at the University of Oslo in 1929, was related by **Anne-Marie Weidler-Kubanek** of John Abbott College, Ste Anne de Bellevue, Quebec. She contrasted the difficult choice between career and family faced by Gleditsch with comments by current female students at John Abbott College. **Fathi Habashi**'s paper on *Ida Noddack and the Periodic Table* focused on Noddack's two signal achievements – the discovery of rhenium in 1925; and the proposal, later substantiated, that Fermi's reported evidence for element 93 in 1934 was more likely due to the *fissioning* of uranium atoms.

Chemistry instructor Marion Peters (right) with students Harry Parsons, Heward Peters, Joe Carnell and Ben Riggs in the chemistry lab of the old Memorial University College campus on Parade Street, St. John's, NF. Probably taken in early 1948.

Other papers in the morning session were by: **Marianne Ainley** who summarized the careers of seven women, taken from her book, *Despite the Odds: Essays on Canadian Women and Science* (Véhicule Press, Montreal, 1990); and **Tina Crossfield** on *Irene Joliot-Curie: Scientist and Collaborator par Excellence.*

In the afternoon session several women chemists talked about their own research and other women's contributions to their fields of interest. Leading off was **Janet Osteryoung**, Head of the Chemistry Department at the University of North Carolina, who discussed her pulse voltammetric studies of benzodiazepines. **Susan Bradley** reviewed the exciting forefront research being carried out by women in material science, with a special focus on her current work with molecular sieves at the Royal Institution of Great Britain. This is an area where much progress is currently being made; contributions by Edith Flanigen, Denise Barthomeuf, Lynne McCusker and Kathleen Carradois were particularly noted.

The chemistry of carbon and the contributions of Agnes Oberlin and Rosalind Franklin to this area were described by **Margaret Back**, who also conveyed the clear message that the chemistry of carbon is still not fully understood and that much may still emerge, as seen by the relatively recent discovery of the new carbon allotropes, the fullerenes.

Anita Arduini (Novacor), and **Judith Puskas** (Polysar) reviewed the achievements and research goals of several women working in industry. It was enlightening to learn about the contributions of these women to the study of the rates and catalysis of various polymerization processes, and how this type of research is generally driven by the economics and real-world problems of industry.

Lynne Howell of the Division of Biochemistry Research at the University of Toronto's Biochemistry Department reviewed the contributions of women to the field of protein crystallography, protein structure and protein folding. She also described her own work on time-resolved studies of enzymatic activity using Laue diffraction studies of several lysozymes.

Sue Abrams, a researcher at the National Research Council of Canada in Saskatoon, described her collaborative studies of the plant hormone, abscisic acid. Sue combines her ability to synthesize modified hormones with the contributions of her collaborators to produce genetic modifications of plants. They attempt to produce plants which are adapted to special growing conditions or are resistant to specific pathogens.

Overall, the symposium covered a wide range of topics, demonstrating both the breadth of the contributions of chemistry to our changing world and the extensive involvements of women in all aspects of chemistry.

(Prepared in part by Dr. Viola Birss and Dr. Penelope Codding.)

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Canada wins big at 25th IChO

Gordon Bates
Department of Chemistry
University of British Columbia
Vancouver BC V6T 1Z1

Canada was one of 38 nations competing at the 25th International Chemistry Olympiad held July 11-22 in Perugia, Italy. In our best showing to date, Canadian students won four medals. Michael Hawkes (Lindsay Thurber Comprehensive High School, Red Deer AB) won a gold medal, Andras Pattantyus (John Abbott College, Ste. Anne de Bellevue QC) and Cyrus Master (Western Canada High School, Calgary AB) each won silver medals, and Arvind Govindarajan (Woburn Collegiate Institute, Scarborough ON) took home a bronze medal.

The competition itself took place over two days at the University of Perugia (one of the oldest universities in Europe) and involved both laboratory and theoretical tasks. The laboratory demanded excellence in both manipulative skills as well as precision and accuracy. Two quite different experiments had to be finished in a four hour period. The first was the relatively straightforward preparation of a standardized NaOH solution and the determination of the concentration of an unknown solution of citric acid. A high degree of accuracy was demanded with marks being assigned based on 0.025% increments from the true concentration of each student's sample. The second exercise was quite a challenge for all of the students in the competition – an organic chemistry laboratory. Students had to carefully oxidize a 300 mg sample of cholesterol to the corresponding ketone, isomerize the resulting system with base and finally recrystallize the resulting Δ-4,5-cholestenone. Fortunately, marks were assigned on the purity of the sample (as determined by melting point) and not on the amount of sample submitted to the examiners!!

The theory examination, held two days later, was another four hour challenge. The areas of chemistry probed this year included isotopic decay kinetics and organic chemistry. The latter included a multistep synthesis of the insect pheromone, frontalin, and a question investigating the stereochemical outcome of the use of optically active hydroborating reagents. In addition, there were questions involving the relative separation efficiencies of two different gas chromatographic columns (based on preparatory problems previously supplied by the Italian organizers) and a multiple part question involving thermodynamics, which follows this report.

During the remainder of the IChO the students enjoyed many cultural events, including day trips to Rome (with a papal audience) and Florence, and visits to several beautiful medieval towns (Assisi, Gubbio) as well as Perugia with its mixture of Etruscan, medieval, and renaissance structures in the Umbrian countryside.

In 1997 Canada will be hosting the International Chemistry Olympiad. The task of fundraising and organization has begun and we welcome participation by high-school and CGEP teachers from across the country. If you would like to become involved in either the ongoing program with the potential of having one of your students represent Canada in future competitions (Norway in 1994, China in 1995), or to get more information about 1997, please contact me at the address above, telephone 604-822-2834, fax 604-822-2847, e-mail G.S.Bates@MTSA.UBC.CA; or contact Robert Cook, Department of Chemistry, Bishop's University, Lennoxville QC J1M 1Z7; telephone 819-822-9633, fax 819-822-9661, e-mail RCOOK@HERA.UBISHOPS.CA; or John Wylie, The Toronto French School, 306 Lawrence Avenue East, Toronto ON M4N 1T7, telephone 416-484-6533 ext. 249, fax 416-481-6529, e-mail FLIPPER@TIGER.PHYSICS.UTORONTO.CA.

IChO theoretical problem #3: physical chemistry

The following reactions occur simultaneously in a methane burner:

I $CH_4(g) + 2\,O_2(g) \rightarrow CO_2(g) + 2\,H_2O(g)$
II $CH_4(g) + 1\frac{1}{2}\,O_2(g) \rightarrow CO(g) + 2\,H_2O(g)$

	$CH_4(g)$	$O_2(g)$	$CO_2(g)$	$CO(g)$	$H_2O(g)$
ΔH_f^o (kJ mol^{-1})	-74.9	0	-393.5	-110.5	-241.8
ΔS_f^o (J K^{-1}mol^{-1})	186.2	205.0	213.6	197.6	188.7

Questions

A) Calculate the equlibrium constants for both reactions at 1500 K, assuming that the values of ΔH_f^o and ΔS_f^o are independent of the temperature.

B) Determine the relationship between the mole fractions of oxygen and carbon monoxide at equilibrium (T = 1500 K, P = 1 atm) when air is admitted into the burner such that the mole ratio CH_4:O_2 is 1:2. Assume the composition of air is 80% N_2 and 20% O_2 by volume, and make the approximation that $n_{CH_4} = 0$ at equilibrium. Justify this approximation on the basis of the answers to part A.

C) Assume that: (i) the mole fraction of CO is very small in comparison with that of CO_2; and (ii) the total number of moles does not vary appreciably during the combustion. Justify the two assumptions, and calculate the equilibrium mole fraction (X) of CO using your answer from part B.

D) Repeat the calculations for parts B and C assuming that twice the amount of air is admitted into the burner, such that the mole ratio CH_4:O_2 is 1:4.

E) The two gas mixtures obtained in parts B and D are cooled to room temperature. Calculate the concentration of CO in parts per million (ppm) by volume for each of the gas mixtures. Assume that: (i) the water vapour is removed completely by condensation; and (ii) apart from the water content, the composition of the two gas mixtures does not change appreciably on cooling from 1500 K to room temperature. ✻

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e-mail: Snieckus@Buli.uwaterloo.ca

October 25, 1993

Dr. A. Bader
2961 North Shepard Avenue
Milwaukee, Wisconsin
53211
USA

Dear Alfred:

I am happy to be in correspondence again with you and apologize for the late response.

I have informed Tris Chivers, Editor-in-Chief of *Can. J. Chem.* of the agreement with you and Steve Branca regarding publication of my Bader Award lecture in both journals and hope that we can now proceed directly.

When I saw that you are giving a lecture on Loschmidt at Toronto on November 4th, I was elated... until I realized that we are having a symposium here (attached) in connection with my Chair. However, could you please visit Waterloo in the period May 31 - June 3, 1994. I will be in Zurich for remainder of June, unfortunately. If not, then please take (a second) rain check. You are most welcome here at a future date.

Best wishes to you and Isabel for continuing efforts in chemistry and for wonderful events in life.

Would you have a slide or two on Loschmidt which clearly indicates his influence on or precedence to Kekule?

Sincerely,

Victor.

Victor Snieckus
Professor of Chemistry

Encl.

University of Waterloo

Waterloo, Ontario, Canada
N2L 3G1

Faculty of Arts
Department of Philosophy
519/885-1211

Fax: 884-8995
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prthagard@logos.uwaterloo.ca

June 22, 1993

Mr. Alfred Bader,
52 Wickham Ave,
Becks-Hill-on-Sea
East Sussex, TN39 3ER
ENGLAND

Dear Mr. Bader:

Some of my friends at Queen's University have told me that you have important new historical information on the discovery of the structure of benzene. As you will see from the enclosed paper, I've taken for granted the traditional story about Kekulé using a visual analogy in his discovery. I was also planning to use the example in a book I'm now writing (*Mental Leaps: Analogy in Creative Thought,* MIT Press). In order to avoid propagating the mistake, I'd be grateful if you could send me any information that undermines the traditional story.

Yours sincerely,

Paul Thagard.

Paul Thagard,
Professor of Philosophy.

Replied June 29 93

Dr. Alfred R. Bader
2961 North Shepard Avenue
Milwaukee, Wisconsin 53211

September 29, 1993

Professor Victor Snieckus
Department of Chemistry
Guelph-Waterloo Centre
University of Waterloo
Waterloo, Ontario N2L 3G1
Canada

Dear Victor:

Thank yo so much for your kind letter of September 17th and the enclosures.

I know that Steve Branca will do a really good job publishing the your and Bryan Jones's manuscripts,

Incidentally, I will be speaking on Josef Loschmidt at the University of Toronto on November 4th, and you can ask Bryan Jones whether the talk would be of interest also in your department.

Isabel and I will want to be at the University of Toronto for Isabel's 45th reunion next June. I hope that you will understand that my main reason for wanting to visit Waterloo is to see you. If you will not be there at that time, why not just give me a rain check.

Thank you also for those delightful slides.

All good wishes.

Sincerely,

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September 17, 1993

Dr. A.R. Bader
2961 North Shepard Avenue
Milwaukee, Wisconsin
53211
USA

Dear Alfred:

I just noted that I neglected to respond to your letter of August 5th. My apologies. I have been away on an extended lecture tour of China and Europe and have just returned.

Thank you for solving my major problem of conscience but I have another idea to pursue for acknowledging your contributions to organic chemistry and chemistry which will follow some subtle lines! As I wrote in my letter of August 27th (this letter was prompted by a phone call from Dr. S. Branca), I plan on publishing in *Acta.* and, as well, I have written to Professor Tris Chivers, Senior Editor, *Can. J. Chem.* for further instruction with regard to Bryan Jones' manuscript (see appended response).

I am delighted to learn that it will be possible for you to present a seminar at Waterloo in June, 1994. Although I may not be here, my students and colleagues will be more than happy to welcome you. Please let me know the details of your travel plans so I may make the necessary arrangements here.

Thank you for the German article - I did enjoy it!

Sincerely,

Victor.

V. Snieckus
Professor of Chemistry and
NSERC/Monsanto Chair in Chemical
Synthesis and Biomolecule Design

P.S. I enclose copies of the slides you requested and I hope they will keep you, Isabel, and all of your friends and colleagues in various degrees of amusement.

P.P.S. Noted your efforts to assist chemists in the Czech republic since I just returned from Praha. Many chemists in China would highly value receiving Acta. Is it possible?
Victor.

Canadian Journal of Chemistry
Journal canadien de chimie

DR. T. CHIVERS, SENIOR EDITOR
NORMA TISCHER, ASSISTANT TO THE EDITORS
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NUMBER OF PAGES BEING SENT: 1 (including this page)

DATE: September 1, 1993

Dear Vic:

Thank you for your letter of August 25, 1993 regarding the re-publication of Bryan Jones' Bader lecture manuscript in *Aldrichimica Acta*. First, let me say I am delighted that Bryan has submitted his manuscript to *Can. J. Chem.* His article is due to appear in the September issue. Second, I agree entirely with the four points you have made regarding the re-publication of this review in *Aldrichimica Acta*. Appropriate acknowledgment should be given to *CJC*.

Keep up the good work.

Best wishes,

Tris Chivers

T. Chivers
Senior Editor

TC/nt

Canadian Journal of Chemistry

Journal canadien de chimie

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August 25, 1993

Professor T. Chivers
Senior Editor
Canadian Journal of Chemistry
Department of Chemistry
University of Calgary
2500 University Drive N.W.
Calgary, Alberta
T2N 1N4

Dear Tris:

Re: Re-Publishing the Bader Lecture in *Aldrichimica Acta*.

I would appreciate receiving your advice on re-publishing Bryan Jones' Bader lecture manuscript in *Aldrichimica* Acta (see appended letters).

My point of view: a) *CJC* should be acknowledged as JBJ suggests, e.g. "this article has previously appeared, in modified form, in *CJC* 1993, etc."; b) the *CJC* article should appear first; c) *Acta's* wide circulation will highlight *CJC*; d) many companies, e.g. Merck Darmstadt publish reprinted versions of academic journal articles in their company magazines.

I look forward to your reply.

Sincerely,

V. Snieckus (per BW)

Victor Snieckus
General Organic Editor

Encl.

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August 27, 1993

Dr. A.R. Bader	Dr. S. Branca
2961 North Shepard Avenue	Aldrich Chemicals
Milwaukee, Wisconsin	940 West St. Paul Ave.
53211	Milwaukee, Wisconsin
USA	53233

Dear Alfred and Steve:

Re: Publishing the Bader Lecture in *Aldrichimica Acta.*

I am grateful for your kind thoughts and considerable efforts. As I mentioned to both of you, my hope, of long standing, has been to publish in the *Acta.*, especially with the associated honour of the Bader Award. I hope to proceed and also help Bryan Jones sort out his problem with *Can. J. Chem.*

Many Chinese chemists would value receiving the *Acta*. Is it possible to send it to selected labs? If I can help, let me know.

Best wishes.

Sincerely,

V. Snieckus (per BW)

Victor Snieckus
Professor of Chemistry

Dr. Alfred R. Bader
2961 North Shepard Avenue
Milwaukee, Wisconsin 53211

August 5, 1993

Professor Victor Snieckus
Department of Chemistry
University of Waterloo
Waterloo, Ontario
Canada N2L 3G1

Dear Victor:

Please don't mind that a very long trip to Europe has delayed my thanking you for your wonderful letter of June 7th.

I am trying to catch up with a great deal of work, but when I saw your Acta cover of 1991 I just had to take a few minutes off to laugh and laugh. Would it be possible to receive a copy of your slide?

I am sure that you understand that all of the people at Aldrich in Milwaukee who know me are also my friends, and they also know that my dismissal was engineered by only one man, Tom Cori.

We have many really good friends at Aldrich, Sigma and Fluka, and I just hope that many of us will survive Tom Cori. Also, I am still the largest individual stockholder of Sigma-Aldrich, and so I very much want the company to do well, for selfish reasons.

I was sorry to learn that Professor Jones decided to submit his paper to the Canadian Journal of Chemistry, because the editor of the Acta, Dr. Branca, had to refuse--clearly on orders from on high--to accept any mention of Alfred Bader. But, Victor, I would very much like the Acta to continue to do really well, and I would much prefer for you to submit your paper to the Acta without any mention of me. As you know, the Acta does a fine job presenting scientific papers, and it goes to some 250,000 scientists worldwide. Also, you know that the papers are abstracted and are often cited.

Professor Victor Snieckus
University of Waterloo
August 5, 1993
Page Two

I don't think that there is much danger that chemists will forget me. Just earlier this week I talked to a number of Canadian chemists who attended the ChemEd convention of high school teachers in Indianapolis, and I look forward to giving several lectures in Montreal and Kingston late in October. Next June, Isabel will attend a particularly important reunion at the University of Toronto, her alma mater, and perhaps you could invite me to speak in Waterloo, then.

Of course you may keep the photograph.

How is your German? The enclosed article with a particularly good photo of me and with a comment that this ill-dressed character looks much like a retired postman will amuse you.

All good wishes.

Sincerely,

Enclosure
c: Dr. Stephen Branca

9/25

BE*

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June 7, 1993

Dr. Alfred Bader
2961 North Shepard Avenue
Milwaukee, Wisconsin
53211
USA

Dear Alfred:

The event of the Canadian Bader Award occurred last week while you were in Czechoslovakia and Germany but I dare say that your presence was felt at my award lecture. I used two slides: the first was the fine picture which Marilyn sent but which arrived late. Fortunately, I had the article of Jack Edward for CCN which contained the identical photo from which I made the slide. The second slide (see attached) was, as you will recall, not an original thought. My associated comment, " ... although Bader and Aldrich have had a parting of ways, it is clear that he has left a permanent mark. The evidence that Dr. Bader's influence continues can be seen from a recent issue of *Aldrichimica Acta."*

Recently, Bryan Jones, last year's Bader awardee called to indicate that he will be submitting his article, originally destined for *Aldrichimica Acta*, to *Canadian Journal of Chemistry*. The reason is that Bryan was not allowed to mention you by name in his paper. Will I face a similar problem? Is there a solution that I can broach with Steven Branca?

I very much hope you and Isabel had a productive and satisfying trip in Europe. I also hope that we can meet in the near future.

Please thank Marilyn for her attempt to overcome the inconsistencies of the Canadian pony express! May I keep the photo for future use?

In the meantime, my most heartfelt wishes for the continuation of your work to help chemists everywhere.

Sincerely,

Victor.

Victor Snieckus
Department of Chemistry and
NSERC/Chair in Chemical Synthesis
and Biomolecule Design

Encl.

Aldrichimica Acta

Volume 24, Number 3, 1991 *(Last issue in 1991)*

Organic Chemistry in Unconventional Solvents

The Molecular Basis of Biological Order

chemists helping chemists in research & industry
aldrich chemical company, inc.

Dr. Alfred Bader
2961 North Shepard Avenue
Milwaukee, Wisconsin 53211

March 3, 1993

Professor Victor Snieckus
Department of Chemistry
University of Waterloo
Waterloo, Ontario N2L 3G1
Canada

Dear Victor:

Thank you so much for your gracious letter of February 23 with all those exciting enclosures.

Of course, now Isabel and I wish that we had established the Bader Chair in Organic Chemistry at Queen's well before now so that you might have considered accepting it. As things are now, with your wonderful funding, nobody will be able to lure you away from Waterloo, and we just hope that Queen's will find a man almost as competent and hard-working as you.

Unfortunately, much as we would like to, we will not be able to be in Sherbrooke in June. We are trying very hard to help chemists in the Czech Republic and plan to be there at that time, and also to give lectures on Josef Loschmidt in Germany.

Best wishes.

As always,

The
Guelph-Waterloo Centre
for Graduate Work in Chemistry
Waterloo Campus, Dept. of Chemistry, University of Waterloo, Waterloo, Ont. N2L 3G1 519/888-4653 Fax 519/746-0435

Tel.: 519-888-4007
Fax: 519-746-5884
E-mail: Snieckus@Watdcs.uwaterloo.ca

February 23, 1993

Dr. A. Bader
2961 North Shepard Avenue
Milwaukee, Wisconsin
53211

Dear Alfred:

I am happy to receive your letter and to see you are in good spirits as ever! You can count on me as part of your organic chemical community friends! I should have waited to apply for the Queen's Chair (see attached).

Hope to show a slide or two of you and your art at the Bader Award lecture in Sherbrooke in June. Could you participate? It would be an honour.

Best for your continued work for organic chemistry and chemists.

Sincerely,

Victor

V. Snieckus
Professor of Chemistry

Encl.

UW Research

News Bureau

Office of Information and Public Affairs

University of Waterloo

-- For immediate release

UW scientist seeks keys to better pharmaceuticals, safer agrochemicals

WATERLOO, Ont. -- Victor Snieckus, University of Waterloo chemistry professor, has long been interested in discovering ways of synthesizing organic molecules -- initially, alkaloids (substances in nature on which many of our drugs are based) and more recently, amino acids, peptides (strings of amino acids) and materials which may mimic enzymes.

"Organic" means substances that occur in living organisms, plants and animals; "synthesis" involves combining simple materials to create more complex ones. "It's like snapping together Leggo blocks," Snieckus quips.

Synthetic organic molecules are the cornerstones on which many modern pharmaceutical, agrochemical, and nutrition industries have been built. They are also the basis of materials (DDT, for example) which, although initially beneficial, have proved harmful to us and our environment.

"There is a tendency to forget that before DDT, more Second World War soldiers were killed by certain tropical diseases than by bullets, and Western Canadian farmers would see their crops wiped out by black clouds of locusts," Snieckus says. "DDT was crucial then. But that was yesterday. Today, we know much more . . . and we will never make such mistakes again with new substances that we produce.

"It appears to be human nature to forget the good things that have resulted from synthesizing organic chemicals -- for example, penicillin, and the polymers we use to wrap and preserve our food, or to keep us warm (Gortex)."

Future benefits from synthetic organics can only be guessed at, but the promises include a safer environment, better and cheaper foods . . . perhaps even a cure for the common cold or AIDS.

"We can't at this time be sure if or when we may find a cure or even an improved treatment for AIDS, but we need to try to understand how the AIDS virus works before a cure can be found," Snieckus says. "We must continue to seek answers though we are never sure what they will be. There will always be unforeseen surprises in research."

Snieckus is one of the most highly funded scientists at UW, if not in all of Canada. He was recently awarded a five-year research chair that brings $3.5 million of funding to the university. The new chair derives from the potential for many important applications for the knowledge Snieckus and his students may uncover in the future. Snieckus has an international reputation in his field and has been named the winner of the 1993 Alfred Bader Award in Organic Chemistry, the premier honor for Canadian organic chemists.

-more -

"In the modern world, new knowledge is increasingly the key to economic advancement, prosperity, and jobs in the work place," comments Jack Wearing, director of research and business development for Monsanto Canada. "Thus it is important that industry, universities and government coordinate their efforts in the push for new knowledge."

His company is the industrial sponsor for the new chair. Monsanto is joined in this support by the federal government's Natural Sciences and Engineering Research Council (NSERC), and by UW itself.

Monsanto Canada is part of a worldwide group of Monsanto companies that includes NutraSweet and Searle Company. Collectively, the Monsanto enterprises represent a highly diversified group with strengths in nutrition, crop protection, and health care, as well as plastics and high-turnover chemicals. The Monsanto-UW collaboration has also allowed Snieckus and his students to obtain computers and software that are used to depict organic molecules.

In the last few years, there has been an explosion in the computer graphics area; chemists are now able to simulate molecules in living color on a screen . . . of considerable help in finding and designing new drugs. This new computer graphics capability permits chemists to "see" a complex organic molecule -- where and how the carbon, hydrogen, oxygen, or other atoms fit together within the molecule. By rotating it and viewing it from many directions, researchers find out what the molecule looks like three-dimensionally.

"It is like playing molecular Nintendo games," says Snieckus. "It gives us a much clearer idea of the architecture of a molecule. Computer graphics allow us to appreciate the makeup of very complex substances."

Most drugs function by mimicking part of a natural substance in our bodies which either enhances or hinders some physiological process. They do this by cradling into a "receptor" much as a key fits into a lock. For example, the unique shape of the penicillin molecule fits into the molecule of the material bacteria need for reproduction; this stops the multiplication of the germs and stops the infection.

"We study the crevices, bends, and troughs in a large molecule such as a virus which is responsible for a human or plant disease," Snieckus explains, "and then we try to find a small molecule that will cradle into that part of the virus where the 'action' is for viral proliferation. The trick is to design a drug that will be a perfect fit . . . so the virus is tricked into acting as though it has what it needs to reproduce. Instead, of course, its life is snuffed out."

By being able to study such "lock-and-key" fits on a computer screen scientists get a better idea as to what may be possible. Then they must go into the lab and synthesize the "key" molecule. "Even with state-of-the-art computer graphics, we're still dealing with rather crude approximations," Snieckus warns, "but we're much better off than we were before. We are now able to zero in on possible -- and I stress possible -- candidates for new drugs or agrochemicals in much less time and at less expense." He feels use of computer graphics for "molecular modelling" is increasingly vital to researchers making advances in all areas of chemistry.

"We have a very well-designed computer graphics system in our Searle labs in Chicago," Wearing says. "We are making it available to Waterloo for application to areas where no research is going on at the moment, or where marketable drugs have yet to be developed."

- more -

The UW research, he and Snieckus both stress, remains "pure" in the sense that it is curiosity driven and not developmental in nature. It does, however, have a "market push" arising out of unfilled human needs or concerns. What can ensue, Wearing predicts, are discoveries that could lead to new products, manufactured in Canada for world markets.

"Our parent company has accepted the concept of mandated products," he says. "We are already manufacturing a number of such products in Canada; that is, they are mandated not just for the Canadian market but for world markets. The thing to keep in mind is that when a new product is developed by Monsanto Canada in cooperation with University of Waterloo researchers, it is more likely to be mandated for manufacture in this country . . . and this, in the long run, will mean more jobs and a healthier Canadian economy."

For Snieckus, the new chair will provide a significant new research direction. "The last time we changed directions," he recalls, "was after months of failure in a synthesis problem; finally, we stumbled upon a discovery that not only solved that problem, but became very valuable for industrial chemists."

He says chance played a large role in his latest discovery. It started when he and a student came up with a new molecule that may prove to be a valuable agrochemical, protecting food crops around the world. At the moment this latest discovery is undergoing testing by Monsanto to determine how well it works, how environmentally safe it is, and so forth. Patent applications have been filed.

This discovery, along with Snieckus' previous record as a researcher, were the driving forces for the UW-Monsanto collaboration. Snieckus' new Monsanto chair puts him and his co-researchers in a position for greater focus, because of the potential significance of the discoveries. "The potential is there to formulate new bioactive substances that could improve human health or increase world food production. We are very sensitive to these challenges," Snieckus admits.

His research cannot be expected to produce instant miracles. As a rule, it takes years -- 10 or more -- between the time of discovery of a new drug and the day it is readily available from your neighborhood drug store. The development cost for a single drug can run into $200 million or more. Thus the search for new pharmaceuticals and agrochemicals is at best a long-term undertaking. It is significant that the Monsanto chair is being financed for five years, and possibly beyond that.

"When we sent Monsanto the compound that now appears to have promise as an agrochemical, we were doing what chemists all over the world do -- following a shotgun approach to finding bioactive molecules," Snieckus says. "The chances of success are similar to a lottery -- for one successful drug there are 9,999 duds. We had been sending Monsanto a lot of substances which we prepare in the course of our synthetic research. Now we have something interesting, though that does not yet mean it will become a marketable product. There is still have a long road ahead."

There are no clear-cut rules for finding useful substances and even toxic substances may turn out to be useful. For example, one of the world's most poisonous materials comes from a South American frog which, with a flick of its tongue, uses it to paralyze the insects on which it feeds. This toxin has recently taken on a different perspective -- helping scientists study how the nervous system operates.

- more -

Snieckus has spent many years synthesizing organic molecules. He describes the procedure as a "bit like erecting a building; you start with one brick or concrete slab, then add another and another, making sure there is good alignment and cohesion and, of course, that the final structure as planned is achieved.

"It's a matter of getting the molecules to stick together in the correct way," he says. "You study the field until you have the background and the technique in putting molecules together -- a sense as to which reaction should be used for which purpose. Actually, it can become almost an art form, like writing a poem or a piece of music. It might even be compared to cooking -- but it must be reproducible!"

Though Snieckus will now be involved with the synthesis of amino acids and peptides, his first love was alkaloids. Alkaloids are still surrounded by an aura of mystery and intrigue because they came from witch doctor potions or Amazonian dart guns. But many have provided leads to new drugs, including reserpine (a blood pressure depressant), quinine (the well-known antimalarial agent) and even cocaine (the abused drug which was a "model" for Novocain).

Snieckus' current keen interest in peptides resulted from the finding that some of them are promising anti-AIDS drugs. "Activity in this area is extremely intense," Snieckus says. "There is considerable hope today that effective drugs will be found in the near future. Scientists all over the world are involved."

Finding a cure for AIDS involves understanding the lock-and-key arrangement of virus and drug. The process by which the cunning AIDS virus works is very complex but basically, the virus enters a victim's cell and behaves akin to a parasite, using the healthy cell's nutrients to replicate. It overwhelms the cell, the cell dies and bursts, and the virus then searches out the next healthy cell to devour.

"There is a lot we do not know," Snieckus insists. "To make progress, it is crucial that we overlap with scientists working in areas such as biology, biochemistry, and computer chemistry; Monsanto and Searle will provide these avenues of cross fertilization. As for our lab, we hope to make our contribution in our specialty as synthetic chemists by putting molecules together, Leggo-style!"

The existence of this kind of leading edge research at the UW campus will benefit other professors in chemistry and biology as well as graduate and undergraduate students, Snieckus predicts. "There will be ample opportunity for spin-off research with Monsanto for colleagues who have expertise in areas outside our own," he says.

"Furthermore, the students we train will be better qualified for tomorrow's job market since they will not only be top synthetic chemists, but will also have had exposure to areas of biology, biochemistry, pharmacology, and merging areas still undefined. In 20 years the word 'chemistry' will certainly be unrecognizable from our current perspective."

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Written by Bob Whitton for the UW News Bureau, (519) 888-4444
Photos available. Prof. Snieckus is available at (519) 888-4007
Release no. 16 -- February 18, 1993

Gazette, Dec16/92

Industry, NSERC officials praise chemist

They came to pay tribute to Victor Snieckus and his research.

The veteran, though young-looking, UW professor of chemistry was named holder of the new $3.5-million NSERC/Monsanto/UW Industrial Research Chair in Chemical Synthesis and Biomolecule Design at an official launch last Tuesday on campus.

In attendance were about 70 of his colleagues, including two deans, and representatives of the two external funding partners: the Natural Sciences and Engineering Research Council and Monsanto Co., a U.S.-based multinational with more than 32,000 employees in 100 countries, including Canada.

First, they watched a short video on research activities in the Snieckus laboratory. Then, the speeches rolled.

Dr. Arthur Carty, dean of research, said that Monsanto is the type of company that becomes "an active partner" in joint research projects.

"It's an opportunity for Victor Snieckus and other researchers in the department of chemistry. It's the beginning of a collaboration with a research-intensive company."

For his part, Snieckus said the industrial chair partnership will "light a torch" for future developments and spark greater interaction with related disciplines.

"It will contribute to the discovery of new drug agents and agrochemicals," he said. "I hope the progress will lead to solutions of problems of human health and crop protection."

Snieckus was praised by NSERC president Peter Morand, who knew him before he came to UW in 1966. "He has attracted one of the biggest and brightest group of synthetic chemists in Canada," Morand said.

Dr. John Thompson, dean of science, said the research chair "epitomizes the efficacy" of partnerships involving universities, government and the private sector.

He said the faculty of science received $20 million in research funding in the 1992-93 academic year, supporting 400 graduate students. "The NSERC/Monsanto chair is certainly going to augment this strength across the faculty."

Thompson said the research chair will complement two existing chairs in the area of biotechnology at the university.

"Indeed, the establishment of this new chair . . . will help to forge strong linkages among synthetic-organic chemists, molecular biologists and molecular modellists as they work together in their efforts to discover new compounds."

Philip Brodsky, Monsanto's director of corporate research and environmental technology, said the work conducted by Snieckus and his team will be "critically important" to the pharmaceutical and agrochemical industries over the next decade.

"Our work with Dr. Snieckus began with a small agri-research project which resulted in the discovery of a compound which has shown significant potential as an agrochemical," he said.

Brodsky said the chair will support work in diverse areas such as carbohydrate modification that could lead to medications useful in chemical trials under way for AIDS therapy.

"Another example is his discovery of synthetic methods which could result in new ways to treat diseases ranging from infections, inflammation, malaria, polio and encephalitis to the common cold."

And his research into new catalysts has "profound potential for developing new herbicides" aimed at enhancing agricultural productivity, both safely and cost-effectively.

[illegible]

University of Waterloo

the Week

There's just about a week of work left for UW staff before the Christmas and New Year's holiday. A few exams remain to be written by students, and a lot remain to be marked by faculty, but carols are mixed with the snowflakes in this week's air and a rest is in sight.

Remember that, contrary to what it says in the published calendar, UW won't be open for business on Thursday, December 24. Christmas Eve, when it falls on a weekday, was added to the list of holidays for staff members as part of the 1992 salary settlement. Offices and services will close at the end of the workday December 23, and reopen January 4.

During the holiday break, UW's police will of course be on duty 24 hours a day as usual. The emergency number: ext. 4911 from a university phone, 888-4911 from an outside phone (and it's free from any of the on-campus pay phones).

The plant operations department says heat and ventilation will be kept at night settings from the evening of December 23 until January 3. Anyone coming to campus during the holiday can expect to find cool buildings. It will save additional energy costs if coffee-makers, computers, office equipment and unused fumehoods are turned off during the holiday.

Snow removal will be "minimal and limited to priority areas", chiefly the ring road. Maintenance emergencies can be reported to the usual 24-hour emergency number, ext. 3793.

And the campus centre will be open 24 hours a day during the holiday break.

1993 begins for the university when offices open and classes begin Monday morning, January 4. Registration for undergraduates will be Monday and Tuesday, January 4-5.

Christmas parties continue across campus. Among them is a gathering this evening in the Davis Centre lounge, hosted by the Information Technology Research Centre and intended for members of the local "Computer Technology Network" — an alliance of Kitchener-Waterloo companies, many of them UW spinoffs, in the computer and high-tech business.

Retirees will dance at the University Club tonight: the annual dinner-dance of the UW Retirees' Association is set to start at 7:30, with the music beginning at 9.

The staff association will hold a "festive open house" tomorrow, Thursday, from 4 to 6:30 in the Davis Centre lounge. Bring a contribution to the local Food Bank, organizers suggest, and bring your staff association card if you want to enjoy the food and drink to the full.

Mature students hold their Christmas celebration as a buffet luncheon this Friday. Information: the mature student services office, ext. 2429.

Chanukah, the Jewish festival of victory and religious freedom, begins this Saturday at sundown and runs for eight days, represented by the eight candles of a menorah.

The Gazette today publishes its last issue for 1992. The first issue of 1993 will appear Wednesday, January 6.

Dr. Alfred Bader
2961 North Shepard Avenue
Milwaukee, Wisconsin 53211

February 12, 1993

Professor Victor Snieckus
Department of Chemistry
University of Waterloo
Waterloo, Ontario
Canada

Dear Victor:

I was so happy to see how very much you helped Aldrich, as evidenced by the ad attached.

While Tom Cori has kicked me out, the chemists at Aldrich have remained my loyal friends, and of course my family and I are still the biggest private stockholders in the company. Hence, I very much hope that Sigma-Aldrich will continue to do well.

The silver lining to my dismissal has been that I have been able to do so much more to help others, so for instance, I was able to buy a castle for Queen's University and to establish a chair of organic chemistry at Queen's.

All good wishes.

Sincerely,

Enclosure