



THE FILTER PRESS

Newsletter of the Georgia Section of the American Chemical Society

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November, 2002

Characterization of Effects of Cosmetic Products on Human Hair and Skin *Dr. Charles Garber*

The scanning electron microscope has developed into an important tool for characterizing the effects of cosmetics products on human hair, skin, and fingernails. For hair work, using a specially devised stage for a scanning electron microscope, the same identical areas of a hair shaft can be photographed as before and after pairs. The scanning electron micrographs are taken without the use of the normally applied metal coating of gold. With these techniques, it is possible to demonstrate (1) product substantiality, (2) conditioning effect, and (3) the repair of damaged hair. The scanning electron microscope has also become an important tool for characterizing the effects of cosmetic products on stratum corneum as in vivo impressions, or "negative" replicas. The "negatives" are replicated again to produce "positives", which are then studied in the scanning electron microscope. Through the use of selected control subjects, it has been possible to define the differences between dry and normal skin, the former generally exhibiting larger uplifting desquamating layers (flakes) of stratum corneum. Experimental findings note that beneficial clinical effects are generally accompanied by a reduction in the amount and/or size of the desquamating material. Examples will be given for (1) moisturizing products, (2) protein additives, (3) abrasant cleansing products, and (4) moisturizing soaps. The effects, in some instances, are so subtle that unless the microscopy is done as before and after pairs on the same identical areas, the effects will not be recognized. Once good micrographs are obtained, it is sometimes possible to quantitate the results through the use of a quantimet image analyzing computer, a tool originally developed by a metallurgist but which has great potential for quantifying cosmetic effects. Computer-aided profilometry will be discussed as a technique of the future for the quantitative characterization of the positive replicas.

COLGA Meeting Highlights

compiled from contributions from Tom Netzel and Andrew Gibson

Our October COLGA joint meeting with AIChE was a resounding success both in terms of the number of ACS and AIChE members attending and in terms of audience enthusiasm and engagement with the speakers. We had the opportunity to hear and question some of our state and national representatives.

Johnny Isakson (GA 5th) began the evening's discussion and defended congress's recent action of increasing federal funding of education through block grants to the states. This process yielded only modest funds for the Math and Science Partnership program. Rep. Isakson said that his top education priority was to get poor students proper nutrition and to teach them to read. In the fifth year of this year's education bill, there would be more emphasis on science education. However, the current federal education funding program does not strongly support and encourage science and math education in any specific manner.

Also appearing was Commissioner William Clyburn from Senator Zell Miller's Washington office. Mr. Clyburn, Commissioner of the Interstate Commerce Commission under President Clinton, is an engineer and lawyer, and is Senator Miller's scientific advisor specializing in transportation and hazardous materials matters. Mr. Clyburn expressed a strong willingness to interact with scientists and encouraged us to provide legislators with hard data and facts whenever possible. He spoke about the vulnerability of our nation's chemical facilities to terrorist attack and therefore of our need to take precautions and raise our alertness in this area.

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Thursday, November 21, 2002 at Mary Mac's, Atlanta



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Jeff Schoenberg, a lawyer who heads Senator Max Cleland's Atlanta office, represented the senator. Mr. Schoenberg specializes in constituent service and keeps Senator Cleland informed as to the feelings and opinions of Georgians. In doing this he handles hundreds of phone calls and E-mails each day. He is particularly struck and concerned about the vast difference he sees in educational levels and living skills between rural Georgians and those residing in the metropolitan regions. In particular he gave us a candid discussion of how and why the Senate HELP committee is presently holding up the NSF budget increase (12%) that the Senate Appropriations committee has approved. The House Appropriations Committee's VA-HUD bill has approved a 13% increase for NSF.

Doug Teper, GA House Representative (asst. majority whip), gave an excellent review of education and technology funding in GA over the last 30 years. Mr. Teper was the sole representative from Georgia's state government. Representative Teper vigorously supports Governor Barnes's plan to lower the student/teacher ratio in K-12 grades. He noted that GA has ca. 150 school districts, a Commission of Education, and governor. Thus it is sometimes unclear who is responsible for education successes or failures. The system allows considerable finger pointing when failures are the issue. The picture for state technology funding is, however, very bright with GRA, Cancer Research, and Eminent Scholar programs all driving new research initiatives.

The meeting format allowed the audience to question each speaker immediately after his presentation and thus promoted lively discussion. Remarkably, the questions and answers were wonderfully clear of partisanship issues. Each panelist spoke about his beliefs without labeling them as Democratic or Republican. Thus the meeting was pleasant and exciting as well as informative. At the close of the meeting, Tom Netzel, who chairs the Georgia ACS COLGA committee, presented Jackie Schremmer and Andrew Gibson each with an ACS Outstanding Service Certificate in recognition of their work as "active participants in the activities of the Committee on Legislative and Government Affairs and as leaders who inspire other chemical professionals to become active citizen-scientists." If you are interested in meeting and communicating with your government representatives along with other ACS members, please contact Tom Netzel via E-mail at tnetzel@gsu.edu. The Georgia ACS section in collaboration with the national ACS Office of Legislative and Government Relations is planning a workshop on developing congressional visit skills in January 2003.

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November Meeting

Effects of Cosmetics on Human Hair and Skin

Dr. Charles Garber

Mary Mac's,
Atlanta, GA

Date: Thursday, November 21, 2002

Time: 6:30 - 7:00 p.m. Arrive
7:00- 8:00 p.m. Dinner
8:00- 9:00 p.m. Program

Dinner: Meat and Three Vegetables **OR** Four Vegetables.
Choice of Entrée: Baked Chicken with Cornbread Dressing and Gravy, Fried Chicken, Roast Pork with Dressing and Gravy, Country Fried Steak, Chicken and Dumplings, or Meatloaf with Tomato Sauce.
Choice of Vegetables: Creamed Corn, Fried Green Tomatoes, Turnip Greens, Sweet Potato Soufflé, Butter Peas, Green Beans, Macaroni and Cheese, Fried Okra, Cheese and Vegetable Soufflé, Whipped Potatoes and Gravy. Choice of Dessert: **Georgia Peach Cobbler or Banana Pudding**
Hot Breads; Coffee, Iced Tea or Fruit Punch

Location: Mary Mac's Tea Room
224 Ponce De Leon Ave.
Atlanta, GA
404-876-1800

Directions: Take North Ave. exit off I-75/85. Turn left and go three blocks to Peachtree Street. Turn left on Peachtree. Go one block and turn right on Ponce De Leon. Go three blocks to Myrtle Street, turn left on Myrtle and park behind the building on the right.

Cost: \$ 20.00 per person, full-time students with ID and high school teachers, \$15.00. Payment should be made to the **ACS Georgia Section** and will be collected at the door.

RSVP: Brian Fowler, Bridgestar Inc. 770-602-4222,
bstar1@bellsouth.net
When making reservations, please state your name, professional affiliation, and telephone number. **Reservation deadline is 5:00 PM on Tuesday November 19, 2002. If you make a dinner reservation but fail to attend, you must still make payment for your meal.**

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November Chair's Message

Well, once again we come to year's end. Not so long ago, January brought Dr. James Ferris, President of the Institute of Paper Science and Technology, to help us focus on Renewing Our Commitment to Chemistry in the 21st Century. March gusted in and brought Rosita Smith to yield some helpful insight on our careers. May brought with it the Herty Award celebration for Dr. Lanny Liebeskind of Emory University. September's light shone on some amazing chemistry in the dark...

Everywhere the ACS ventured this year it touched people...people with outstanding accomplishments in assorted fields of chemistry...people still in high school and college trying to decide on a career path...people responsible for furthering scientific policy in the vast expanse of government... and some people who would not know the difference between a flask and a test tube...but always people.

Let's build on the platform we have and move on to the future. Joe Stoner will take over as our new chairman in January. SERMACS is coming in November 2003 and bringing with it thousands of chemistry professionals from all over the Southeast. We will once again host our congressional representatives for a COLGA panel discussion. The year ahead will bring many new local and national speakers with interesting and assorted scientific backgrounds. The spotlight will again focus on our careers in the ever-changing chemical industry and the halls of academia, and we will work to secure the future through National Chemistry Week and other events ushering the next generation into the wonderful wide world of chemistry.

I wish you health and happiness. Take time for what is really important and enjoy your family and friends over the winter months. Let's come back refreshed and ready to get the ball rolling!
Brian

Last fall we began compiling an email list for the Georgia section in order to provide the Filter Press electronically to as many members as possible. Our goal remains to get everyone who has an email address onto this distribution list. Please assist us by emailing your name to bstar1@bellsouth.net. Type "ACS Electronic Mail" in the subject line so we can easily identify members. Thank you for helping to make us more efficient so we can better serve you.

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