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**New Haven Section**  
**VOLUME 20, NUMBER 4, November 2003**

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**November 20, 2003 – NEW HAVEN SECTION MEETING**

**Dr. Robert A. Gregg,**

will present the 2003 Chamberland Award address

**"A Tale of Two Projects"**

**Rubber to Brass to Steel Adhesion,  
and the Mechanism of Decomposition of Azodicarbonamide**

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**December 16, 2003 – NEW HAVEN SECTION MEETING**

**Dr. Virginia Maxwell**

will present

**"Analysis of Trace Evidence in Criminal Investigations"**

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***Section News and Announcements***

- *Chamberland Award presentation to Dr. Robert Gregg*
- *Ballot for 2004 Officers*
- *2004 dues reminder*

## November Section Meeting

Thursday November 20, 2003

### *Jesse Camille's Restaurant*

**Dr. Robert A. Gregg**

will present

#### *"A Tale of Two Projects"*

#### *Rubber to Brass to Steel Adhesion, and the Mechanism of Decomposition of Azodicarbonamide*

Jesse Camille's Restaurant  
615 North Church Street  
Naugatuck, CT 06770  
(203) 723-2275

Social Hour: 6:00 p.m.  
Dinner: 7:00 p.m.  
Lecture: 8:00 p.m.

**Abstract:** A contemporary steel belted radial ply tire is an outstanding engineering achievement made possible only because of remarkable chemical progress in material science. A major challenge in tire construction is achieving a level of adhesion of steel to rubber sufficient to withstand the continual stress changes in a tire at high speeds and temperatures for very long periods of time. One segment of the speaker's address will include a brief review of tire development history, and evolve to a discussion of factors affecting adhesion of rubber to brass plated, high tensile, steel wire, identified through the development of newer methods for evaluating adhesion. Insight into the chemical reactions in the adhesion process, and the hitherto undocumented influence of moisture on the rubber curing process and vulcanizate properties will also be presented.

A second aspect of the address will touch upon the chemistry of the decomposition of azodicarbonamide, which is now produced in thousands of tons for use in making foamed products, many of which one might not recognize as foamed materials. Azodicarbonamide decomposition has interesting kinetics arising from its virtual insolubility in any medium in which it is used. The rates of decomposition at a series of temperatures and under various other conditions will be discussed. A wide range of catalysts and inhibitors were discovered for the decomposition reaction.

**Brief Biographical Sketch:** **Dr. Robert Arden Gregg** was born in Dundee, Michigan in 1918. He received a B.A. degree, *magna cum laude*, from Adrian College in 1937. Following a year as an instructor in chemistry at Adrian, he enrolled in the University of Michigan where he received his M.S. (1940) and Ph.D. (1943) degrees in chemistry.

In 1942 Dr. Gregg joined the General Laboratories of Uniroyal (then called the U.S. Rubber Co.) in Passaic, N.J., where his early assignments included fundamental research on the mechanism of free radical polymerization, development of polyester film forming and casting resins, and exploration into polyurethane technology. In 1957 he transferred to Uniroyal's Research Center in Wayne, N.J., where he continued research on the preparation and properties of Spandex thread. This is where Dr. Gregg first developed his interest in tire technology. From 1959 to 1963

he served as Manager of Research in Uniroyal's Textile Division, where he broadened his experience in polyurethane thread and cord technology. From 1964 to 1972 he served as Staff Scientist at the Wayne, N.J. Laboratories focusing on research planning, and conducting R.&D. on the initiation and regulation of ionic polymerization. During this period Dr. Gregg began to make frequent trips to Uniroyal's laboratory in Naugatuck, CT., where he conducted research on the kinetics and mechanism of azodicarbonamide decomposition. In 1972 he transferred to Uniroyal's R.&D. Laboratory in Middlebury, CT., where he worked on a number of projects including the improvement of rubber to steel wire adhesion, polyethylene foam development, stereotactic polybutadiene polymerization, and EPDM modification for various applications. Dr. Gregg retired from Uniroyal in 1984. It is for his work in improving rubber to steel wire adhesion, particularly as applied to improving the properties of steel belted automobile tires, and contributions toward the development of cellular plastics, which find utility as flotation devices, and as impact absorbing and thermal insulation materials that Dr. Gregg has been selected to receive the Section's Maurice R. Chamberland Award.

Throughout his career Dr. Gregg has been named as inventor on several patents, authored or co-authored a number of scientific papers, and written a chapter on Spandex and other Elastomeric Fibers for the *Kirk-Othmer Encyclopedia of Chemical Technology*.

#### **Directions to Jesse Camille's Restaurant**

**FROM New Haven:** Whalley Av (Rt 63) north through Woodbridge and Bethany (Amity Rd). Continue through Naugatuck on Rt 63. The restaurant is on the right about  $\frac{3}{4}$  mile past the intersection with Rt 68.

**FROM Meriden and Hartford:** I-91 or I-691 to I-84 West. Exit I-84 at Exit 17 – Naugatuck. Left at stoplight onto Rt 63 south. Restaurant is approximately 2 miles south, on the left.

**FROM Danbury/Southbury:** I-84 East to Exit 17 – Naugatuck. Right at exit onto Rt 63 south. Restaurant is approximately 1.5 miles south, on the left.

#### **Jesse Camille's Restaurant - Thursday November 20, 2003**

Buffet dinner includes a fresh garden salad, penne pasta, oven roasted red potatoes, chocolate mousse dessert, and coffee, tea or decaf.

Buffet Entrée Choices: Oven roasted chicken  
Eggplant parmesan  
Baked scrod

Price of \$21.00 include tax and tip

Please make reservation by contacting **Dr. Michael Gelbin by Tuesday, November 18, 2003**, at (203) 573-2646 or email to: [michael\\_gelbin@cromptoncorp.com](mailto:michael_gelbin@cromptoncorp.com). **High school and elementary school teachers (K-12), retired or unemployed chemists and students will be charged only \$18 for the dinner.** Please leave your name, telephone number and number of reservations. Cancellations must be made 24 hours prior to the meeting or you may be charged for dinner.

You may also attend the lecture without the dinner. Please notify Dr. Gelbin so he can keep the count of number of attendees, and arrive at the restaurant by 8:00 PM. when the lecture begins.

## December Section Meeting

### **95 Gathering Place**

Tuesday December 16, 2003

**Dr. Virginia Maxwell**

will present

### ***Analysis of Trace Evidence in Criminal Investigations***

95 Gathering Place  
865 No. Colony Road  
Wallingford, CT 06492  
(203) 265-1552

Social Hour: 6:00 p.m.  
Dinner: 7:00 p.m.  
Lecture: 8:00 p.m.

**Abstract:** The Locard Exchange principle dictates that a criminal will leave evidence and remove evidence in the commission of a crime. Whilst interest often centers on DNA evidence, it is of relevance in only a small percentage of criminal cases. In cases where no probative DNA evidence exists, trace evidence is utilized to provide linkage between victim, suspect and crime scene. Trace evidence may be in the form of paint, glass, soil, tape, hairs and fibers, as well as other less common materials. Trace evidence examiners subject these usually microscopic materials to scientific analysis and comparison. The use of databases can lead to the development of suspects from a minute paint chip or fibre.

In this talk, the analysis of scientific evidence will be discussed. Case studies will be presented to illustrate the application of this work to criminal investigation and reconstruction of the crime. Specific cases highlighted will include the use of a fibre to link a suspect to the murder of a child; paint chips as a means to determine the make and model of a hit-and-run vehicle; soil to link a killer to a shallow grave; and, the use of paint smears to reconstruct a fatal motor vehicle accident.

**Brief Biographical Sketch:** Dr. Virginia Maxwell is a criminalist with the State of Connecticut Department of Public Safety Forensic Laboratory. She earned a doctorate in physical chemistry from Oxford University in England and completed fellowships at the Royal Military College of Canada and Yale University School of Medicine before joining the forensic laboratory in 1993.

An examiner in Trace Evidence she works on a wide variety of cases from complex homicides to vandalisms. Maxwell collects of evidence at crime scenes, serves as an expert witness, lectures to police and analyzes evidence in the lab.

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### **\$Funding for Divisions and Local Sections**

The amendments to the Constitution to increase funding for divisions and local sections, approved by the Council in New Orleans last spring, were subsequently ratified by the membership: FOR 20,430 AGAINST 3,197

### **Directions to 95 Gathering Place**

**Merritt Pkwy:** Exit 66 – Take a left off Parkway. go about 1.5 miles. Restaurant is on the right across from Wallingford Toyota.

**91 North/South:** Exit 13, take a right at end of ramp. Travel 5-6 miles. After you reach Super Kmart, it is 1/8 mile on left (across from Wallingford Toyota).

**From Waterbury:** Take I-84 to I691 to Rte 15 south (Merritt Parkway). Follow Parkway instructions.

### **95 Gathering Place -Tuesday December 16, 2003**

Buffet dinner includes house salad, baked ziti, fresh vegetable, oven roasted potatoes, dinner rolls, ice cream nut roll dessert and coffee or tea.

Buffet Entree choices: Baked stuffed sole  
Chicken marsala  
Roast sliced pork

Price of \$20 includes tax and tip.

Please make your reservation by contacting **Dr. Michael Gelbin by Friday, December 12, 2003**, at (203) 573-2646 or email to: [michael\\_gelbin@cromptoncorp.com](mailto:michael_gelbin@cromptoncorp.com). **High school and elementary school teachers (K-12), retired or unemployed chemists and students will be charged only \$17 for the dinner.** Please leave your name, telephone number and number of reservations. Cancellations must be made 24 hours prior to the meeting or you may be charged for dinner.

You may also attend the lecture without the dinner. Please notify Dr. Gelbin so he can keep the count of number of attendees, and arrive at the restaurant by 8:00 PM when the lecture begins.

### **Situations Wanted**

POLYMER CHEMIST, PhD, with 22 years experience and awards in industrial and electronic coatings (including 15 years at IBM Research). Willing to start at BS level salary (or contract) to prove my worth. Please contact John, 203-575-9170 or [JLL11@aol.com](mailto:JLL11@aol.com).

Ad Guidelines are as follows: Situations-wanted by New Haven Section member - **No Charge**. Non-members- **\$20 for four lines**. Want Ads are **\$40 for a 4-line ad** or **\$75 for a full-page (4x8 inch)**.

### **Maurice R. Chamberland Award**

The Award was established by the Section in 1976 to honor the memory of the late Maurice R. Chamberland, who was actively involved with the Local Section prior to his death. To be eligible for the award the candidate shall have demonstrated notable innovation, discovery, or other outstanding contributions to chemistry, particularly as manifested in the application of chemistry to enhance societal well being. Furthermore, the achievement qualifying the nominee for the award must have been accomplished while a member of the New Haven Section. The recipient is required to deliver an address on the subject of his or her scientific work, preferably that for which the recognition has been made, at the dinner meeting at which the award is presented. The award consists of an honorarium and a commemorative plaque. A list of previous award recipients can be found on the Local Section Web Site.

199 Benson Road  
Middlebury, CT 06749

Words from Your Editor ...

Cast your ballot for new Officers for 2004. Please note the guidelines for 'want ads' and 'situations wanted' to be put into the New Haven Section Bulletin.

-- Check out the Section's web site --

William Harned, Newsletter Editor

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*The Bulletin is also posted on the Section's **web site** at  
<http://membership.acs.org/N/NewHaven>*

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