

# theCHEMICALbulletin

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FEBRUARY • 2004

## CHICAGO SECTION AMERICAN CHEMICAL SOCIETY

### February Dinner Meeting

**FRIDAY, February 20, 2004**

**Holiday Inn Northshore**  
5300 W. Touhy  
Skokie, IL  
847-679-8900

#### DIRECTIONS TO THE MEETING

**From the North on I-94 (Edens Expressway)**

Take the Touhy Avenue west exit (#39A). The Holiday Inn is 3 to 4 blocks west on the right hand side.

**From the South on I-90/94 (Kennedy Expressway)**

Make sure that when the I-90/94 split you take I-94 west "to Milwaukee"; exit at Touhy Avenue west (#39A). The hotel is 3 to 4 blocks on the right hand side.

**From the south on the I-294 (tollway)**

Exit at Touhy Avenue east. The restaurant is about 7-8 miles east of the 294 expressway. The hotel will be on the left-hand side.

**From O'Hare Airport on the 190 expressway/I-90 (Kennedy expressway)**

Take 190 east to Chicago to merge with the 90. 2 miles down will be an exit for Harlem Ave. Exit on Harlem Ave. Turn left at the first street light at which time you will be heading north on Harlem Ave. After about 3 miles turn right on Touhy Avenue and the hotel will be 2 miles down on the left-hand side.

**From the I-55 (Stevenson expressway)**

Take the I-55 to the I-90/94 expressway west to Wisconsin (Milwaukee); take the I-94 after the split to Touhy Avenue west; then exit west on Touhy Ave. (#39A)

**PARKING:** Free

**UNDERGRADUATE RESEARCH SYMPOSIUM:** 5:30 - 6:30 P.M.  
(See Page 3)

**JOB CLUB** 5:30 - 6:30 P.M.

**SOCIAL HOUR** 6:00- 7:00 P.M.  
Cash Bar

**DINNER** 7:00 P.M.

Dinner reservations are required and should be received in the Section Office via **phone** (847-647-8405), **fax** (847-647-8364), **email** ([chicagoacs@ameritech.net](mailto:chicagoacs@ameritech.net)), or **web-site** (<http://ChicagoACS.org>) by noon on Tuesday, February 17. PLEASE HONOR YOUR RESERVATIONS. The Section must pay for all dinner orders. No-shows will be billed.

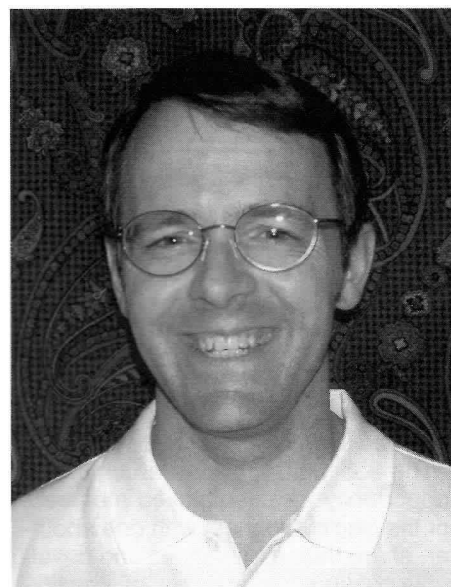
**Menu:** Italian Wedding Soup; Citrus Spinach Salad with Tangy Brazilian Dressing; Choice of Tender London Broil with Mushroom Sauce, Spanish Rice & Tomato Florentine, White Fish Almondine with Rice Pilaf & Tomato Florentine, or Portabella Mushroom Ravioli with Tomato Florentine & vegetables; Carrot Cake; rolls & butter; beverage.

The cost is \$28.00 to Section members who have paid their local section dues, members' families, and visiting ACS members. The cost to non-Section members is \$30.00. The cost to students and unemployed members is \$14.00. Seating will be available for those who wish to attend the meeting without dinner.

#### NOTICE TO ILLINOIS TEACHERS

The Chicago Section-ACS is an ISBE provider for professional development units for Illinois teachers. Teachers who register for the February meeting will have the opportunity to earn up to 4 CPDU's.

**GENERAL MEETING** 8:00 P.M.



**Dr. Charles Palmer, Research Associate, DuPont Textiles and Interiors, Waynesboro, VA**

**Title:** "Spandex technology — the science of stretch and recovery"

**Abstract:** Most spandex polymers may be generally classified as polyether-polyurethane-polyurea block copolymers. They are composed of crystalline hard segments dispersed in a matrix of amorphous soft segments. The dynamic interplay between the soft and hard segments determines the stretch and recovery properties of the polymer. The many compositional variables and their effect on polymer properties as well as the spinning process and its effect on fiber properties will be briefly reviewed. Macro- and microscopic properties of spandex fiber will also be discussed.

**Biography:** Dr. Palmer was born in Los Angeles, CA in 1960. He moved

(continued on page 2)

(continued from page 1)

many times before going to high school in Wilmington, Ohio, graduating from college at MIT in 1982, and receiving a Ph.D. in organic chemistry in 1987 from the University of Illinois. He has worked for DuPont since 1987 in the specialty chemicals department and since 1998 in the LYCRA(r) business. He holds seven patents.

### FREE T-SHIRTS

The Hospitality Committee raffles one T-shirt at each monthly dinner meeting. The shirt has Chicago spelled out using the periodic table. So come to a monthly meeting and maybe you'll win one!

**Congratulations to T-shirt winner Jay Jones (December meeting).**

FRAN KAREN KRAVITZ  
HOSPITALITY COMMITTEE CHAIR

### JOB CLUB

The next meeting of the **Chicago Section ACS Job Club** will be held on **Friday, February 20 at the Holiday Inn Northshore at 5:30 p.m. — (Note time)**. The meeting will include a review and discussion of some of the fundamental tools that a chemist can use to conduct a Job Search.

The Job Club provides a continuing opportunity for unemployed members of the Section to meet with one another, share their experiences and develop a network that may help in identifying employment opportunities. Bring plenty of resumes and business cards to distribute to your colleagues. Be prepared to talk about what kind of job you are looking for.

Several participants have received outsource help with resume preparation and marketing strategies to present their best attributes to prospective employers. The group actually critiqued some individual resumes and made suggestions for improvements in a positive way!

The Job Club is also for employers seeking chemists. Employers need to be prepared to describe the positions to be filled and requirements for these positions.

**Should you wish to attend the Section meeting following the Job Club, the fee for unemployed members is only \$14 and you can continue your networking activities.** Please call the Section office for reservations and indicate that you are eligible for a discount.

## ANNUAL HOLIDAY MEETING

The annual holiday party was held at Monastero's Ristorante on Friday, December 12, 2003. There were about 103 people in attendance. This event was held jointly with the Chicago Chemists Club and Iota Sigma Pi. The speaker that evening was Dr. James O'Brien, Southwest Missouri State University, Springfield, Missouri. His topic was "Famous Mad Hatters".


Raffle items included dinners from Monastero's Ristorante and Stevens Steak House; gift certificates to Marshall Fields from Iota Sigma Pi; wine from the Chicago Chemists Club; a membership from the Chicago Chemists Club; monetary gift from Northrup RTS; lip balm from Blistex, Inc.; gifts from NorthStar Credit Union, Stepan Company, Herbert & Adrienne Golinkin, and Kraft Foods; light-up bouncing balls from BP America; pens from TEI Analytical; poinsettias and additional raffle gifts from the Hospitality Committee.

In addition to the regular holiday program, Thomas J. Kucera was given the "Salute to Excellence" award by Susan Shih, Chicago Section's ACS Chair at that time. This was a well deserved award for Tom who has done so much for our Section.

Something new was the changing of the gavel at the holiday meeting. In past years the Section operated on an academic year instead of a calendar year. When the Section made a change in its By-Laws to a calendar year, Susan Shih had the role of Section Chair for eighteen months. That evening, Susan Shih turned over the gavel to Milt Levenberg whose official role took place on January 1, 2004. Chair Shih has done an outstanding job for all those months and while it will be a hard act to follow, we know Milt will also do an outstanding job.

The tradition of collecting food for charity continued at the annual holiday party. Each member was asked to bring a nonperishable item of food to this dinner meeting. Again, about 500 pounds of food were collected and donated to the Loaves and Fishes Community Pantry for distribution. This matches our collection from last year. The Hospitality Committee would like to thank those Section members who participated in the 2003 food drive and made it such an outstanding success.

FRAN KRAVITZ  
HOSPITALITY COMMITTEE CHAIR

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## "CHEM SHORTS" For Kids

The Elementary Education Committee of the Chicago Section ACS presents this column. They hope that it will reach young children and help increase science literacy. Please cut it out and pass it on to your children, grandchildren, or elementary school teachers. It is hoped that teachers will try to incorporate some of the projects in this column into their lesson plans.

### Stinky Chemistry

Kids, want to see how some basic chemistry can help go a long way with making good food? We'll bet that you have never tried cabbage, but this experiment might change that. First, never buy a cabbage that has yellow spots. Where does the yellow come from? Green vegetables have two types of chlorophyll molecules: type A is bright blue-green and type B is bright yellow-green. Together this makes green. But type A is fragile and will break down and fade if it gets warm. This leaves only type B, causing the yellow spots. The same thing happens during cooking. You have to cook this stuff very carefully in order for it to taste good (yes, it can taste good).

What happens when you cook, and especially if you overcook, cabbage can be envisioned by heating bubble wrap. Stack and lightly tape together some sheets of bubble wrap, about 12" by 12" squares. Using a variety of sheets that have bubbles of different sizes and colors helps the demonstration. Imagine that the bubble sheets are a greatly magnified cross-section of the leaf with a lot of cell layers, each doing different jobs. Some do photosynthesis, some metabolize, some reproduce. In between the cell layers are membranes that keep things protected (one chemical away from others) and also full of liquid ("solvated"). This is a very safe and ordered world, at least until the cook comes along and turns up the heat. The next step can only be done by an adult partner. They need to support the bubble wrap on a heat-resistant, but disposable, surface of some kind (for example, coat a cookie sheet with aluminum foil and fix the bubble wrap stack down on this with one or two pieces of tape). Use a hair dryer to heat the bubble wrap from the top and sides. As the wrap shrinks up imagine that, in the cabbage leaf, membranes are bursting, peptic substances are gelling, enzymes are unleashed, and pigments fade. After a few minutes, sulfur-containing gases are released that fill

the air with a rotten egg smell. The chaos of this widespread destruction can be controlled, however. First, have your adult partner boil a large pot with a lot of excess water and then add 1 tablespoon each of salt (NaCl) and sugar (sucrose). Then put in some shredded cabbage.

Notice that as soon as the leaves are added to the hot water they get brighter in color. This is because the gases trapped in the cells are released, letting you see the true chlorophyll colors. Boil for only 2 minutes and drain quickly. If you go 5 minutes, leaked acids start to degrade all of the chlorophyll molecules, making the leaves gray, and sulfurous gases leak out and stink up the room. You can try one pot of each just to see (and smell) the difference. Using lots of water helps to dilute the acids that build up. The sugar helps to preserve the plant cells and keeps the leaves crunchy. We admit that adding something else after draining (maybe seasoned bread crumbs fried in butter) is pretty much essential for making this vegetable taste really good. Just realize that along the way some basic chemistry knowledge helped go a long way with ensuring success!

Written by KATHLEEN CARRADO

**References:** The Food Network Alton Brown's Good Eats episode on Head Games ([www.goodeatsfanpage.com/Season3/Cabbage/CabbageTranscript.htm](http://www.goodeatsfanpage.com/Season3/Cabbage/CabbageTranscript.htm)).

All past "ChemShorts": <http://member.ship.acs.org/C/Chicago/ChmShort/kid/index.html>.

## UNDERGRADUATE RESEARCH SYMPOSIUM

The College Education Committee is sponsoring an undergraduate research symposium on February 20 at 5:30 p.m. in conjunction with the monthly dinner meeting of the Section. The objective is to provide undergraduate researchers with a forum to share their work with colleagues from other institutions and Section members. The committee plans to present another such symposium in April. Presenters for the February symposium are from Loyola University.

CHARLES E. CANNON, CHAIR  
COLLEGE EDUCATION COMMITTEE

## NEW MINORITY AFFAIRS CHAIR

Allison Aldridge will chair the Minority Affairs committee as well as the Membership Affairs committee.


MILT LEVENBERG

February, 2004 Vol. 91, No. 2. Published by the Chicago Section of The American Chemical Society, Editorial Staff: Cherlyn Bradley, Editor, and Fran Kravitz; Avrom Litin, Publications Business Manager. Address: 7173 North Austin, Niles, Illinois 60714; 847/647-8405. Subscription rates: \$15 per year, \$15 outside North America. Frequency: monthly-September through June.

## CONTACT THE CHAIR

Do you have any questions, suggestions, recommendations, ideas, gripes, complaints, or pet peeves relating to the Chicago Section? Do you want to volunteer, help out, or lend a hand with Section programs or activities? Then contact your Chair. Simply log onto the Section's Web Page at <http://chicagoacs.org>, find the green button "Contact the Chair", and send me an e-mail. If I can answer your query I will respond personally. If I can't I will forward your e-mail to someone who can, or try to provide you with a contact — all in a timely manner. The Section belongs to you and the other 5,600 ACS members who reside in the Chicago area (northeast Illinois and northwest Indiana). Only you can make it work for you by being involved. But you can also make it fail by not being involved. I look forward to hearing from you.

MILT LEVENBERG  
CHAIR



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**ANALYSIS FOR THE CHEMICAL ELEMENTS**



## ALMA E-NEWS

### Innovative Safety Meeting Ideas

Those of us who hold monthly safety meetings are always looking for ideas to make them more interesting, especially topics such as the annual or semi-annual review of safety rules. Let's face it, reading safety rules in a meeting can be downright boring. Some time ago, one of our chemists used the Jeopardy game show format to present safety rules and other safety information and the meeting was very popular with the staff. Several other managers have also reported using this idea with similar success. Anyone have any more innovative meeting ideas to share?

Past ALMA (Analytical Laboratory Managers Association) e-News editions are available at the website <http://www.labmanagers.org/>.

If you have any comments, cost saving suggestions, opinions, etc. let me hear from you.

WAYNE COLLINS

[wayne.collins@bpsolvaype.com](mailto:wayne.collins@bpsolvaype.com)

### AWARD

**Joseph B. Lambert**, Professor of Chemistry, Northwestern University, received the 2003 Harry & Carol Mosher Award from the ACS Santa Clara Valley Section in January 2004.

This award was established in 1980 by the Santa Clara Section to recognize and encourage outstanding work in chemistry, to advance chemistry as a profession, and to recognize service to the ACS.

Dr. Lambert's research at Northwestern has included the areas of organic reaction mechanisms, organosilicon and organotin chemistry, NMR, conformational analysis, and archaeological chemistry.

He has received numerous awards for his excellence in teaching and for his contributions to the field of chemistry. He has served on the editorial board of a number of acclaimed journals and founded the *Journal of Physical Organic Chemistry*, of which he continues to be editor-in-chief. He is also a past chair of the ACS Division of the History of Chemistry.

Congratulations Joe!

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## WCC COLUMN

Members of the Chicago Section's Women Chemists Committee (WCC) are developing outreach plans for Chicago area section members and the community. These plans include a column in the *Chemical Bulletin* covering topics such as networking, career development, and vignettes of women in chemistry. This month's topic is on Alice Hamilton.

### Alice Hamilton: Pioneer in Industrial Toxicology

Alice Hamilton, (1869-1970), was a physician, an industrial hygienist and the first female faculty member at Harvard University. She is most well known for her field work in investigating toxic hazards in the workplace during the first half of the twentieth century. Among her investigations were carbon monoxide poisoning in steel workers, mercury poisoning in hatters and lead poisoning amongst workers in several industries.

What led this pioneering doctor into these workplaces in the early 1900s? She had moved into Jane Addams Hull House and started a well baby clinic for the poor families in the local neighborhood. As she became aware of the health issues faced by these families, she began to search for the causes of these debilitating illnesses.

As a physician, she applied her knowledge of the byproducts of the industrial processes then in use and the effects of these byproducts on the human body to determine the specific causes of many workplace-related illnesses. In 1910 she was asked to lead the first statewide survey of industrial poisons in the state of Illinois. The results of this survey led to recommendations for workplace standards that would protect the health of the workers.

She later worked as a special investigator for the federal Bureau of Labor and made recommendations for safer working conditions in many areas of the chemical industry. Among the additional areas that she investigated were the toxic effects of aniline dyes, radium, benzene, tetraethyl lead, sulfuric acid and carbon disulfide as used and generated in many industrial processes. Much of her time at Harvard was spent on these investigations as well as on writing two widely acclaimed textbooks in this new field. She also served as an officer in the first professional organization of industrial hygienists.

Much additional recognition has come about after her death. The National Institute of Occupational Safety and

Health named one of its laboratories after her and established an award in her name for occupational health and safety. A U.S. postage stamp was released in her honor in 1995. In 2002, the American Chemical Society named Alice Hamilton and her work in Occupational Medicine a National Historic Chemical Landmark at Hull House here in Chicago.

Why should you know about Alice Hamilton? She was a woman who refused to let the overwhelming obstacle of her gender keep her from making major contributions to the health and well being of the working poor. She was a scientist who made a difference.

SUSAN SHIH, CO-CHAIR, WCC

Topic suggestions and articles from our readers are always welcome and may be sent to either Susan Shih (**Shihsu@cdnet.cod.edu**) or Margaret Levenberg (**mlevenberg@stepan.com**), co-chairs of the WCC.

### PUBLIC AFFAIRS LECTURE

In alternate years, we have for the past 15 years presented a Public Affairs Lecture, alternating with the biannual Public Affairs Award. This year's lecturer will be Dr. Sara Risch. Sara heads her own consulting firm, "Science by Design," specializing in work for major food companies worldwide. She will share some of her experiences, both as a food scientist and a proponent of bringing science to the public. As a member of the ACS Council Committee on Public Relations and Communications, she has worked with other experts in presenting food demonstrations to the general public.

So, mark your calendars for March 19. Additional information will be posted on the Section Website and will be available in the next issue of the *Chemical Bulletin*.

JIM SHOFFNER, PUBLIC AFFAIRS COMMITTEE CO-CHAIR

### 2004 WILLARD GIBBS MEDALIST

It is my pleasure to announce that **Professor Ronald Breslow**, the S.L. Mitchell Professor of Chemistry at Columbia University, will be our 2004 Willard Gibbs Medalist. The medal will be presented to Professor Breslow on Friday, May 21, 2004 at a place yet to be determined in the Chicagoland area. If possible, please plan to attend. More information will follow in the near future.

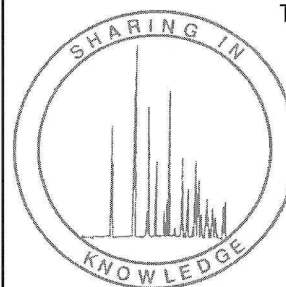
MILT LEVENBERG, SECTION CHAIR

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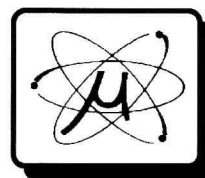


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## SOME REMINISCENCES OF THE ACS CHICAGO SECTION: HISTORICAL NOTES

By HARRIET LIGHTMAN, Bibliographer, Northwestern University Library, Evanston, Illinois  
—with ROBERT MICHAELSON, Head Librarian, Seeley G. Mudd Library for Science & Engineering, Northwestern University

In the late 1920's and the early 1930's, Dudley K. French (1881-1960), one of the founding members of the American Chemical Society's Chicago Section (ACS/CS), asked some of his peers to write down their reminiscences of the early years of the Chicago Section and, simultaneously, to write about their involvement in industry and research. French's intention, never completely realized, was to write a history of the section and, by extension, of chemists' role in the early years of Chicago business and industry.

The ACS/CS archives, in Niles, Illinois, houses the manuscripts that French received in response to his solicitations. Some of these manuscripts were published in whole or in part, in the pages of *The Chemical Bulletin*; others never saw the light of day. Yet these reminiscences are more than fascinating glimpses into the minds of the Section's founders; they also provide an intriguing context into which the present-day historian can begin to track growth and change in the world of Chicago's chemical industries.

There are edited reprints of two of the longer essays, neither of which was ever before published. Both of these essays are about industries that were central to the growth of Chicago: the milk processing industry, and corn products.

**Here is Part I of the reprinted essay on the milk processing industry — with the footnotes.** We will publish Part II and the essay on

corn products in upcoming issues.

**"Milk Processing Industry," by Edward Gudeman (1) — Part I**  
November 21, 1930

My Dear Mr. French:

I am more than willing to do the little I can to help make history of the Chicago section. (2) You have had such excellent reviews on this subject by the late Prof. Long (3) and our esteemed dean of our local section Mr. W. Hoskins (4) that there is little that I could add.

If you would specify or send me a series of questions I would answer to the best of my ability.

Most of my work was strictly professional of a consulting and legal character and it is very questionable to me whether this would be any value today, perhaps only of historical interest to those chemist[s] who are in my class of "has beens".

It is 45 years ago since I became interested in milk, although it [was] even two decades before that time that I first made use of human and cows milk, exactly 66 years next January.(5)

At the beginning of this century the milk supply for Chicago was not good, to state it mildly. We had some few stations w[h]ere "Certified" milk could be obtained. This milk cost about double what the regular milk cost and was not as good as the common milk now supplied to Chicago.(6)

There was nothing as [far as] statu[t]ies and acts that prohibited the use of preservatives in milk.(7) Formaldehyde being used to a tremendous extend[sic].(8)

Some of the leaders in our profession, such as Professors Long and Haines were not against the use of formaldehyde, when used in small quantities.(9) But the trouble was that excessive amounts were used. To be on the safe side the milk producer, on [sic] the dairy, added some formaldehyde; the receiving clerk at the railroad station played safe by adding some to each can; the wholesaler did likewise and the retailer added a final dose. As a result, instead of getting milk preserved with formaldehyde, we really got formaldehyde diluted with milk. I have had many sample[s] that contained enough formaldehyde to require only an analysis of taste or smell to determine it. It was due to the excessive amount used, that we obtained legislation prohibiting its use altogether. And I may say that this legislation was favored by Profs. Long and Haines.

Then we started in "Pasteurizing" [sic] milk and that is where I got into the fight.

There is pasteurization and pasteurization. I fought for clean raw milk or "STERILIZED" milk. The method of pasteurization in use and legal for Chicago was what was known as flash pasteurization, heating the milk up to 140°F for 1/2 to 1 minute.(10) This I held was worse than no good, as it did not do the work required and gave a false security. I did not stand alone in this contention, being backed up by many of the local medical profession and outside authorities.(11) Many of the medical profession did not support me. The result has been that today we have an excellent milk supply in Chicago, both of raw milk and milk that has been heated at sufficiently high temperature and for a sufficiently long time to attain what the old flask[sic] pasteurization did not bring about. But also today you will find very few of the medical profession who do not allow sterilized milk, [and] in fact favor it. I believe that I helped bring about that condition. Those who are interested in this subject I would refer to reports of the hearing before the Milk Commission of Chicago, to the State Senate Committee investigating the matter, 1908 to 1911 or to an article of mine in the Illinois Medical Journal April 1911.(12)

(continued in Part II)

### Notes

1. Edward Gudeman was born in New York City in 1865. In 1887, he earned a Ph.B. from Columbia University. After spending two years in Gottingen and Berlin, he received a Ph.D. in chemistry, also from Columbia. He held a faculty position in chemistry at the Pennsylvania Museum and School of Industrial Art in 1889, and he was an instructor in chemistry at Columbia in 1890. From 1891 to 1900, he was a chemist and superintendent for sugar, starch, and glucose manufactories. In 1898, Gudeman came to Chicago. Two years later, he went into private practice as a consulting chemist, legal scientific expert, and chemical engineer. In addition to the ACS/CS, he claimed memberships in the American Institute of Chemical Engineers, the American Electrochemical Society, the City Club of Chicago, The Chemists' Club, and several other associations. He was also a fellow of the American Academy for the Advancement of Science (A.A.A.S.). Advertisements for his firm are a constant in the pages of the early years of *The Chemical Bulletin* [which was known as *The Chicago Chemical Bulletin* from 1914 until 1919]. Gudeman died of pneumonia in 1933.

(continued on page 7)

(continued from page 6)

Gudeman himself recounted some of his past achievements in a letter to D.K. French dated Oct. 17, 1931 (letter available in the American Chemical Society/Chicago Section [ACS/CS] archives, Niles, IL): "My connection with Chicago chemical and semi-chemical concerns goes back to 1892, although I did not become a resident of the City until 1898. I acted as a consulting chemist and chemical engineer to the Chicago Sugar Refining Co. a glucose and starch concern, assisting them in utilizing of what was called waste products, now valuable by — products, recovery of corn feed stuffs, corn oil cake and corn oil. I also acted for the starch factory at Hammond, Ind. Owned by the firm of Stein Hirsch & Co. assisting them in the manufacture of modified starches and dextrans and starch gums."

For the biographical details, see *Who's Who in Chicago. The Book of Chicagoans*, A.N. Marquis & Co., Chicago, IL, 1926, 364; and "Edward Gudeman," *Chem. Bull.*, June 1933, 20, 156.

It was quite common for American chemists to be German-trained in the early 19th century. See Kendall A. Birr, "Science in American Industry," in David A. Van Tassell & Michael G. Hall, Eds., *Science and Society in the United States*, Dorsey Press, Homewood, IL, 1966, esp. 53. For a full discussion of the relationship between German and American chemistry, see T.S. Reynolds, "Defining Professional Boundaries: Chemical Engineering in the Early 20th Century," in T.S. Reynolds, Ed., *The Engineer in America. A Historical Anthology from Technology and Culture*, University of Chicago Press, Chicago, IL and London, 1991, 346-348; and, on the German influence, E.H. Beardsley, *The Rise of the American Chemistry Profession, 1850-1900*, University of Florida Monographs, Gainesville, FL, no. 23, summer 1964, chapter 2.

(We wish to thank Elizabeth Aronson, an undergraduate student at Northwestern University, who helped obtain some of the biographical information in these notes. Ms. Aronson's participation in this project was supported by a grant awarded under the auspices of the Residential College Program, Northwestern University; the grant was made possible by The Office of the Provost of Northwestern University.)

2. Gudeman's opening sentence is an response to a letter French wrote to him on Nov. 3, 1930, in which French says: "As you may know, the Chicago Section is endeavoring to make more or less permanent the record of its past and in that connection, we wish not only the experiences and memories of the older

men in the Section as to their own activity, but also wish to write the history as well of the different industries which have developed here. You can be of great help to us in both fields." Letter available in the ACS/CS archives, Niles, Illinois.

3. John Harper Long (1856-1918) was, from 1881 until his death, professor of chemistry at Northwestern University; he was also Dean of Northwestern's School of Medicine and Pharmacy. He was considered one of the founding members of the Chicago Section of the ACS, and it appears to have been largely at his urging that a charter was granted on March 15, 1895. He was elected treasurer in June of that year, and became president of the section in 1903.

A brief book was written as a tribute to Long. See *John Harper Long. 1856-1918. A Tribute from his Colleagues*, Northwestern University, Evanston, IL., n.d., which is a complete record of his life and work. There is also a very fine obituary in *Chem. Bull.*, July 1918, 5, 126. Also see the biography in W.D. Miles, Ed., *American Chemists and Chemical Engineers*, American Chemical Society, Washington, DC, 1976, [vol. 1], 303-304.

4. William Hoskins (1862-1934) was another of the founding fathers of the ACS/CS. Born in Covington, Kentucky, Hoskins had no formal training in chemistry, and only completed a few years of high school. In 1880, he associated himself with Guy Mariner, a Chicago consulting and analytical chemist. Hoskins soon became Mariner's partner in the firm Mariner & Hoskins. By 1890, he was the sole proprietor, after which time he married Mariner's daughter. He was the temporary recorder of the Chicago Chemical Society, a predecessor of the ACS/CS. In 1897, he was chairman of the ACS/CS. Hoskins was distinguished enough within the ACS/CS to warrant several appreciations of him. All of *Chem. Bull.*, Feb. 1930, 17, is devoted to Hoskins, and is called "The William Hoskins Number." Hoskins was also the first president of the Chicago Chemists Club. His work there, and an accompanying photograph, is in P. Van Cleef, "The Chicago Chemists Club in Review," *Chem. Bull.*, Oct. 1936, 23, 238-241. See, too, *Who's Who in Chicago and Vicinity. The Book of Chicagoans*, A.N. Marquis & Co., Chicago, IL, 1931, 476. Gudeman is probably referring to two articles: W. Hoskins, "Chemistry Then and Now," *Chem. Bull.*, Feb. 1930, 17, 40-41; and "The Beginnings of Chemistry in Chicago As Told by William Hoskins to Louis Ehrenfeld," *Chem. Bull.*, Sept. 1930, 17, 231-232.

5. Gudeman, writing at the end of

November 1930, is attempting to be witty by referring to his birth date of January 25, 1865, when he first made use of milk. His professional interest in milk began 45 years before he wrote this short memoir, i.e., in 1885.

1885 is not a watershed year in Chicago milk history, though it does fall within a period when the issue of food purification in general, and milk more specifically, was assuming coherence. In 1874, the Illinois State Dairymen's Association was created to "spread uniform standards of milk production" (T. Pegram, "Public Health and Progressive Dairying in Illinois," *Agr. Hist.*, 1991, 65, 38). More generally, historian Richard Meckel, while tracing the state of protest against the quality of urban milk in the 1830's, sees 1875 as the beginning of a two-stage pure milk campaign. Stage 1, he argues, was the effort to guarantee chemically pure milk and protect it from "adulteration, dilution, and spoilage". Stage 2, starting in the 1890's, centered on efforts to "prevent or rectify the microbial contamination of commercial milk" (R. A. Meckel, *Save the Babies. American Public Health Reform and the Prevention of Infant Mortality, 1850-1929*, Johns Hopkins University Press, Baltimore, MD and London, 1990, 63).

6. Gudeman comments, in a roundabout way, on one of several grades of milk: raw, certified, and pasteurized. The "common milk now supplied to Chicago" refers to the city's milk supply in 1930 which, in fact, was still not that good. See *Milk Control. Government Regulation of the Dairy Industry in the United States* Prepared by the American Municipal Association. Publication no. 57, Public Service Administration, Chicago, IL, 1937, which supports Gudeman's vague point. In 1937, speaking of communities not as populous and important as Chicago, *Milk Control* reported, for example, that "...four out of every five communities with populations between 1,000 and 10,000 do not regulate the conditions of production or distribution of milk at all. Moreover, less than 40 per cent of the milk consumed in such communities is pasteurized, where the average proportion in 1931 for cities with 10,000 to 25,000 inhabitants was 58.6 per cent and for all cities over 10,000 was 87.5 per cent." (*Milk Control*, [p. 1]: Forward) The publication continued on to cite a 1931 study that noted that 47 million people in about 500 cities of over 10,000 showed an average of 88.7% (of the milk) came from tuberculin-tested cows, as opposed to 68.1% in 1927 (*Milk Control*, 3, citing United States Department of Agriculture data).

Meckel, *Save the Babies*, is especially good on the different types of milks, see

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(continued from page 7)

esp. p. 81 (pasteurized, sterilized or "cooked") and pp. 82-83 (certified milk, which was raw milk certified as pure by physicians). On the certified milk movement, see Meckel, esp. 82-91; and the excellent discussion in J.H. Wolf, *Don't Kill Your Baby: Public Health and the Decline of Breastfeeding in the 19th and 20th Centuries*, Ohio State University Press, Columbus, OH, 2001, 172-175.

7. Gudeman is referring to the lack of legislative standards regulating Chicago's milk supply. J.H. Young, *Pure Food: Securing the Federal Food and Drugs Act of 1906*, Princeton University Press, Princeton, NJ, 1989, chronicles the national struggle to regulate food production, as does M. Okun, *Fair Play in the Marketplace: The First Battle for Pure Food and Drugs*, Northern Illinois University Press, DeKalb, IL, 1986. See also T. Pegram, *Partisans and Progressives. Private Interest and Public Policy in Illinois, 1870-1920*, University of Illinois Press, Urbana, IL, 1992; and J. W. Leavitt, *The Healthiest City: Milwaukee and the Politics of Health Reform*, Princeton University Press, Princeton, NJ, 1982 on, respectively, local complications, and the complicated mingling of politics with the food supply. Meckel, *Save the Babies*, is also helpful.

Wolf, *Don't Kill Your Baby*, chapter 2, esp. 50-65, provides the following summary of the attempts in Chicago to regulate milk via ordinance:

1877: City requires milk dealers to be licensed

1892: Declared illegal to feed swill or slops to dairy cows within the city limits

1893: First pure milk ordinance "with any teeth" (p. 56) established Bureau of Milk Inspection

1908: Evans Pasteurization Ordinance is the first Chicago law to require testing of cows housed within the city limits for tuberculosis

1912: Milk sold in Chicago must be in sealed bottles with the milking date stamped on the seal

1914: Chicago Commissioner of Health issues an emergency decree, that all milk sold in Chicago be pasteurized

1926: Pure Milk Ordinance orders that all city milk be obtained from cows certified to be tuberculosis-free

8. P. Duis, *Challenging Chicago. Coping with Everyday Life, 1837-1920*, University of Illinois Press, Urbana, IL, 1998, refers specifically to formaldehyde (137, note 74). Leavitt, *Healthiest City*, 170, reminds us of the use of annatto dye in the milk supply, while Meckel, *Babies*, and Young, *Pure Food*, tells of a whole host of adulterants (but note

Meckel, 260, where he questions reformers claims regarding adulterants.) Young tells us that adulterants that went into milk, cream, candy, sausage, hamburger steak, fish, and bulk oysters were actually marketed under names such as Freezine, rosoline, and Preservaline (Pure Food, 142-143). Preservaline was mainly salicylic acid; Freezine was mainly sodium sulfite, and Freezum, another preservative used by canners and bottlers primarily, was a dilute solution of formaldehyde (Pure Food, 111). Wolf, *Don't Kill Your Baby*, 50-51, tells us of the watering of milk distributed to the poor, as well as of the host of additives.

Pegram, *Partisans and Progressives*, 47, notes that: "The most dangerous adulteration of milk, that with formaldehyde preservatives, was for the most part the work of city milk dealers." He tells us that in 1906 there began an earnest campaign against adulterated milk, led by the Chicago Department of Health (see 46-47).

Annatto dye is prepared from annatto seeds, and is still used as a yellow food coloring in butter, margarine, cheese and oils; it is not considered harmful, but can be used to disguise the presence of adulterants.

9. On John H. Long, see note 3 above. Prof. Haines was Dr. Walter Haines, who, like Long and Hoskins, was one of the founders of the ACS/CS. Dr. Walter S. Haines was a specialist in toxicology and the chemistry of food and drugs. His illustrious career included service with the Illinois State Food Standard Commission and the Illinois State Commission on Occupational Diseases. A professor of chemistry at Northwestern University from 1873 to 1876, he was later a professor at Rush Medical College. See J. McKeen Cattell, Ed., *American Men of Science. A Biographical Dictionary*, 2nd edition, The Science Press, New York, NY, 1910, 191.

10. Meckel, *Save the Babies*, 81, gives us the useful reminder that "What we now call 'pasteurization' — that is, the process in which milk is heated to a temperature of approximately 145 degrees F (62.8 degrees C), held there for approximately thirty minutes and then rapidly cooled to below 50 degrees F" was perfected in the early 20th century. In the 1860's, he adds, Pasteur heated wine and beer to temperatures between 158 degrees F and 178 degrees F, thereby killing off harmful microbes. Also see Wolf, *Don't Kill Your Baby*, 61.

The first commercial pasteurization of milk and cream in Chicago was probably around 1901. See "Beginnings of Pasteurization in Illinois," *Bull. Dairy Res. Bur.*, May 1, 1940, 17, 49-50. The

author of this article, who signed himself on H.A.H., notes that in 1901 Sidney Wanzer & Sons Dairy used the Potts Pasteurizer: "So far as we have been able to learn this was the only commercial pasteurizer then in use in connection with the Chicago [milk and cream] supply."

11. E. Gudeman, "Raw and Pasteurized Milk and Milk Serums," *Ill. Med. J.*, April 1911, 417-435, and R. A. Black, "A Sanitary Milk Supply for Cities from a Medical Standpoint," in *Ill. Med. J.*, April 1911, 436-439, followed by discussion on pp. 439-440.

12. See Gudeman, "Raw and Pasteurized Milk," and discussion.

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The 2004 Regional Meetings committees are gearing up for a busy spring season. The call for papers and online abstract submittal will begin shortly after the new year. All abstracts accepted for regional meetings will become part of the CAS databases, just as those for ACS national meetings.

The spring 2004 meetings include the Central Regional Meeting, June 2 - 5, Indianapolis, Indiana; and the joint Rocky Mountain/Northwest meeting, June 6 - 9, in Logan, Utah. Visit the ACS Office of Regional Meetings website to link with all the 2004 meetings for more details at [www.chemistry.org/meetings/regional/](http://www.chemistry.org/meetings/regional/). Some very exciting programming has been planned; so plan on being part of it.

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**March 19, 2004:** The Chicago Section American Chemical Society's monthly dinner meeting. The College Education Committee is also sponsoring an undergraduate research symposium prior to the monthly dinner meeting. More information as the date approaches.

**March 24, 2004:** Society of Cosmetic Chemists — Midwest Chapter Supplier's Day, Teamworks 2004. For details, go to [www.midwestscc.org](http://www.midwestscc.org) or contact Angela Tabor at [atabor@stepan.com](mailto:atabor@stepan.com), (847) 784-2040.

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**April 13, 2004:** Society of Cosmetic Chemists — Midwest Chapter meeting will be at the Café La Cave, Des Plaines, IL. For details, go to [www.midwestscc.org](http://www.midwestscc.org) or contact Angela Tabor at [atabor@stepan.com](mailto:atabor@stepan.com), (847) 784-2040.